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Heart, Health, & Life

Mohsin Masud Jan
Editor

Some people think heart failure means the heart has stopped working. But what is it really?
Heart Failure is a condition in which the pumping ability of the heart becomes limited, leading to a reduced supply of blood to the rest of the body for normal functions. It is a grave diagnosis; however, it does not mean that the heart has stopped working. It describes a weak heart that needs support for survival. It can occur at any age but most commonly occurs in older people who have a history of angina, heart attack, hypertension and diabetes. Heart failure needs active treatment and lifestyle changes to prolong survival and improve quality of life.

The prevalence and burden of Heart Failure: The patients of heart failure should know that they are not alone. Approximately 26 million of the adult population worldwide has heart failure.
Heart Failure can be a deeply burdensome condition. It is one of the most common causes of hospitalization for people over the age of 65. After being discharged from the hospital, the HF patients are still at risk. Nearly a quarter of discharged patients will be readmitted within a month and mortality during this month can be up to 10%. Nearly 44% of the discharged patients are readmitted within the first year after discharge. And each hospitalization increases the chances for future hospitalizations. This can put severe mental and social strain on the patients and their families; and once you add the cost of the hospitalizations, it places an enormous economic burden as well.
HF carries a high risk of mortality as well; approximately 50% of the patients die within 5 years of diagnosis. So as you can see, a diagnosis of heart failure should not be taken lightly. It is vital that the condition be managed properly.

Causes of Heart Failure: There are a number of causes for heart failure.
Coronary artery disease (CAD) is the most common cause of heart failure. CAD occurs due to the accumulation of fatty deposits and narrowing of the arteries that supply blood to the heart. When blood supply to heart is blocked, the heart gets damaged. The damaged heart can result in heart failure.
Other risk factors that can progress to heart failure are:
- Any previous episode of heart attack that has caused damage to heart muscles
- Congenital Defects in the heart
- High blood pressure
- Valvular Heart disease
- Cardiomyopathy
- Infection of the heart and/or heart valves
- Abnormal heart rhythm (arrhythmias)
- Being overweight
- Diabetes
- Thyroid problems
- Alcohol or drug abuse
- Certain types of chemotherapy
- Failure to take preventive medications
- Diet (excessive salt or fluid intake)

The Symptoms of Heart Failure: Symptoms are due to the inadequate pumping function of the heart. They can be as seen below.
- Breathlessness on exertion or at rest.
- Swelling of the lower limbs
- Chronic lack of energy
- Difficulty sleeping at night due to breathing problems
- Swollen or tender abdomen with loss of appetite
- Cough with frothy sputum
- Increased urination at night
- Confusion and/or impaired memory
Because of these symptoms, the patients can also experience depression, social isolation, limited ability to travel, to socialize, and to go shopping; they can be unable to take part in recreational activities. It can further lead to a negative effect on personal relationships.

Managing Heart Failure: The first step in managing heart failure for healthcare professionals is its proper diagnosis and then to evaluate etiology or the cause behind it. They need to go through an initial clinical assessment including a careful history for symptoms, and a thorough physical examination to assess signs, and then ordering appropriate investigations like echocardiography, chest x-ray and ECG and other tests to finally confirm the clinical diagnosis.
After that, the clinician focuses on specific management strategies to improve functional capacity and the patient’s quality of life. Preventing
hospital admissions and reducing mortality are also management objectives. There are multiple drugs available with different modes of action to take care of heart failure patients in achieving the above mentioned objectives which heart failure specialists use according to patients clinical condition; this is the key behind successful management to choose right drug at right time.

The doctor may change therapies according to patient situations, reassess symptoms, and consider additional therapies as needed. If the patient shows no improvement despite optimal medical therapy, device or surgical intervention may be offered to some patients.

**The patient’s role in managing Heart Failure:** The patient’s and their family’s role is just as important as the doctor’s in the management of heart failure. The patient must take the medicines as prescribed and not make changes to the regimen without consultation. If patients experience side effects, they should inform their doctors promptly so they can make the required adjustments. The patient must maintain a healthy lifestyle by correcting diet, exercising every day, quitting smoking and stopping other unhealthy activities.

Some heart failure patients reduce their level of activity to avoid experiencing symptoms anymore. However, this can fool the patient and the doctor into thinking that the patient is getting better; the patient must be honest about their condition and remain positive about their outlook. The patient’s family should be there at every step of the way, encouraging the patient to eat healthily, to exercise, and to maintain medication regimens. The family’s presence will help keep the patient motivated to take better care of themselves.

Heart failure is a progressive condition, meaning it gets worse with time. This happens even if the patient starts to feel better after start of their appropriate management. Therefore, if the patient wishes for a healthier future, they should stick to the treatment advised and remain motivated for a healthy lifestyle.
Frequency and Outcome of Congenital Heart Disease in admitted Patients in Pediatric Department PMCH

Ali Akbar Siyal¹, Naseer Ahmed Memon¹, Juverya Naqvi¹ and Imran Ilahi Soomro²

ABSTRACT

Objective: This study was done to look at the frequency and outcome of children diagnosed with congenital heart disease at our setup.

Study Design: Retrospective study

Place and Duration of Study: This study was conducted at the Pediatric Unit of PMCH Nawabshah from November 2016 to October 2017.

Materials and Methods: Files of patients who were diagnosed with congenital heart disease were collected and data was retrieved regarding age, gender, type of congenital heart disease, and outcome (discharge, discharged on request, left against medical advice, referred and expired).

Results: Total patients admitted in ward 10554 from November 2016 to October 2017, of these patients 118 were diagnosed as having congenital heart disease. Ages ranged from 4 days to 10 years. Male were 56.7% and females 43.2%. Of these 118 congenital heart disease patients, 42(35.6%) were having cyanotic heart disease, rest of the 76(64.4%) patients have acyanotic heart disease. Out of these 57 patients were discharged, 21 patients were discharged on request, 12 patients were left against medical advice, 11 patients were referred and 17 patients expired.

Conclusion: Authors concluded that the congenital heart diseases are one of the common birth defects, with a significant mortality. Hence there is a high need of special diagnostic and treatment facilities for such patients in our setup.

Key Words: Congenital, CHD, cyanotic, acyanotic

INTRODUCTION

Congenital heart disease can be defined as structural abnormality of heart itself or of major vessels that is present since birth¹. Its incidence in the developed countries is stated to be 8/1000 live births², however this prevalence rate does not take in account the regional differences. In our country there have not been any population based studies to show exact prevalence of congenital heart disease or its percentage among overall birth defects, so only hospital based studies are available which only reflect the cases which are presented as inpatients or outpatients for treatment³. In past years the survival of children with congenital heart disease was not good but as the research improved and better palliative and corrective treatment options were made available, resulting in the adults now outnumber the children in terms of congenital heart defects⁴. But increased survival is not free from complications like heart failure and arrhythmias⁵ both of which can be a disease manifestations of CHD or a side effect of treatment, and it is also observed at some centers that while some patients are waiting for corrective cardiac surgeries in conditions like tetralogy of Fallot, transposition of great vessels or other cyanotic heart lesions there is an overall increased risk for neurological complications as well like stroke⁶. So generally outcome of patients largely depends on the type of heart defect (acyanotic/cyanotic), the severity of the condition (critical PS, Transposition of great arteries with intact septum), the age of patients at presentation (neonates presents with severe forms of congenital heart defects) and eventually the facility (basic health units VS tertiary care centers or specific cardiac hospitals) where the child is seeking care as there are only few centers in our region are equipped with state of the art facilities to deal with severe or complex congenital heart disease. Few studies have shown that the gestational age has an inverse relationship with the mortality in babies with congenital heart disease, that babies who are born in early preterm period have high
mortality, and decrease mortality is seen in babies born between 34-40 weeks of gestation. Worldwide the natural history of congenital heart disease has changed; researchers are working on the primary prevention of congenital heart disease by intervening in expectant mothers. These interventions are yet to be followed in our setup and all the regions so we are still looking at the high burden of congenital disease here. Furthermore, it is stated in literature that one of the factors that might affect the prevalence or reporting of a particular condition like congenital heart disease is highly dependent on the diagnostic facility available in that area like fetal echocardiography, pediatric echocardiography, saturation studies etc, and the expertise level of technical staff that operates there. As the general reporting and treatment facilities have been made available in peripheries recently in our country, so definitely the prevalence of various congenital heart diseases has also increasingly reported thus affecting the overall prevalence. Our current study was also an attempt to look at the records of cases of congenital heart disease in our patients to see the prevalence, the type of CHD and their outcome.

MATERIALS AND METHODS

This is a retrospective study which was done at pediatric unit of PMCH Nawabshah. Files of patients who were diagnosed with congenital heart disease were collected and data was retrieved regarding age, gender, type of congenital heart disease, and outcome (discharge, discharged on request, left against medical advice, referred and expired).

RESULTS

Total patients admitted in ward 10554 from November 2016 to October 2017, of these patients 118(1.1%) were diagnosed as having congenital heart disease (Figure-1). Ages ranged from 4 days to 10 years, Males were 56.7% and females 43.2% of the cases (table-1).

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DISCUSSION

The current study was done to evaluate the frequency and outcome of patients who are diagnosed as having congenital heart disease at Paeds ward PMCH Nawabshah, in our hospital there was no specific pediatric cardiac facilities at the time this study was conducted. In our study the frequency/prevalence of patients with congenital heart disease was 1.1% (118) out of total 10554, if we compare our prevalence with the global prevalence which is 8/1000 live births (0.8%), this difference is probably because our study population is limited and does not depict the whole population.
population. In a study from India the overall prevalence of congenital heart disease in their study population was also 0.8%\textsuperscript{13}. The gender distribution trends that we observed in our study were stating that the mortality was higher in males as compared to females, this could either support the evidence that there was a higher male patient ratio as compared to females or because studies have been done that also supports that the mortality and morbidity is increased in male counterparts\textsuperscript{12,14}. We made another observation in our patients that the babies diagnosed in early neonatal life with CHD were less as compared to children that were diagnosed beyond neonatal age; this same finding is seen in a study from India\textsuperscript{15}. In our patients acyanotic heart disease was more common 63.55%, and cyanotic heart disease was seen in 33.9%, in a study from Jordan the percentage of patients with acyanotic heart disease was 74% and cyanotic heart disease was 26%.\textsuperscript{16} The overall mortality rate in our admitted patients in ward was 14.4%, in United States the overall heart failure related mortality is 7%\textsuperscript{17}, but this study is a population based study and therefore the study population was much larger compared to our study which is a hospital based study with a very small cohort of patients. Another study by Engelfriet and colleagues\textsuperscript{13} was done to evaluate the mortality in both sexes in adult congenital heart disease patients has shown that overall morbidity and mortality was higher in adult male as compared to female patients (not dependent on pregnancy state) expressing the privileges of protective effects of female hormones, but this effect of course will not be responsible for the decrease mortality in females of paediatric age group

**CONCLUSION**

Authors concluded that the congenital heart diseases are one of the common birth defects and pose a significant mortality burden on inpatient departments. Therefore specific strategies should be chalked out in expectant mothers to decrease the prevalence of congenital heart disease in newborns, because once the babies are born the mortality and morbidity is higher.

**Author’s Contribution:**
- **Concept & Design of Study:** Ali Akbar Siyal
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- **Data Analysis:** Juverya Naqvi, Imran Ilahi Soomro
- **Revisiting Critically:** Ali Akbar Siyal, Naseer Ahmed Memon
- **Final Approval of version:** Ali Akbar Siyal

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

**REFERENCES**


Sofosbuvir Plus Daclatasvir in Chronic Hepatitis C Genotype 3 Naïve Patients

Rahman ud Din¹, Shah Zeb¹ and Muhammad Arshad²

ABSTRACT

Objective: To see the response rate of chronic hepatitis C Genotype 3 Naïve patients to combination of sofosbuvir and daclatasvir.

Study Design: Prospective observational study

Place and Duration of Study: This study was conducted at the Hepatitis control programme, Medical B unit, Mardan medical complex teaching hospital Mardan from August 2017 to July 2018.

Materials and Methods: Seventy adult eligible both male and female Hepatitis C genotype 3 Naïve patients were included in the study. Sofosbuvir 400mg and Daclatasvir 60mg daily for 12 weeks were given to patients. Patients were tested for absence of detectable HCV RNA by PCR at the end of treatment and 12 weeks after the completion of treatment to look for sustained virological response at 12 weeks.

Results: A total seventy chronic Hepatitis C genotype 3 naïve patients received treatment with sofosbuvir 400mg and Daclatasvir 60mg for 12 weeks. All patients completed treatment. Out of seventy patients, thirty nine (55.71%) were female and thirty one (44.29%) were male. The average age of the patients included in the study was 45.6 years. Patients were classified on the basis of APRI score into two categories. In 52 (74.28%) patients the APRI score was <2 and in 18 (25.72%) patients the APRI was > 2, which shows cirrhosis. The end of treatment response was 98.57 % (69). Only one patient was non responder. The sustained virological response rate was 97.1 % (67) and only two (2.9%) patients were relapsed. Both patients have APRI score > 2 were cirrhotic in relapse group. The overall response rate in cirrhosis liver was 88.8 % (16).

Conclusion: Combination of sofosbuvir plus Daclatasvir for 12 weeks in chronic hepatitis C naïve patients was associated with high rates of sustained virological response at 12 weeks.

Key Words: chronic hepatitis C, Sofosbuvir, Daclatasvir

INTRODUCTION

Chronic Hepatitis C infection affects approximately 130- 150 million people worldwide¹. It is the major cause of cirrhosis and HCC². Hepatitis C has six major Genotypes designated 1-6. Genotype 3 is the most common genotype in Pakistan³ and it is the second most abundant genotype in the world⁴. In Pakistan the prevalence rate of chronic hepatitis C is 4.9% in general population⁵. About 79% patients have genotype 3⁶. The prevalence of chronic HCV infection is 1.1% in KPK.⁷ Hepatitis C causes both acute and chronic hepatitis.

Approximately 15% of patients with acute hepatitis C will spontaneously clear the virus and 85% of patients will develop chronic Hepatitis C⁸. In chronic HCV, the risk of cirrhosis is 15-30% over 20 years⁹. The risk of HCC in person with cirrhosis is approximately 2-4% per year¹⁰. Hepatitis C is the leading indication for liver transplantation¹¹. So to prevent these complications and control the disease, there is need for safe and effective treatment. Standard therapy for HCV infection from late 1990s was a combination of peg interferon and ribavirin. A sustained virological response rate to peg interferon plus ribavirin was 70-80% in genotype 3 patients¹². Treatment with peg interferon based therapy was associated with frequent side effects and high (10-14%) discontinuous rate¹³. The recent introduction of oral direct acting antivirals (DAAs) increased the SVR rate to more than 90 %. DAAs recommended for the treatment of HCV is registered in Pakistan at a reasonable price. These drugs with better cure rates and lessor side effects should be considered for the treatment of HCV patients in our country. The sofosbuvir and Daclatasvir are available in our hepatitis control programme OPD free of cost. We observe the response rate of HCV patients to sofosbuvir plus daclatasvir combination therapy.

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MATERIALS AND METHODS

This study was conducted at Mardan medical complex Mardan from August 2017 to July 2018, involving patients attending medical and hepatitis control program OPD in Mardan Medical Complex teaching hospital Mardan. Seventy adult eligible both male and female Hepatitis C genotype 3 Naïve patients were included in the study. Sofosbuvir 400mg and Daclatasvir 60mg daily for 12 weeks were given to patients. Patients were tested for absence of detectable HCV RNA by PCR at the end of treatment and 12 weeks after the completion of treatment to look for sustained virological response at 12 weeks.

RESULTS

A total seventy chronic Hepatitis C genotype 3 naive patients received treatment with sofosbuvir 400mg and Daclatasvir 60mg orally for 12 weeks. All patients completed treatment. Out of seventy patients, thirty nine (55.71%) were female and thirty one (44.29%) were male. The median age of the patients included in the study was 45.6 years. Patients were classified on the basis of APRI score into two categories. In 52 (74.28%) patients the APRI score was <2 and in 18 (25.72%) patients the APRI was >2 which shows cirrhosis. Liver biopsy not done because it is an invasive procedure and fibro scan is not available in our set up. The end of treatment response was 98.57 %(69). Only one patient was non responder. The sustained virological response rate was 97.1%(67) and only two (2.9%) patients were relapsed. Both patients have APRI score >2 were cirrhotic in relapse group. The overall response rate in cirrhosis liver was 88.8%.16.

DISCUSSION

We observe the response rate of sofosbuvir plus Daclatasvir in Chronic hepatitis C genotype 3 naive patients. The goal of treatment is to cure HCV infection in order to prevent complications like cirrhosis, decompensation and HCC and improve quality of life and also prevent further transmission of HCV. The endpoint of treatment was an (SVR12) sustained virological response at 12 weeks after the completion of treatment. SVR 12 is defined by undetectable HCV RNA in the serum at 12 weeks after the end of therapy (16). An SVR corresponds to cure of HCV infection and it reduces the rate of decompensation and will also reduce but not abolish the rate of HCC. Assessment of liver disease severity is necessary prior to treatment, it will identify patients with cirrhosis. We used noninvasive methods instead of liver biopsy to assess liver disease severity. We use aspartate amino transferase to platelet ratio index (APRI). It in simple, cheap and noninvasive and the information it give is reliable17,18. On the basis of APRI score patients were divided into two groups, one with APRI score less than <2 and the other group with APRI score >2, shows cirrhosis. We used Sofosbuvir 400mg and Daclatasvir 60mg orally for 12 weeks Sofosbuvir is a nucleotide analogue HCV NS5B polymerase inhibitor while Daclatasvir is HCV NS5A replication complex inhibitor19, both of them have potent antiviral activity and pan genotypic coverage and are administered orally once daily. In our study the end of treatment response was 98.57 %(69). It was almost similar to ALLY-3 study by Nelson DR et al which shows 99% response rate at the end of treatment20. Only one patient was non responder. The sustained virological response rate was 97.1% (67) and only two (2.9%) patients were relapsed. Both patients were cirrhotic in relapse group. The overall response rate in cirrhosis liver is 88.8 % (16) as compared to ALLY-3 study which shows 63% SVR at 12 weeks, it may be because of small number of patients. The combination of sofosbuvir plus Daclatasvir was well tolerated with minimal side effects and associated with a favorable safety profile. The most common side effects were body aches, headache and easy fatigability. There was no severe side effect which can lead to discontinuation of the drugs. The response rate was higher in patients without cirrhosis (97.1%) as...
compared to cirrhotic (88.8%). Adding ribavirin and or extending treatment in cirrhosis will improve the durability of response.

CONCLUSION

Combination of sofosbuvir plus Daclatasvir for 12 weeks in chronic hepatitis C naive patients was associated with high rates of sustained virological response. It is well tolerated, efficacious, treatment option in genotype 3 naive patients

Author's Contribution:
Concept & Design of Study: Rahman ud Din
Drafting: Shah Zeb
Data Analysis: Muhammad Arshad
Revisiting Critically: Rahman ud Din, Shah Zeb
Final Approval of version: Rahman ud Din

Conflict of Interest: The study has no conflict of interest to declare by any author.

REFERENCES

Outcome of Combined Use of Topical Coconut Oil and Oral Gabapentin to Control Post-Operative Itching on Split Thickness Graft Donor Site

Husnain Khan1, Bilal Ahmed Qureshi1, Muhammad Waqas2 and Zulfiqar Ranjha1

ABSTRACT

Objective: To determine the efficacy of combined use of topical coconut oil with oral gabapentin to control post-operative itching on split thickness skin graft donor site.

Study Design: Descriptive case series

Place and Duration of Study: This study was conducted at the Jinnah Burn & Reconstructive Surgery Centre, Lahore from June 2014 to December 2015.

Materials and Methods: 65 patients having itching over donor site for split thickness skin graft after healing of the wound. Patients having Itch man’s score more than 2 were given topical coconut oil three times a day to massage over the donor area. At the same time, patient should use oral gabapentin 300 mg at night on first day, 300 mg 12 hourly on 2nd day and 300 mg 8 hourly on 3rd day. Itching was assessed after one week of start of therapy and efficacy was noted as yes or no.

Results: Efficacy (Itch man’s score is 0 after one week start of therapy) was seen in 41 (63.08%) patients while remaining 24 (36.92%) had shown no efficacy.

Conclusion: This study concluded that efficacy of combined use of coconut oil and gabapentin to control itching at donor site of split thickness skin graft is very high.

Key Words: split thickness graft, coconut oil, itching, gabapentin.

INTRODUCTION

Split thickness skin auto grafting is most widely used technique for covering deep burn wounds & extensive soft tissue defects. Itching has been reported to be one of the most distressing symptoms of healed donor grafted skin.1,2,3,4 It cause great distress in recovering patients affecting their ability to concentrate and thereby their ability to function well in everyday life. It may also disrupt sleep, which is vital to recovery after a major trauma and scratching may damage the newly developed skin. Itching during the early stages of healing is attributed to mast cell histamine release directly as part of the inflammatory response to injury and indirectly secondary to collagen formation during the proliferative stage of wound healing.5 The current management of itching relies on the use of emollients and sometimes oral antihistamines.6-7,8 Emollients exert their skin softening and moisturizing effect within the stratum corneum. They help to restore the epidermal barrier and thereby prevent the penetration of environmental triggers that may cause an inflammatory reaction.9 Emollients include menthol 11%, oatmeal based agents, calamine lotion, aloe and camphor and coconut oil. Hopper and colleagues presented a comparative study in 2012 between application of calamine oil and coconut oil. They used four points ‘Itch man score’ and found that coconut oil has more prolonged effect on itching than calamine oil. The coconut oil decrease itching from pre application ‘itch man score’ of 2+ to 0.74 to 0.73 after four hours of application.10

Gabapentin has been described in treatment of pruritus due to different causes in many studies.11,12 Gabapentin involves interaction with the alpha 2 and delta subunit of voltage-gated calcium channels and thereby inhibition of high-threshold neuronal calcium channels. Other proposed mechanisms of action include potassium channel activation to effect membrane hyperpolarization and selective agonism at GABA-
B receptors to inhibit excitatory neurotransmitter release\textsuperscript{13}. Effectiveness of gabapentin in post burn pruritus was described by Ahuja and colleagues\textsuperscript{14}. Goutos et al\textsuperscript{15} conducted a study in 2010 to compare different anti-pruritic efficacy in burn patients and found gabapentin produce ‘itch man score’ of 0 in 41.46\% of the patients.

Since, previous studies showed that the coconut oil is one of the most effective emollients to reduce itching but after its application still some of the patients felt discomfort. Similarly, gabapentin has also been successfully used to treat the given problem but a group of patients also felt pruritus after its usage. So, theoretically combined use of topical coconut oil and oral gabapentin should produce more comfort to the patient and improve their quality of life. As there was lack of literature on combined use of coconut oil at donor site and oral gabapentin to control post-operative pruritus, so we conducted this study in order to determine outcome of combined use of topical coconut oil and oral gabapentin to control itching at donor site of split thickness skin graft.

**MATERIALS AND METHODS**

This was a descriptive study conducted at Jinnah Burn & Reconstructive Surgery Centre, Lahore from 13 June 2014 to December 2015. Sample size of 65 cases had been calculated with 95\% confidence level, 12\% margin of error and taking expected efficacy as 41.46\%\textsuperscript{7} by using following formula.

\[
s = n = \frac{\text{Zc}(1-\alpha/2)\text{SP}(1-P) }{\text{d}^2}
\]

Itching was assessed by 5 points ‘itch man score’, (it is subjective score assessed by the patient) and score ≥2 was taken as positive.

0-represents a comfortable patient with no itch, 1- little itch not interfering with activity, 2-more itch sometimes interfering with activity, 3-a lot of itch, which makes lying still and concentration difficult, 4-most terrible itch making it impossible to sit still and concentrate.

After approval from the ethical committee, all the patients presenting in the outpatient department with complaints of itching over the donor site of split thickness skin graft were asked to categorize their itch according to “itch man’s score”. Patients with score of 2 or more, age between 12 to 60 years and of both genders were included in the study. Patients having score less than 2 or mentally retarded patients were excluded. After informed consent patient identification and demographic data was collected. Protocol for application of coconut oil and intake of gabapentin and assessment sheet to record itching scores before intervention and at 2, 4 and 6 hours after the treatment were explained to the patient. Topical coconut oil applied three times a day over the donor area and the application procedure include hand washing, donning gloves, exposing the affected area, cleaning of the area with sterile water, pat drying and application of lotion.

The validity of all these tools was established. At the same time, patient should use oral gabapentin 300 mg at night on first day, 300 mg 12 hourly on 2\textsuperscript{nd} day and 300 mg 8 hourly on 3\textsuperscript{rd} day and then continue the same dose for the subsequent period of time. Efficacy of treatment was assessed by 5 points ‘itch mans score as described above after one week start of therapy and efficacy was taken as yes if score = 0, otherwise taken as no. The collected data was entered and analyzed by using SPSS version 20.

**RESULTS**

Age range in this study was from 12 to 60 years with mean age of 35.66 ± 12.08 years as shown in Table I. Majority of them were males with male to female ratio of 1.8:1 as shown in figure 1. Percentage of patients according to donor site is shown in Figure 2. Efficacy was seen in 41 (63.08\%) patients while remaining 24 (36.92\%) had shown no efficacy as shown in figure 3. Stratification of efficacy with respect to age groups & gender has shown in Table 2 & 3 respectively which showed statistically no significant difference among different groups. Table 4 has shown the stratification of efficacy with respect to donor site which also showed statistically no significant difference among different groups.

**Table No.1:** Distribution of patients according to Age (n=65).

<table>
<thead>
<tr>
<th>Age (in years)</th>
<th>No. of Patients</th>
<th>%Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-30</td>
<td>21</td>
<td>32.31</td>
</tr>
<tr>
<td>31-45</td>
<td>31</td>
<td>47.69</td>
</tr>
<tr>
<td>46-60</td>
<td>13</td>
<td>20.0</td>
</tr>
<tr>
<td>Total</td>
<td>65</td>
<td>100.0</td>
</tr>
</tbody>
</table>

\textgreater  Mean ± SD = 35.66 ± 12.08 years

**Table No.2:** Stratification of Efficacy with respect to age groups.

<table>
<thead>
<tr>
<th>Age (in years)</th>
<th>Efficacy</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>12-30</td>
<td>14 (66.67%)</td>
<td>07 (33.33%)</td>
</tr>
<tr>
<td>31-45</td>
<td>19 (61.29%)</td>
<td>12 (38.71%)</td>
</tr>
<tr>
<td>46-60</td>
<td>08 (61.54%)</td>
<td>05 (38.46%)</td>
</tr>
</tbody>
</table>

**Table No.3:** Stratification of Efficacy with respect to Gender.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Efficacy</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Male</td>
<td>29 (69.05%)</td>
<td>13 (30.95%)</td>
</tr>
<tr>
<td>Female</td>
<td>12 (52.17%)</td>
<td>11 (47.83%)</td>
</tr>
</tbody>
</table>

**Table No.4:** Stratification of Efficacy with respect to donor site

<table>
<thead>
<tr>
<th>Donor Site</th>
<th>Efficacy</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Thigh</td>
<td>22 (59.46%)</td>
<td>15 (40.54%)</td>
</tr>
<tr>
<td>Buttocks</td>
<td>10 (66.67%)</td>
<td>05 (33.33%)</td>
</tr>
<tr>
<td>Back</td>
<td>06 (66.67%)</td>
<td>03 (33.33%)</td>
</tr>
</tbody>
</table>
Most of the patients with 3rd and 4th degree burns require split thickness skin graft. Donor sites for skin graft include thigh, buttocks, trunk and scalp. Donor sit of split thickness skin graft usually heals within two weeks. One of the complications of donor site, once it heal is itching. This may produce not only local discomfort, sleep disturbance, wound over the healing site due to scratch but also psychological disturbances. Although local emollients are widely used and overcome this problem, but some of the patients require antihistamine and other drugs such as gabapentin to reduce this pruritus.

The present study was conducted to assess the effectiveness of cumulative effect of topical coconut oil and oral gabapentin. In our study efficacy of combined use of topical emollient and oral gabapentin was seen in 41 (63.08%) patients while remaining 24 (36.92%) had shown no efficacy. Our results were contradictory to results shown by Hopper and colleagues. They presented a comparative study in 2012 between application of calamine oil and coconut oil. They found that 76.7% of their patients using only coconut oil were relieved of itching. There was a major difference in percentage of patients relieved of itching in our study (63.08%) and the study mentioned previously (76.7%). One of the possible reason for such a difference could be difference in male to female ratio in sample size. In our study, 64.62% of our patients were male and 36.92% were females. In study by Hopper and colleagues, 76.7% patients were male and remaining were females.

The relationship of gender to itch is still a controversial issue. In the present study no statistical significant relationship was found between gender and itching scores. But in an epidemiological study of itching conducted by Van Loeyet al it was demonstrated that the female gender developed more itching than their counterparts. The finding that women had higher itching scores cannot be explained without some speculation. One explanation could be that women are more prone to develop emotional problems than their counterpart and therefore associated with the reporting of persistent itching.

However, our results were very much better than study conducted by Goutos et al16. In 2010 they compared different anti-pruritic efficacy in burn patients and found gabapentin produce ‘itch man score’ of 0 in 41.46 % of the patients. Since, we used both topical emollient applications along with gabapentin instead of oral gabapentin alone as done by Goutos and colleagues, so combination of both topical and oral remedies produces a significant difference. The significant difference of 21.52% (63.08% in our study and 41.46% in other study) support rationale of our study that combined use topical coconut oil and oral gabapentin produces superior results.

There are studies which found some complications of gabapentin. A pilot study in 2004 investigated the use of gabapentin in 35 children aged between 6 months and 15 years with healing, intensely pruritic burns wounds17. There was marked reduction in itching. They found three children developed behavioral problems and in one this necessitated discontinuation of gabapentin. At follow-up, it was found that some
patients had stopped the drug as early as 4 weeks after starting treatment and others with hypertrophied wounds had taken it for up to 18 months. We did not record any such behavioral problem, incompliance or hypertrophic scarring after prolonged use. The possible reason should be that we excluded the children less than 12 years of age in our study. The drawback of our study was that there was no equal distribution of males and female gender. From the difference between our study and other, we recommend further studies should be performed with equal distribution of male to female ratio.

CONCLUSION

This study concluded that the efficacy of combined use of coconut oil and gabapentin to control itching at donor site of split thickness skin graft is very high. So, we recommend that combined use of coconut oil and gabapentin at donor site of split thickness skin graft should be opted in our routine practice guidelines for controlling post-operative itching and reducing the morbidity and of these particular patients. Moreover, further studies are recommended in which there should be equal distribution of males and females to rule out gender bias.

Author’s Contribution:
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Revisiting Critically: Husnain Khan, Bilal Ahmed Qureshi
Final Approval of version: Husnain Khan

Conflict of Interest: The study has no conflict of interest to declare by any author.

REFERENCES

**Frequency of Acute Complications of Pyogenic Meningitis in Children During Hospital Stay**

Farman Ullah Burki¹, Muhammad Ismail Khan² and Aftab Ahmad³

**ABSTRACT**

**Objective:** To determine the acute complications of pyogenic meningitis in children during hospital admission.

**Study Design:** Descriptive / observation Hospital based study.

**Place and Duration of Study:** This study was conducted at the Pediatrics Department DHQ Teaching Hospital D.I.Khan for a period of 01 year from March 2017 to February 2018.

**Materials and Methods:** 100 patients age 3 months to 12 years with clinical features of acute bacterial meningitis were included in study. Children with tuberculosis meningitis, VP shunt associated meningitis, mental retardation and age less than 3 months or more than 12 years were excluded from study. CSF analysis and C/S was done in call cases from pathology department of Hospital. Specific investigations were done for acute complications where they were needed which include serum electrolytes, Blood glucose, PT, APTT serum osmolarity, creatinine, CT brain. All patients were observed for acute complications for 14 days.

**Results:** Total 100 patients age 3 months to 12 year’s diagnosed as acute bacterial meningitis were included in study. Out of these 59% were male and 41% female. 50% were below 1 year age. 29% were between 1 to 5 year age while 21% were between 5 years and 12 years age. Acute complications were observed in 31% children. The various acute complications were, subdural effusion 15%, septic shock 5%, hemiparesis 6%, acute hydrocephalus in 2%, cerebral edema in 2% and cranial nerve palsy 1%. Subdural effusion, Hydrocephalus and cerebral edema was more Common below 1Year while cranial nerve palsy, hemiparesis and septic shock were more Common above 1 Year.

**Conclusion:** Acute bacterial meningitis is serious infection in children resulting in significant acute complication, mortality and morbidity. In next millennium our success will depend upon effective vaccination strategies which has reduced disease burden in developed countries.

**Key Words:** Acute bacterial meningitis, acute complications cerebral spinal fluid (CSF) hydrocephalus.

**Citation of articles:** Burki F, Khan MI, Ahmad A. Frequency of Acute Complications of Pyogenic Meningitis in Children During Hospital Stay. Med Forum 2019;20(1):14-17.

**INTRODUCTION**

Acute bacterial meningitis first recognized in 1805 is infection of leptomeninges and sub arachnoid space. A more descriptive term is meningocerehalitis as inflammatory process involves the meninges, sub arachnoid space, and the brain paranchyma. Worldwide two third of cases of acute bacterial meningitis occurs in children below 15 year age. So major burden is shared by pediatrician. In pediatric age group more than 75% cases occur below 5 year age. And out of these 50% cases occur below 1 year age.

Acute complication starting within few days of illness include cerebral oedema, Syndrome of inappropriate antidiuretic hormone secretion, septic shock, disseminated intra-vascular coagulation, subdural effusion, ventriculitis, cranial nerve palsy, hemiparesis, and status epileptics. Developmental retardation seizures, Delay in acquiring language, Visual impairment, behavioral problems, and hearing impairment are long term sequelae. Despite intensive care and therapeutic development the condition is still responsible for high rate of morbidity and mortality. It is among 10 major causes of mortality from infectious decease mainly in pediatric population.

Acute bacterial meningitis has a mortality of 8-20% with a relapse rate of 3-4%. 10-20% cases develop neurodevelopmental sequelae if not treated properly and promptly. In Pakistan 5000 deaths in infancy and almost twice as many handicap cases in infants occur each year due to this disease. Despite advances in prevention and medical management acute bacterial meningitis remains an important cause of mortality and morbidity which not only takes life of so many children...
but also live large number of them handicapped, crippled, deaf and blind, causing a lot of problems for family, community, as well as country.\textsuperscript{14,15}

MATERIALS AND METHODS

This descriptive hospital base study was carried out in department of pediatrics DHQ Hospital D.I.Khan form March 2017 to Feb 2018.\textsuperscript{10} Consecutive children’s age 3 month to 12 years with clinical features that were suggestive of acute bacterial meningitis and confirmed by CSF examination admitted in pediatric unit were included in study. Children’s less then 3 month or older than 12 years, children with tubercular meningitis, ventriculo-peritoneal shunt associated meningitis, children with mental retardation or other neurological disorder were excluded from study. Detailed history and physical examinations was carried out in all patient and all were subjected to cerebrospinal fluid analysis, including microscopy, gram staining, CSF culture and sensitivity. Specific test like CT Brain, Serum electrolytes, serum osmolarity PT/APTT, urea, creatinine were done in specific patient depending the complications where they were needed.

Standard treatment for acute bacterial meningitis was given to all patient for 14 days and were observed for acute complications for 14 days. Outcome of patient was noted in form of discharge, died, left against medical advice (LAMA) and shifted to other ward like neurosurgery for management of complications.

RESULTS

During these 1 year study the total number of admission to pediatric department of DHQ teaching Hospital D.I.Khan were 8050. Total number of patients enrolled were 100, comprised of 1.69\% of total admission in pediatric unit.

Out of these 100 patients with acute bacterial meningitis, 59\% patients were male and 41\% patients were female. 50\% patients were below the age of 1 year, 29\% patients were between 1-5 year age years. The greater percentage 79\% were 0.25 to 5 years age i.e. below 5 years age, 21\% patients were between 5 and 12 years. During the course of treatment, antibiotic were changed as per protocol in 25 patients (25\%). The added antibodies were vancomycin, cefazidime and meropenem.

Acute complications that were observed during observation time were:

- Subdural effusion in 15\% patients. 13\% patients were below 1 year: and 2\% patients were above 1 year. In 13 patients effusion resolved with conservative treatment while 2 patients were referred to neurosurgical intervention.
- Septic shock was seen in 5\% patients during the course of treatment. All receive aggressive treatment with antibiotics andInotrope agents coupled with supportive care.

Paraparesis were seen in 6\% patients with C.T. finding of either intracranial haematoma in 1\% patient, infarction in 2\% patients and ischaemia in 3\% patients. Hemiparesis and paraparesis was present with mild to moderate weakness at discharge. Acute Hydrocephalus was seen in 2\% patients that were below 6-months age and were referred to neurosurgical department and undergone ventriculo-peritoneal shunt. Cerebral edema was observed in 2 patients that responded to fluid restriction and osmotic diuretics. Cranial nerve palsy was seen in 1 patients (1\%), involving the 6\textsuperscript{th} bilaterally, that resolved in the hospital.

The overall frequency of acute complications in our study was 31\%, and subdural effusion was the most common complication, which occurred in 15\% patients. There was significant difference in acute complications in children below 1 year and above one year age. Subdural effusion, hydrocephalus and cerebral edema were common below 1 year age (P. value < 0.005), while hemiparesis, cranial nerves palsy and septic shock were more common above 1 year age (P. value - < 0.005).

Outcome: Out of 100 patient admitted with acute bacterial meningitis, 69\% patients were completely cured in the hospital and were discharged. 18\% patients died during the course of treatment i.e. day one to day 14. The frequency of acute complications was 31\% in this study. Three patients were discharged after 14 days observation in critical condition.

Table No.1: Acute complications during hospital stay.

<table>
<thead>
<tr>
<th>Complication</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subdural effusion / Empyema</td>
<td>15</td>
<td>15%</td>
</tr>
<tr>
<td>Hemiparasis + paraparesis</td>
<td>6</td>
<td>6%</td>
</tr>
<tr>
<td>Septic shock</td>
<td>5</td>
<td>5%</td>
</tr>
<tr>
<td>Cranial nerve palsy</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>Acute hydrocephalus</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>Cerebral oedema</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>Total</td>
<td>31</td>
<td>31%</td>
</tr>
</tbody>
</table>

n=100

Figure No.1:The Frequency Distribution of Complications
DISCUSSION
The total number of admissions in pediatric department during the study period were 5080 and acute bacterial meningitis accounted for 1.96% of all our pediatric hospitalizations during the study period. The mean age of presentation was 31.46 months similar percentage of hospitalization to the pediatric Unit due to acute bacterial meningitis has been reported in national and international studies. Ahmad I, et al reported a frequency of 1.7% of all Pediatric admission due to this disease in Pakistan while the international studies reported frequency of 1.5% by Chinchankar et al, 2.6 by Kabra et al17,18,19. The community prevalence in International studies is 3/100,000 in USA, Thirumoothi MC, 16/100,000 in UK, Fortnum HM, Davis AC, 45.8/10,000 in Brazil20,21.
In the present study the overall percentage of acute neurological complication is 31%. The various acute complication and their percentage in the present study is sub-Dural effusion (15%), Hemiparesis (focal neurological deficit) (6%) septic shock (5%), hydrocephalus 2%, cerebral Oedema (2%), cranial nerve palsy (1%). Similar and comparable acute complication has been reported in national and international study. A local study by Javaid BK et al, reported the same acute complications of meningitis in 29% of patient which is comparable to our study. In other study in India by Chinchankar N et al, the same acute complication were reported in 40% of patient which includes subdural effusion (18.5%), Hemiparesis (7.4%), Hydrocephalus and brain abscess (3.7%), cranial nerve palsy 5.5% and cerebral infarction (10.5%), which is comparable to our study which slightly increase intracranial nerve palsy and cerebral infarction, but overall similar results 18.
In other study in Yemen by Sallam AK et al, the overall acute complication reported were 23% and various acute complication were same as in our study. In another study by Sergio A et al in Brazil between 2003 and 2008 the overall acute complication percentage 38.6% and same acute complication has been reported 22. While another study Bari A, et al reported the same acute complication but with little lower percentage 17% and 19.4% into groups 22,23. And similar results were seen with 24% complications rate in a study in arch Dis child by Qazi SA et al, 24. But these little differences in various studies may be due to early or late presentation to hospital, local facilities available in hospital immunization status of patient and differences invaccination coverage in rural versus Urban areas that needs further studies and research.
In our studies there is significant difference in various acute complication in small and older children. Sub duration effusion, Hydrocephalus and cerebral Oedema were more common in children below 1 year as compared to older children (P. value < 0.005) while hemiparesis, septicshock and cranial nor palsy were common above in older children (P. value < 0.005).

CONCLUSION
Acute bacterial meningitis is serious infection in children resulting in significant acute complication, mortality and morbidity. In next millennium our success will depend upon worldwide scrutiny for pattern of antibiotic resistance, continuous development of new antimicrobials, more judicious use of drugs we already use and effective vaccination strategies which has reduced disease burden in developed countries.

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Revisiting Critically: Farman Ullah Burki,
Muhammad Ismail Khan
Final Approval of version: Farman Ullah Burki

Conflict of Interest: The study has no conflict of interest to declare by any author.

REFERENCES

Conflict of Interest: The study has no conflict of interest to declare by any author.

REFERENCES
4. L...
Analysis of Medico Legal Cases in Accident and Emergency Department of Ayub Teaching Hospital Abbottabad

Salma Shazia¹ and Amjad Farooq²

ABSTRACT

Objective: To find out the frequency of various categories of medico legal cases and major characteristics of the victims in Accident and Emergency Department of Ayub Teaching Hospital Abbottabad.

Study Design: Analytic study.

Place and Duration of Study: This study was conducted at the Departments of Forensic Medicine & Accident and Emergency, Surgical, Ayub Medical College Abbottabad. from January 2015 to December 2016.

Materials and Methods: The present study includes 2000 cases. Data was collected on proformas from the medico legal registers available in the casualty. The data was analyzed on SPSS 23.

Results: Among 2000 cases, 82.4% are males and 17.6% are females. 25.5% victims are less than 20 years of age. 54.1% are between 20-40 years age group. 17.5% belong to 40-60 years and 2.9% are above 60 years of age. Blunt weapons are the most common cause of injuries i.e. 70.7%, RTA 9.8%, Sharp weapons 5.8%, firearm injuries 4.9%, poisoning 3.8%, alcohol intoxication, sexual assault cases, burns and animal bite comprises 5% of the total cases. According to the opinion 32.4% victims suffer from S. Khafifia, 19.95% JGJ Damiyah, 7.1% S. Mudiah, 4.1% JGJ Mutalahima, 8.5% from multiple injuries, 3.6% from poisons.

Conclusion: Males are the usually sufferers of most of assaults. Maximum number of victims belong to 20-40 age group. Most of the injuries are caused by blunt weapons. Head and face area is mostly affected.

Key Words: Medico legal, Qisas and Diyat ordinance, Shajjah, Jurh

INTRODUCTION

The medicolegal system of Pakistan is basically the Police inquest system. Police investigates the crimes and seeks the help of the medical profession in relevant cases. Casualty medical officers and consultants not only treat the patients but also help the legal system of the country by acting as an expert witness in the court of law. Their duty is to examine, treat patients and issue medicolegal reports while dealing injured persons. Common medicolegal cases include road traffic accidents, physical assault cases, sexual assault cases and poisoning.¹ Law enforcing officers and sometimes victims themselves request the medico legal officer to issue an injury report which is needed to start legal proceedings. Here the doctors use their medical knowledge to identify the injuries, time of injury and causative weapon.¹

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Medico legal certificates are documentary evidence produced in the court of law. Rules for evidence in criminal law are very strict, hence the doctor is advised to give decisive opinion to prove or disprove any fact in question.²

Qisas and Diyat Ordinance 1991 amended in 1997 is the law dealing with the criminal offences in Pakistan. Legally the injury is defined as “any illegal harm caused to the mind, body, property and reputation of a person”, while hurt is defined as ‘any illegally injury, pain, harm, disease, infirmity to anybody, disable or dismember any organ or part of the body without causing death is said to have caused hurt to that person’.³

Hurt is divided into the following two sub classes

A. Itlaf e udw: Causimg of dismemberment, amputation, or severement of any organ or limb of body
B. Itlaf e salahyiat udw: Disfiguring or destruction of function or capacity of organ permanently

C. Shajjah: Hurtn on head or face which does not amount to itlaf-i-udw: Itlaf-i-salahyiat udw: it is classified into:

1. Khafifia: Hurtn without exposing the bone
2. Mudiah: Exposing the bone without fracture
3. Hashimah: Fracturing the bone without dislocation
4. Munaqqilah: Fracturing bone with dislocation
5. Ammah Fracturing skull and wound touch the membrane
6. Damighah Fracturing skull and membranes ruptured

D. **Jurh**: Hurt on part of body other than head and face which leave mark permanently or temporarily
1. **Jaiffah** Wound entering the body cavity of trunk (chest or abdomen)
2. **Ghayr-i-Jaiffah**: Jurh not amounting to jaifa
   1. Damiyah Rupturing of skin with bleeding
   2. Badiah Cutting of flesh without exposing the bone
   3. Mutalahmah Lacerating the flesh
   4. Mudihah Exposing of bone
   5. Hashimah Fracture without dislocation of bone
   6. Munaqilah Fracture with dislocation of bone
4. **Others/miscellaneous**
   1. Hurt by poisoning (section 337J)
   2. other injuries (section 337L-1, L-2)

Types and characteristics of the wounds found over the body of the victim indicate the type of weapons i.e, blunt, sharp, pointed, firearms, bombs, heat, corrosives etc. Classification of hurt on the basis of manner of infliction is:
1. Hurt by negligent driving.
2. Hurt by rash and negligent act.
3. Hurt by mistake / Khata.

While dealing a medico legal case the opinion required by the police is mostly based on the description of wound, involvement of the body part and the kind of weapon used. Healing and repair changes of the wounds, indicate approximately the interval between time of wound occurrence and medical examination.5

**MATERIALS AND METHODS**

A retrospective analysis of all the medico legal cases coming to the casualty department of Ayub Teaching Hospital from Jan 2015 till Dec 2016 was done from the available record.

A proforma was developed on which data was entered from medico legal registers. Data was analyse during SPSS 23. Only the living victims are included in this study. Deaths due to unnatural causes were not included.

**RESULTS**

![Figure No.1: Gender position](image)

According to our study, 1647(82.4%) cases are male and 343(17.6%) are the female victims.

<table>
<thead>
<tr>
<th>Table No.1: Detail of age-wise distribution cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>age group</td>
</tr>
<tr>
<td>1 to 20 years</td>
</tr>
<tr>
<td>21 to 40 years</td>
</tr>
<tr>
<td>41 to 60 years</td>
</tr>
<tr>
<td>Above 60 years</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

The age wise distribution shows a maximum number of cases among the adult age group i.e. 20-40 yrs it is 54.1% cases followed by 25.5% cases in less than 20 yrs of age.

<table>
<thead>
<tr>
<th>Table No.2: Frequency with percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
</tr>
<tr>
<td>Blunt</td>
</tr>
<tr>
<td>RTA</td>
</tr>
<tr>
<td>Sharp</td>
</tr>
<tr>
<td>Poisoning</td>
</tr>
<tr>
<td>FAI</td>
</tr>
<tr>
<td>Rape</td>
</tr>
<tr>
<td>Sodomy</td>
</tr>
<tr>
<td>Others</td>
</tr>
<tr>
<td>Multiple injuries</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

The most common area affected in the body is head and face area i.e. 32.4% injuries are documented on this part of the body. 19.95% injuries are noted on other parts of the body. Injuries found on both head and face area and the body comprises about 8.5% of the total cases. Radiologist opinion is required in 8.1% cases while 2.3 % cases are referred to dentistry, medicine, gynae and neurosurgery wards for management.

**DISCUSSION**

The mortalities and morbidities from all medico legal causes has been increasing at an alarming rate in our country and also throughout the world. One of the study shows that by the year 2020 mortality from communicable diseases will be less than those from injuries.4 Even than injuries are still not well recognized as a major public health problem in our country.5
Organized statistics about the types of medico-legal cases help in knowing the trend of occurrence of cases in that community.

Table No.3: Frequency with percentage

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>176</td>
<td>8.8</td>
</tr>
<tr>
<td>S. Khafifa</td>
<td>648</td>
<td>32.4</td>
</tr>
<tr>
<td>JGJ Mutalahima</td>
<td>82</td>
<td>4.1</td>
</tr>
<tr>
<td>S. Hashima</td>
<td>16</td>
<td>.8</td>
</tr>
<tr>
<td>Others</td>
<td>170</td>
<td>8.5</td>
</tr>
<tr>
<td>JGJ Damiyah</td>
<td>399</td>
<td>19.95</td>
</tr>
<tr>
<td>Poisoning</td>
<td>72</td>
<td>3.6</td>
</tr>
<tr>
<td>X-ray advised</td>
<td>162</td>
<td>8.1</td>
</tr>
<tr>
<td>Sodomy</td>
<td>18</td>
<td>.9</td>
</tr>
<tr>
<td>JurhJaifah</td>
<td>62</td>
<td>3.1</td>
</tr>
<tr>
<td>S. Mudiha</td>
<td>142</td>
<td>7.1</td>
</tr>
<tr>
<td>Referred</td>
<td>46</td>
<td>2.3</td>
</tr>
<tr>
<td>Rape</td>
<td>7</td>
<td>.4</td>
</tr>
<tr>
<td>Total</td>
<td>2000</td>
<td>100.0</td>
</tr>
</tbody>
</table>

According to our study, maximum cases of physical assault are noted among the male population which is in line with both national and international prevailing situations. About 54.4% cases were noted in 20-40yrs age group. This is almost the same finding done in other cities of the Pakistan and many other countries of the world.

According to WHO road traffic accidents will be the second most common cause of disability in the developing world. Our study shows that RTA falls second to the blunt weapon injuries. This is in contradiction with the study done in Rawalpindi and Nepal.

Most of the injuries are present on head and face area, followed by injuries on the other parts of the body. They are mostly scratches, abrasions and bruises. 3.1% cases shows penetration in a body cavity. 3.6% cases were received and treated for poisoning. 1.3% cases are of rape and sodomy collectively.

CONCLUSION

It is observed that most of the medico legal reports were deficient regarding the opinion of the injuries. No injury was declared according to Qisas and Diyat Ordinance. The police took help of the public prosecutors to interpret the injuries. Medico legal reports on hurts are medical documentary evidences, prepared by the medical practitioners, are very important for the courts in making their legal judgments. The type of wounds and weapons, legal categories of hurts and their ages must be specifically noted in the injury reports: Medicolegal training and experiences strengthen the abilities of the medical expert witnesses. There is an urgent emerging need to streamline forensic education, training and work standards in the country like in America and Great Britain.

Recommendations: The medical professionals dealing with medico legal work presently should be trained and certified through standardized training courses time to time to improve their participation in legal system.

Author’s Contribution:

Concept & Design of Study: Salma Shazia
Drafting: Amjad Farooq
Data Analysis: Amjad Farooq
Revisiting Critically: Salma Shazia, Amjad Farooq
Final Approval of version: Salma Shazia

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Frequency and Types of Common Gastrointestinal Parasitic Infestation in Hazara Pediatric Population

Hamayun Anwar¹, Irfan Khan², Khalid Khan², Zahid Irfan Marwat³, Anwar Khan Wazir⁴ and Muhammad Nadeem⁵

ABSTRACT

Objective: To determine the frequency and types of common gastrointestinal infestation in children of Hazara region, presenting with abdominal pain.

Study Design: Cross-sectional study

Place and Duration of Study: This study was conducted at the Ayub Teaching Hospital Abbottabad from January 2014 to December 2014.

Materials and Methods: In this study 273 children with abdominal pain of either gender and age range 5-15 years were included. A stool routine examination was advised and requested from the pathology department of Ayub Medical College Abbottabad.

Results: A total of 273(100%) patients were included. Our study shows that 66% children were in age ranged 5-10 years and 34% children were in the age range 11-15 years. Mean age was 10 years with SD ± 3.71. Fifty-eight percent of children were male, and 115(42%) children were females. The incidence of helminth infection in our setup was found in 218(80%) children in which 145(53%) children had Ascaris lumbricoides, 27(10%) children had Hymenolepis nana, 33(12%) children had Trichuris trichiura, 11(4%) children had Enterobious vermicularis, 2(1%) children had Taenia saginata.

Conclusion: Our study concluded that the incidence of helminthes infection in our setup was 80% in which the most common helminth was Ascaris lumbricoides 53%, followed by Hymenolepis nana 10% and Trichuris trichiura 12% presenting with abdominal pain.

Key Words: Frequency, Helminth Infections, Pediatric Population, Abdominal Pain


INTRODUCTION

Helminthic infections are sometimes included in the disease of the poor or the forgotten disease among 17 other prominent diseases with different etiology. These infections are prevalent in poor populations in the developing world. The soil-transmitted helminthic infections are among the seven diseases in the forgotten disease group which have been targeted by the WHO for prophylactic chemotherapy, and they predominantly affect children in the rural areas of many countries across the world¹,².

Although they rarely kill, helminths often cause chronic infections and the impact on human health through effects on nutrition leading to growth retardation, vitamin deficiencies, and reduced cognitive function. Hookworm infection is a major cause of iron-deficiency anemia in endemic areas³. The threecrucial soil-transmitted helminth infections; hookworm, ascariasis, and trichuriasis are the commonsource of infestation in man. The gastrointestinal tract of children living in a developing country is likely to be parasitized with at least one or in some instances, by all three soil-transmitted helminths, with resultant impairments in physical, intellectual, and cognitive development. The benzimidazole antihelmintics, mebendazole, and albendazole are commonly used to remove these infections. The use of these drugs is not limited to treatment of symptomatic soil-transmitted helmith infections, but also for large-scale prevention of morbidity in children living in endemic areas⁴.

Anorexia is one of the most important mechanisms through which gut nematode infections can lower nutritional status. This anorexia and diminished food intake associated with parasitic infections can be extremely important in affecting child growth⁵.

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   Email: dirifankhan1984@gmail.com

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The parasitic infestation raises the morbidity and mortality in the pediatric population of tropical countries. Its prevalence in children varies in different regions of the world. It is unusually high in poor and developing countries due to the use of contaminated drinking water, inadequate sanitary conditions, and poor personal hygiene. The prevalence among pre-school children has also been documented. This is dominant in rural and urban areas of Pakistan, causing significant morbidity in children.

In addition to reducing the incidence or prevalence of disease, improvements in water and sanitation can be expected to affect other aspects of health. When infection rates diminish by chemotherapy as the case for some parasitic diseases water and sanitation facility prevented infection rates from increasing again to pretreatment level.

Irrespective of the presence of symptoms, the helminthic infection has been associated with the presence of malnutrition, anemia, and susceptibility to developing other infectious diseases. Besides, general malaise, abdominal pain, and weakness are also shared with a soil-transmitted helminthic infection. When present, these infections not only impair intellectual and physical development in the early years of life but also cause a loss of economic productivity in adult life and sometimes result in disability. Naturaly, children of an endemic community can be expected to have a parasitic intestinal infection right after weaning and are prone to re-infection in the rest of life. Presently, literature lack any local studies that have determined the prevalence of helminth infection in children with abdominal pain in Abbottabad pediatric population. This study has been designed to determine the prevalence of helminthic infection in children aged 5-15 years who present with abdominal pain to the outpatient department and wards of Pediatrics, and surgical, of Ayub Teaching Hospital Abbottabad. This study will allow us to investigate the prevalence of common helminthic infections and to assess the gravity of this problem in our community.

MATERIALS AND METHODS

This cross-sectional study was conducted at the outpatient department of pediatrics, and surgical and respective wards of Ayub Teaching Hospital Abbottabad over a duration of one year. In this study, total sample size was 273 patients were observed by using 77% prevalence of helminthic infections in school going children, 95% confidence interval and 5% absolute precision. Consecutive non-probability sampling technique was used for sample collection. In this study children with abdominal duration pain, either gender and in aged range 5-15 years were included. While Children with abdominal pain due to other diseases, e.g., gastritis, appendicitis, pancreatitis, intestinal obstruction, intussusceptions, children with abdominal due to functional gastrointestinal disorders, children with worm infection and any concomitant abdominal disease were excluded from the study. It was conducted after approval from hospital ethical and review board. All patients meeting the inclusion criteria were included in the study. An informed written consent was obtained from parents before enrolling the patients into this study. Children presenting to OPD with a history of abdominal pain were included in the study. A stool R/E were advised and requested from the pathology department of Ayub Medical College Abbottabad. It was performed by a pathologist having a minimum of five years’ experience, and the type of helminth infection was noted by the trainee researcher him/herself. All data were analyzed in SPSS version 10. Mean ± SD was calculated for continuous variables like age. Frequencies and percentages were calculated for nominal/ordinal variables like gender, helminthic infection, and type of helminth present. Stratification was respect to age and gender was done. Post-stratification Chi-square test was applied. \( P \leq 0.05 \) was taken as significant.

RESULTS

In this study age distribution among 273 children was analyzed as 180(66%) children were in age ranged 5-10 years while 93(34%) children were in the age range 11-15 years. Mean age was 10 years with SD ± 3.71. Gender distribution among 273 children was analyzed as 158(58%) children were male while 115(42%) children were females. (table no 1).

Table No. 1: Gender and Age Distribution (n=273)

<p>| Mean age, 10 years with SD ± 3.71 |</p>
<table>
<thead>
<tr>
<th>Categories</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>158</td>
<td>58%</td>
</tr>
<tr>
<td>Female</td>
<td>115</td>
<td>42%</td>
</tr>
<tr>
<td>Total</td>
<td>273</td>
<td>100%</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-10 years</td>
<td>180</td>
<td>66%</td>
</tr>
<tr>
<td>11-15 years</td>
<td>93</td>
<td>34%</td>
</tr>
<tr>
<td>Total</td>
<td>273</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table No. 2: Types of helminth, (n=218)

<table>
<thead>
<tr>
<th>Types of Helminth</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ascar lumbricoides</td>
<td>145</td>
<td>53%</td>
</tr>
<tr>
<td>Hymenolepis nana</td>
<td>27</td>
<td>10%</td>
</tr>
<tr>
<td>Trichuris trichhura</td>
<td>33</td>
<td>12%</td>
</tr>
<tr>
<td>Enterobius vermicularis</td>
<td>11</td>
<td>4%</td>
</tr>
<tr>
<td>Taenia saginata</td>
<td>2</td>
<td>1%</td>
</tr>
<tr>
<td>Total</td>
<td>218</td>
<td>80%</td>
</tr>
</tbody>
</table>

Table No. 3: Stratification of helminth infection with age (n=273)

<table>
<thead>
<tr>
<th>Helminth Infection</th>
<th>5-10 years</th>
<th>11-15 years</th>
<th>Total</th>
<th>( P ) value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>145</td>
<td>73</td>
<td>218</td>
<td>0.6874</td>
</tr>
<tr>
<td>No</td>
<td>35</td>
<td>20</td>
<td>55</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>180</td>
<td>93</td>
<td>273</td>
<td></td>
</tr>
</tbody>
</table>
Ascaris lumbricoides, 10% children had infection while 55(20%) children did not have helminth infection. Type helminth among 218 children was analyzed as 145(53%) children had Ascaris lumbricoicdes, 27(10%) children had Hymenolepis nana, 33(12%) children had Trichuris trichhura, 11(4%) children had Enterobious vermicularis, 2(1%) children had Taenia saginata. (Table no 2)

The researchers found that the prevalence of helminthic infection was 77.31% in school going children. They reported that the most common helminth was Ascaris lumbricoides (53.29%) followed by Hymenolepis nana (20%), Trichuris trichhura (10%) and Taenia saginata (0.59%). Another report from Pakistan suggests that while helminthic infections are common in children with ages between 5 and 14 years, they represent about 12% of the total disease burden in the pediatric population. The reported prevalence of helminthic infections in school going children was 66% with a higher prevalence for Ascaris lumbricoicdes (45.5%) followed by Hymenolepis nana (8%) Enterobious vermicularis (4%), Hookworms (3.5%), Whipworms (3.5%) and Tapeworms (1.5%). In one study 30% of food handlers were found to have a parasitic infestation. This is similar to results reported from Sudan on food handlers which showed that 29.4% were harboring intestinal protozoa in stool samples, Giardia lamblia in 9.7% and Entamoebahhistolytica in 4.3%.

DISCUSSION

Helminthic infections are sometimes included in the disease of the poor or the forgotten disease among 17 other prominent diseases with different etiology. These infections are prevalent in poor populations in the developing world. The soil-transmitted helminthic infections are among the seven diseases in the forgotten disease group which have been targeted by the WHO for prophylactic chemotherapy, and they predominantly affect children in the rural areas of many countries across the world.

Our study shows that 66% children were in age ranged 5-10 years and 34% children were in the age range 11-15 years. Mean age was 10 years with SD ± 3.71. Fifty-eight percent of children were male, and 42% children were females. The incidence of helminth infection in our setup was found in 80% children in which 53% children had Ascaris lumbricoides, 10% children had Hymenolepis nana, 12% children had Trichuris trichhura, 4% children had Enterobious vermicularis, 1% children had Taenia saginata. The researchers found that the prevalence of helminthic infection was 77.31% in school going children. They reported that the most common helminth was Ascaris lumbricoicdes (53.29%) followed by Hymenolepis nana (20%), Trichuris trichhura (10%) and Taenia saginata (0.59%). Another report from Pakistan suggests that while helminthic infections are common in children with ages between 5 and 14 years, they represent about 12% of the total disease burden in the pediatric population. The reported prevalence of helminthic infections in school going children was 66% with a higher prevalence for Ascaris lumbricoicdes (45.5%) followed by Hymenolepis nana (8%) Enterobious vermicularis (4%), Hookworms (3.5%), Whipworms (3.5%) and Tapeworms (1.5%). In one study 30% of food handlers were found to have a parasitic infestation. This is similar to results reported from Sudan on food handlers which showed that 29.4% were harboring intestinal protozoa in stool samples, Giardia lamblia in 9.7% and Entamoebahhistolytica in 4.3%.

The parasitic infestation reported in Afghanistan is 47.2%, Caribbean Island 43.5%, Nepal 66.6% and Bangladesh 53%. The frequency of parasitic infestation was 81% with predominantly Ascaris lumbricoides (48%) in a study from Abbottabad 14.

In a study conducted in Swat, Pakistan, the proportion of different helminthic infestation fecal-positive specimens was; Entamoeba histolytica (4.36%), Trichuris trichura (19.1%), Enterobius vermicularis (8.25%), Ascaris lumbricoides 39.8%, Ancylostoma duodenale (3.64%), Taenia saginata (12.8%), Hymenolepis nana (10.1%), and Giardia species (1.69%) 15. In a study done in Nigeria showed 49.7% intestinal helminthes with Ascaris lumbricoides, 64.4% hookworm 10.9% and Trichuris trichuriai 1.1% cases. In the same study, 41(23.6%) children with polyparasitism. 33 of them were positive both for hookworm and Ascaris lumbricoides 16.

In an endemic area, Ascariasis is the most prevalent parasitic infestation and accounts for about 10% of such admissions in the emergency department. Hepatobiliary and pancreatic ascariasis account for about 10% of such admissions 17. Nishihara et al. studied the northern areas of Pakistan, and concluded with 19% Ascaris lumbricoides 18. Similarly in Uganda, 55.9% of children were infected with hookworm, Ascaris lumbricoides or Trichuris trichiura. The incidence of A. lumbricoides was 17.9%, T. trichiura was 7.3% and hookworm 44.5% 19.

In addition to HIV infection, intestinal helminth infection may be one of the risk factors for the development of active pulmonary TB. This finding may have important implications in the control of TB in endemic helminth areas of the world 20.

CONCLUSION

Our study concludes that the incidence of helminth infection in our setup was 80% in which the most common helminth was Ascaris lumbricoides 53%, followed by Hymenolepis nana 10% and Trichurus trichiura 12% presenting with abdominal pain.

Author's Contribution:
Concept & Design of Study: Hamayun Anwar
Drafting: Irfan Khan, Khalid Khan
Data Analysis: Zahid Irfan Marwat, Anwar Khan Wazir, Muhammad Nadeem
Revisiting Critically: Hamayun Anwar, Irfan Khan, Khalid Khan
Final Approval of version: Hamayun Anwar

Conflict of Interest: The study has no conflict of interest to declare by any author.

REFERENCES


Prevalence and Pattern of Anemia in Children in Age Group 1 to 5 Years in Tertiary Care Hospital Nawabshah
Juverya Naqvi\(^1\), Ali Akbar Siyal\(^1\), Tabinda Taqi\(^2\) and Naseer Ahmed Memon\(^1\)

ABSTRACT

Objective: To determine the prevalence of anemia and its pattern amongst the admitted patients of age group 1 year to 5 years.

Study Design: Descriptive study

Place and Duration of Study: This study was conducted at the Department of Paediatrics, PMCH Nawabshah from January 2018 to June 2018.

Materials and Methods: A total of 556 of patients were admitted with the diagnosis of anemia within the desired age range i.e. in age group of 1 to 5 years.

Results: Total admitted patients in age range of 1 to 5 years during January 2018 to June 2018 were 7445, out of these 556(7.46%) were found to be anemic. The male patients were 389 (69.7%), and female patients were 167 (30%). Regarding the distribution in age groups; 1-2 years age group had 331 (59.53%), 2-3 years 96 (17.2%), 3-4 years age group had 72 (12.94%), and 4-5 years of age group had 47(8.45%) patients. 56 (10%) patients had severe anemia, 157 (28%) had moderate anemia, while 343 (61.7%) had mild anemia. On peripheral smear and hemoglobin indices 469 (84.35%) had microcytic picture, 45 (8.09%) had normocytic, 31(5.57%) had macrocytic, and 11 (1.97%) had dimorphic picture.

Conclusion: Authors have concluded the finding again that anemia is still a large burden over pediatric population, which needs to be addressed promptly and some thorough research should be done on preventing strategies.

Key Words: anemia, microcytic, peripheral smear

INTRODUCTION

Anemia is defined as a reduction of the hemoglobin concentration or red blood cell (RBC) volume below the range of values occurring in healthy persons\(^1\). Women of reproductive age and children are among the most affected population, with an estimated 1.6 billion people being anemic globally\(^2\). The World Health Organization has set reference cut-off points for normal populations, and defined that it is a public health problem when the prevalence of anemia is >20% in a given population, and a prevalence of >40% indicates a grim health issue\(^3\). Anemia in children has many risk factors and associations including both micro and macro environment around the child, especially in pre-school aged children anemia has been a proven impact on cognition, mental health and IQ and immunity\(^4\). Regarding the classification of Anemia, one is based on the morphology of red blood cells, and thus categorizes the anemia in three types as microcytic, macrocytic and normocytic\(^1\). The reason/causative factors as stated already are many including nutritional\(^5\), maternal intake/iron levels, worm infestation, other parasitic infections\(^6\), loss of blood (gross and microcytic), hemolysis\(^7\), chronic illnesses, drugs, agents that suppress the bone marrow, genetic causes and some other rare genetic anemia as well. Independent of the cause the need to treat anemia is even greater in children as the development of brain is highly dependent on the nutritional status including the micronutrient deficiencies which also contribute to low hemoglobin levels\(^8\). Although the general consideration is that anemia in children is primarily a problem of under developed and low income countries as the 65% of anemic population is in south east Asia\(^9\) which is only second to Africa\(^10\) but studies from developed countries has also shown that anemia in school aged children is an important predictor of morbidity\(^11\).

MATERIALS AND METHODS

This descriptive study was conducted in Paeds ward of People’s University hospital for a period of 06 months,
from January 2018 to June 2018. A total of 556 patients were recruited in this study. These patients were included on the basis of detailed history, clinical examination, and basic investigations were done. The parameters specifically noted are socioeconomic status, pica, worm infestation, nutritional status especially daily intake. Causes of familial/inherited anemia were inquired. A Detailed systemic examination was done. Blood samples were taking through venipuncture, blood was sent in EDTA tube. Anemia was labelled if hemoglobin was less than 11mg/dl as per WHO criteria. Further workup was done for specific etiology of anemia in all specific cases. But those findings and results are beyond the objectives of this study.

RESULTS

Our Current study showed that amongst all 7445 admitted patients in age range of 1 to 5 years during January 2018 to June 2018, out of these 556(7.46%) were found to be anemic [Figure-1]. The male patients were 389 (69.7%), and 167 (30%) were female patients [Figure-2]. Regarding the distribution in age groups; 1-2 years age group had 331 (59.53%), 2-3 years 96 (17.2%), 3-4 years age group had 72 (12.94%), and 4-5 years of age group had 47(8.45%) patients [Table-1].

The most common clinical manifestation was pallor, present in all 100% of patients, behavioral changes like irritability was reported in 165(29.67%), listlessness was seen in 162 (29%), history of pica was found in 122(21.94%), worm infestation was found in 116(20.8%).

Out of 556 patients, 56 (10%) patients had severe anemia i.e. hemoglobin less than 5gm/dl, 157 (28%) had moderate anemia i.e. hemoglobin equals to 8gm/dl, and 343 (61.7%) had mild anemia with hemoglobin level of greater than 8gm/dl. [Table-3].

On peripheral smear and hemoglobin indices 469 (84.35%) had microcytic picture, 45 (8.09%) had normocytic, 31(5.57%) had macrocytic, and 11 (1.97%) had dimorphic picture. [Table-4]

DISCUSSION

Anemia is a significant problem of almost all age groups, especially children and women, with global prevalence of almost quarter of world’s population. Authors have found the frequency of anemic patients in the age group of 1-5 years of age was 7.46%. Globally about 47.4% of children under five are suffering from anemia. Some of the population based studies have shown a greater prevalence in different under developed countries. Population based studies from Ethiopia showed prevalence 66.6%, from Bangladesh 60%, in Nepal 69%, and from Ghana 84.3%. Ours was a hospital based study, which does not represent the actual picture of whole population, so there is obvious difference in frequency of anemic patients.

Themale: female ratio in our study was 2:1. Some of the other studies replicate this male predominance as well. Studies from Tanzania and Brazil found that sex difference have no association with presence and absence of anemia. The possible explanation for this discrepancy could possibly be due to state of rapid growth of male children in the first months of life which increases their micronutrient requirement including iron. Highest percentage of anemic patients was seen among the age group of 1 to under 2 years of age (59.53%), a study from Haiti also showed that the highest prevalence of anemia (92%) was seen amongst

### Table No.1: Age Distribution of Patients (n=556)

<table>
<thead>
<tr>
<th>Age in Years</th>
<th>Number of Patients</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2 years</td>
<td>331</td>
<td>59.53%</td>
</tr>
<tr>
<td>2-3 years</td>
<td>96</td>
<td>17.2%</td>
</tr>
<tr>
<td>3-4 years</td>
<td>72</td>
<td>12.94%</td>
</tr>
<tr>
<td>4-5 years</td>
<td>47</td>
<td>8.45%</td>
</tr>
</tbody>
</table>

### Table No.2: Symptomatology of Patients

<table>
<thead>
<tr>
<th>Clinical manifestation</th>
<th>Frequency</th>
<th>%age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pallor</td>
<td>556</td>
<td>100%</td>
</tr>
<tr>
<td>Irritability</td>
<td>165</td>
<td>29.67%</td>
</tr>
<tr>
<td>Listlessness</td>
<td>162</td>
<td>29%</td>
</tr>
<tr>
<td>Pica</td>
<td>122</td>
<td>21.94%</td>
</tr>
<tr>
<td>Worm infestation</td>
<td>116</td>
<td>20.8%</td>
</tr>
</tbody>
</table>

### Table No.3: Severity of Anemia According To Hemoglobin

<table>
<thead>
<tr>
<th>Hemoglobin level</th>
<th>Frequency</th>
<th>%age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severe anemia</td>
<td>56</td>
<td>10%</td>
</tr>
<tr>
<td>Hemoglobin level &lt; 5gm/dl</td>
<td>157</td>
<td>28%</td>
</tr>
<tr>
<td>Moderate anemia</td>
<td>343</td>
<td>61.7%</td>
</tr>
<tr>
<td>Hemoglobin 5-8 gm/dl</td>
<td>116</td>
<td>20.8%</td>
</tr>
<tr>
<td>Mild anemia</td>
<td>116</td>
<td>20.8%</td>
</tr>
<tr>
<td>Hemoglobin &gt;8 gm/dl</td>
<td>556</td>
<td>100%</td>
</tr>
</tbody>
</table>

### Table No.4: Picture on Peripheral Smear

<table>
<thead>
<tr>
<th>Peripheral smear</th>
<th>Frequency</th>
<th>%age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microcytic</td>
<td>469</td>
<td>(84.35%)</td>
</tr>
<tr>
<td>Macrocytic</td>
<td>31</td>
<td>(5.57%)</td>
</tr>
<tr>
<td>Normocytic</td>
<td>45</td>
<td>(8.09%)</td>
</tr>
<tr>
<td>Dimorphic</td>
<td>11</td>
<td>(1.97%)</td>
</tr>
</tbody>
</table>
children less than 2 years of age, this finding was again supported by another study, which was done in Bangladesh\(^\text{18}\).

The most common symptom that was seen in all patients was presence of pallor; this exact finding is replicated in a study from Lahore\(^\text{19}\) and Indonesia\(^\text{20}\). History of irritability was seen in 165 (29.67%) patients, listlessness was seen in 162 (29%), history of pica was found in 122 (21.94%), studies have shown that behavior changes are associated with anemia in children \(^\text{21}\), in our study worm infestation was found in 116 (20.8%), in a study from Nepal the overall prevalence of intestinal parasites was 31.5\(^\text{22}\), and a study done in rural Karachi shows prevalence of 47.5\(^\text{23}\).

Out of 556 patients, 56 (10%) patients had severe anemia i.e. hemoglobin less than 5gm/dl, 157 (28%) had moderate anemia i.e. hemoglobin equals to 8gm/dl, and 343 (61.7%) had mild anemia with hemoglobin level of greater than 8gm/dl. On peripheral smear and hemoglobin indices 469 (84.35%) had microcytic picture, 45 (8.09%) had normocytic, 31 (5.57%) had macrocytic, and 11 (1.97%) had dimorphic picture. In studies there have been findings supporting ours that the most common picture on peripheral smear is microcytic anemia\(^\text{24}\).

**CONCLUSION**

Our study has highlighted the finding again that anemia is still a large burden over pediatric population, which needs to be addressed promptly and some thorough research should be done on preventing strategies.

**Author’s Contribution:**

Concept & Design of Study: Juverya Naqvi

Drafting: Ali Akbar Siyal

Data Analysis: Tabinda Taqi, Naseer Ahmed Memon

Revisiting Critically: Juverya Naqvi, Ali Akbar Siyal

Final Approval of version: Juverya Naqvi

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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Effects of Inter Professional Education on First Year Medical Students: A Qualitative Analysis
Seema Nadeem¹, Marium Riaz², Mohd Abdullah Qazi¹, Neelofar Shaheen¹, Anila Riyaz² and Shagufta²

ABSTRACT

Objective: To evaluate the effects of Interprofessional Education (IPE) on first year medical students and to obtain recommendations for its successful implementation.

Study Design: Thematic approach to Qualitative analysis

Place and Duration of Study: This study was conducted at the Women Medical College (WMC) Abbottabad from August-October 2018.

Materials and Methods: Participants were female medical students of 1st year who had already attended a few sessions of IPE with other healthcare students as nursing, pharmacy and physiotherapy. Semi-structured interviews were undertaken individually to explore the perceptions of the students related to IPE. Quantitative analysis of the data was achieved through the process of coding and transcription.

Results: Findings of the study suggest that medical students have different perceptions about IPE which may influence its implementation. Most of the students acknowledged the positive impact of IPE in developing good relations and communication with other health professionals for successful teamwork. A few students thought that IPE was a waste of time as doctors held a more important role than other health carers. Some of the reasons for this as obtained from our study and critical literature review were higher merit and fee for entry in medical school, longer study duration, competitive specialist exams and higher salaries and posts than others.

Conclusion: Majority of students found IPE to be a beneficial experience and recommendations for its implementation as early in medical career were given as this would help in realizing the role of other health carers. Further strategies should be recommended for the successful implementation of IPE for good teamwork and collaborative practice in healthcare settings.

Key Words: Medical students, Interprofessional Education, Healthcare teamwork

INTRODUCTION

Interprofessional education (IPE) is an activity that involves two or more professions who learn interactively together to improve collaboration and the quality of care.¹ It has been identified as an important pedagogical approach for preparing health profession students to provide patient care in a collaborative team environment.²³

World Health Organisation ⁴⁻⁵ has declared that health professionals should be educated to deliver patient-centered care as members of an interdisciplinary team. Certain guidelines for IPE implementation have also been defined by the Centre for the Advancement of Interprofessional Education.⁶

Poor team work among healthcare professionals can result in delayed treatment or even demise of the patient.⁷ Team work and collaboration between physicians, nurses and other health care professions increases awareness of each other’s type of knowledge and skills, leading to improved patient care and safety. Poor interpersonal relationships may often exacerbate poor team working in certain situations.⁸ It has been seen that good teamwork enhances quality of patient care, lower costs, decrease patients' length of stay, and reduce medical errors.⁹

It is necessary to detect and prevent any negative developing perceptions early in healthcare careers which can become barriers to the successful implementation of IPE and team work. The objectives of this study were to critically review literature and conduct interviews from medical students on different aspects of IPE.
MATERIALS AND METHODS

A qualitative approach was chosen for this study as the aim of the study was not to test or verify theory which a quantitative approach does, but to explore the perceptions of students about IPE. The method of analysis chosen for this study was thematic analysis as this is the most widely used Qualitative approach to analysing interviews. An invitation email was sent out of which 25 students were randomly selected and consent taken. Sample size of participants depended on saturation which was achieved after conducting interviews of 15 students. Inclusion criteria included female first year medical students of WMC age range between 18-20years. Exclusion criteria consisted of male students, below 18 or above 20yrs, not being a first year medical student of WMC. Semi structured interviews of nearly 30 minutes were conducted and recorded in the college. The interviews were about IPE topics, experience with other health professional students, advantages and disadvantages of it and suggestions for improvement. All the data collected has been anonymised. Ethical approval letter was provided by the college.

RESULTS

Table No.1: Theme 1 Experience of IPE of participants.

<table>
<thead>
<tr>
<th>Participants</th>
<th>Theme 1: Experience of IPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A good experience of interaction and shared lectures.</td>
</tr>
<tr>
<td>2</td>
<td>In a session with nursing and pharmacology students, there was a common task in which everyone shared their knowledge.</td>
</tr>
<tr>
<td>3</td>
<td>Had a BLS course together which had too much interference.</td>
</tr>
<tr>
<td>4</td>
<td>We had group activity sessions with nurses, physiotherapy and pharmacy students in which we shared each other’s knowledge.</td>
</tr>
<tr>
<td>5</td>
<td>I appreciate it but it was not real, only for time being.</td>
</tr>
<tr>
<td>6</td>
<td>It reminded us that others also have knowledge of patient care.</td>
</tr>
<tr>
<td>7</td>
<td>Was not very beneficial.</td>
</tr>
<tr>
<td>8</td>
<td>Initially we all have same level of knowledge so no perceptions about being doctor but with time I think this will change.</td>
</tr>
<tr>
<td>9</td>
<td>A good experience of interaction with nurses, physiotherapy and pharmacy students.</td>
</tr>
<tr>
<td>10</td>
<td>I think we all complete each other. Pharmacy students had knowledge about drugs and we had some knowledge of diseases.</td>
</tr>
<tr>
<td>11</td>
<td>Good experience. Pharmacy students knew drugs well, medical students talked about diseases and nurses about patient care.</td>
</tr>
<tr>
<td>12</td>
<td>An interesting experience with nurses, pharmacists and dieticians. Nurses thought medical students were intelligent.</td>
</tr>
<tr>
<td>13</td>
<td>A waste of time.</td>
</tr>
<tr>
<td>14</td>
<td>Usually as medics we assumed ourselves incharge of everything. IPE can change this perception.</td>
</tr>
<tr>
<td>15</td>
<td>A good experience and gain of knowledge.</td>
</tr>
</tbody>
</table>

The aims of the study were obtained from the findings of the study. All the data was analysed by a thematic approach to Qualitative analysis. The audio recordings of the interviews of 15 respondents were listened to a number of times for accurate transcription and were then transcribed verbatim as this is integral to the interpretation of verbal interviews. Three themes emerged from the study which were IPE experiences, advantages and disadvantages of IPE and recommendation for its improvement and have been mentioned in the following tables 1, 2 and 3. The 4th table represents analysis of the study.

Table No.2: Theme 2: Advantages / Disadvantages of IPE of participants.

<table>
<thead>
<tr>
<th>Participants</th>
<th>Theme 2: Advantages / Disadvantages of IPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Advantages: Earlier the better. If common lecture for all then useful. Disadvantage: None</td>
</tr>
<tr>
<td>2</td>
<td>Advantage: Gain of knowledge, a team from the start. Disadvantage: None</td>
</tr>
<tr>
<td>3</td>
<td>Advantage: The session should be relevant to our future career. Disadvantage: None</td>
</tr>
<tr>
<td>4</td>
<td>Advantage: IPE will help for good team working in future. Disadvantage: None</td>
</tr>
<tr>
<td>5</td>
<td>Advantage: Makes all equal at the levels of hierarchy. Breaks down barriers. Disadvantage: None</td>
</tr>
<tr>
<td>6</td>
<td>Disadvantage: extra classes</td>
</tr>
<tr>
<td>7</td>
<td>Advantage: If given a common task or group activity then more discussion and interaction together. Disadvantage: none</td>
</tr>
<tr>
<td>8</td>
<td>Advantage: Learning from peers and experience. Disadvantage: None</td>
</tr>
<tr>
<td>9</td>
<td>Advantage: To meet other people helps to build up a rapport which helps in future. Disadvantage: None</td>
</tr>
<tr>
<td>10</td>
<td>Disadvantages: I don’t find much gain, Its only a waste of precious time</td>
</tr>
<tr>
<td>11</td>
<td>Advantages: It helps to have a knowledge of others skills and capabilities. Disadvantages: None</td>
</tr>
<tr>
<td>12</td>
<td>Disadvantage: Too much unnecessary workload and distraction.</td>
</tr>
<tr>
<td>13</td>
<td>Advantage: All healthcare professions complete each other together and IPE makes us realize this. Disadvantage: None</td>
</tr>
<tr>
<td>14</td>
<td>Disadvantage: I cannot focus on my own profession by learning with other health professional students</td>
</tr>
<tr>
<td>15</td>
<td>Advantages: It helps us to learn and work alongside others from the start. Disadvantage: None</td>
</tr>
</tbody>
</table>

Table No.3: Theme 3: Recommendations for IPE Implementation

<table>
<thead>
<tr>
<th>Participants</th>
<th>Theme 3: Recommendations for IPE Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Earlier implementation of IPE would be useful for all.</td>
</tr>
<tr>
<td>2</td>
<td>We should have seminars together with clinical scenarios or ethical cases from the start.</td>
</tr>
</tbody>
</table>
DISCUSSION

This study explores the effects of IPE on first year medical students of WMC. The method of analysis was thematic approach to Qualitative analysis. Semi structured interviews were conducted, audio recorded, transcribed and analysed. Three themes emerged from the study findings and the aim of the research has been obtained from this.

Findings of the Study and Correlation to Literature Review: Theme 1: The first theme revealed that most of the students appreciated the concept and experience of IPE which helped them realize the importance of other healthcare fields. Most of them felt an increase in knowledge due to interaction with others. Some students did not find any common interest or goal in shared lectures. A few thought of it as a waste of time and a temporary event as all had different curricula and had to care for the patient from different aspects.

A study in which an IPE was conducted between medical and nurse students, was documented. The course focused on communication as a foundation for teamwork between nurses and physicians. They conclude that IPE supports professional communication and reduces hierarchies. Nursing and medicine are the two professions that carry highest responsibility for patient care and so learning of common goals should be together. This concept is similar to our findings of the study. Another study conducting experiences of students of IPE was done in 2013 in Sweden. A sample of 15 healthcare students participating in a two-week interprofessional clinical course was used. Students’ perceptions were found positive about IPE sessions. Perceptions of students in the above mentioned studies correlate with the findings in our study and generate positive results for IPE.

Theme 2: In this theme, the advantages and disadvantages of IPE have been highlighted by students. Most of them thought that IPE provides an insight of other’s skills and knowledge and would be successful for good teamwork for better patient care. All suggested that the sessions should be mainly focused on patient care. No harmful effects of an IPE session was the common opinion of students. Barriers to initiating IPE were highlighted which correlated with the literature including administrative issues, lack of resources and space, commitments of students and faculty members etc.

In one study the effect of IPE on healthcare students was conducted by evaluating a controlled trial eleven hour IPE programme focused on long-term conditions’ management. Pre-registration students from the disciplines of dietetics (n = 9), medicine (n = 36), physiotherapy (n = 12), and radiation therapy (n = 26) were allocated to either an intervention group (n = 41) who received the IPE program or a control group (n = 42) who continued with their usual curriculum. Results showed improved attitudes towards teamwork along with increased confidence, knowledge, and ability to manage people with long-term conditions.

Another study explored the current situation in the Dutch context and interviewed experts within medical education about their experiences with IPE. Using a strengths, weaknesses, opportunities, and threats (SWOT) analysis framework, they identified barriers and facilitators such as lack of a collective professional language, insufficient time or budget, stakeholders’ resistance, and hierarchy. Opportunities and strengths identified a collective vision for patient safety, and commitment of teachers. The barriers were related to the organisational level of IPE and the educational content and practice. In our study, students mostly appreciated IPE and thought that it breaks the barriers.

Table No.4: Analysis of Results

<table>
<thead>
<tr>
<th>Themes</th>
<th>Theme 1</th>
<th>Theme 2</th>
<th>Theme 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>IPE experience</td>
<td>Advantages and Dis-advantages</td>
<td>Recommendations of implementation</td>
</tr>
<tr>
<td>Students in favour of IPE</td>
<td>Positive 10/15 = 67%</td>
<td>Advantages 11/15 = 73%</td>
<td>Achieved 12/15 = 80%</td>
</tr>
<tr>
<td>Students not in favour of IPE</td>
<td>Negative 5/15 = 33%</td>
<td>Disadvantages 2/15 = 27%</td>
<td>Not achieved 3/15 = 20%</td>
</tr>
<tr>
<td>Results</td>
<td>% of positive experience: high</td>
<td>% of advantages of IPE was higher</td>
<td>Recommendations from most of students achieved</td>
</tr>
</tbody>
</table>

Students' perceptions were found positive about IPE sessions. Perceptions of students in the above mentioned studies correlate with the findings in our study and generate positive results for IPE.

Theme 2: In this theme, the advantages and disadvantages of IPE have been highlighted by students. Most of them thought that IPE provides an insight of other’s skills and knowledge and would be successful for good teamwork for better patient care. All suggested that the sessions should be mainly focused on patient care. No harmful effects of an IPE session was the common opinion of students. Barriers to initiating IPE were highlighted which correlated with the literature including administrative issues, lack of resources and space, commitments of students and faculty members etc.

In one study the effect of IPE on healthcare students was conducted by evaluating a controlled trial eleven hour IPE programme focused on long-term conditions’ management. Pre-registration students from the disciplines of dietetics (n = 9), medicine (n = 36), physiotherapy (n = 12), and radiation therapy (n = 26) were allocated to either an intervention group (n = 41) who received the IPE program or a control group (n = 42) who continued with their usual curriculum. Results showed improved attitudes towards teamwork along with increased confidence, knowledge, and ability to manage people with long-term conditions.

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between other health careers and is a step in the right direction.

**Theme 3:** In the third theme nearly all students suggested that earlier exposure and implementation of IPE would be beneficial to change any perceptions or stereo typical thoughts about each other. All agreed about the idea of having a brief knowledge and understanding of other’s role in patient care. Suggestions were given that the topics of IPE sessions should be relevant to their future careers and group activities to solve clinical scenarios should be encouraged. Educational trips together with others as nurses, pharmacists, physiotherapists and even paramedics were favoured.

In one study conducted between health professionals recommendations for effective IPE were to start the program earlier with simple concepts about other’s roles and to encourage teamwork in solving common clinical scenarios. Policy makers have supported IPE to help to improve collaborative work and practice for safe patient care.  

**CONCLUSION**

The collective view of the study indicated that IPE is for students to learn how to function in an interprofessional team and carry this knowledge, skill, and value into their future practice, ultimately providing patient care as part of a collaborative team focused on improving patient outcomes. Because learning how to communicate effectively and work together can be time consuming, teamwork within the context of medical curricula will make students better prepared. IPE initiatives can only reach their potential when parallel changes to improve the inter-professional culture will occur in health care settings. This represents perhaps the greatest challenge for the future of IPE, and will require collaborative effort from the health workforce at individual, organizational, and structural levels. Further studies need to be done on the perceptions of healthcare professionals about IPE and team working so that appropriate steps can be taken for the success of both.

**Recommendations:** Certain recommendations for IPE implementation as gathered from the findings of the study are as follows:

- IPE should be integrated into the curriculum as early as possible.
- Communication skills and social interaction between students from various healthcare background must be encouraged for successful teamwork and collaborative practices.
- Each professional group should have a basic knowledge of each other’s roles and skills through IPE sessions.
- Opportunities should be provided to work together as a team to solve clinical cases in clinical wards, meetings and seminars.

**REFERENCES**

Evaluation of Fingertip Blood Glucose Level after Handling Sweet Items and Various Methods of Hand Cleaning at a Tertiary Care Hospital in Southern Sindh

Shamsuddin Solangi¹, Prem Kumar Maheshwari¹, Muhammad Adnan Bawany¹, Saima Siraj¹, Shazia Kazi¹ and Sajjad Kazi²

ABSTRACT

Objective: To evaluate the effect on fingertip blood glucose level after handling sweet items and after various methods of hand cleaning.

Study Design: Observational / cross-sectional study.

Place and Duration of Study: This study was conducted at the Isra University Hospital Hyderabad, from July 2017 to December 2017.

Materials and Methods: Sample size was 154 cases. Informed consent was obtained from all enrolled subjects. Proforma was designed and filled for each subject. Data was analyzed on SPSS version 22. T test was applied for statistical significance.

Results: Gender distribution of patients in the study population male were 106 (68.8%), female 48 (31.2%). Most common age group was 18 – 30 year (41.6%), rural 72 (46.8%), urban 82 (53.2%). In the enrolled cases non-diabetics 118 (76.6%), diabetics 36 (23.4%). Mean of blood glucose level of the test fingertips - right hand middle finger (RHMF) and right hand ring finger (RHRF) in non – diabetics after washing with water was 97.76±17.86 mg/dl, 91.5±18.12 mg/dl respectively. Which was compatible to control fingertip – left hand middle finger (LHMF). Mean of blood glucose level of the test fingertips - RHMF and RHRF in diabetics after washing with water was 195.33±69.12 mg/dl, 194.72±69.56 mg/dl respectively which was comparable to control fingertip – left hand middle finger (LHMF). There is no significant difference between the mean of blood glucose of the test fingertips - RHMF and RHRF after washing with water as compared to the control fingertip - LHMF. Our study shows that water is superior to alcohol swab in cleaning hands after handling sweet items before checking fingertip blood glucose levels.

Conclusion: There is a significant elevation in fingertip blood glucose level after application of sweet items and even after cleaning with alcohol swab. Water is superior to alcohol swab in cleaning hands after handling sweet items before taking fingertip blood glucose levels. Health care providers, pharmacists and other professionals should play their role to educate the people to create awareness.

Key Words: fingertip blood glucose, sweet items handling, methods of cleansing

INTRODUCTION

It is common practice to prick fingertip for blood glucose sample in diabetics and non-diabetics subjects without washing hands. One study showed that only 50% of patients wash their hands before checking¹.

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Even though the value of self – monitoring of blood glucose (SMBG) levels in diabetes is controversial, there is no doubt that SMBG provides a strong facility for improved self – care².³,4 The SMBG through capillary blood glucose level commonly known “fingertip – stick glucose” is an important part of management of diabetic patients⁵ SMBG is currently recommended for patients type 1 and type 2 diabetes mellitus, insulin treated or not treated⁶,⁷ Higher fingertip blood glucose level was reported from the subjects who had peeled fruit or handled sweet food items before checking SMBG and not washed their hands with water⁸.⁹ Hand washing is important to remove substances from the skin that could falsely elevate glucose readings⁸

Rationale of Study: No national data is available on such study, whereas as few studies are available at
international level. Therefore, this study was conducted to determine the effect on fingertip blood glucose level after handling sweet items and after various methods of hand cleansing especially washing hands with water before checking fingertip blood glucose level.

**MATERIALS AND METHODS**

Total 154 subjects were enrolled from outpatient clinics of medicine department of Isra University Hospital Hyderabad after informed consent was obtained. Study design was cross-sectional observational. Study period was from July 2017 to December 2017. Each subject’s LHMF was taken as control, RHMF and RHRF were used as test. EasyMax –Glucometer and pricker were used to check fingertip blood glucose levels. The RHMF and RHRF tips were coated with moist dates and honey respectively. One hour after application of dates and honey the fingertip blood glucose level was checked from the respective fingertips of right hand. Then the fingertips were cleaned with alcohol swab (70% isopropyl alcohol) and rechecked the fingertip blood glucose level. After washing the right hand with water and dried another blood glucose level was checked from the fingertips. At the same time left hand middle fingertip was cleaned with alcohol swab and dried, then fingertip blood glucose level was checked.

**Inclusion Criteria:**
1. Age 18 years and above  
2. Willing for participation

**Exclusion Criteria:**
1. Age below 18 years  
2. Not willing for participation

**RESULTS**

Table 1. shows distribution of patients in the study population, males were 106 (68.8%), females 48 (31.2%). Most common age group was 18 – 30 year (41.6%), rural 72 (46.8%), urban 82 (53.2%). In the enrolled cases non - diabetic 118 (76.6%), diabetic 36 (23.4%).

Table 2. shows mean of blood glucose from control fingertip - LHMF in non – diabetic cases were 106.24±17.52 mg/dL and in diabetic 224.55±73.61 mg/dL. After one - hour application of dates and honey in the test fingertips - RHMF and RHRF, the mean of blood glucose from the test fingertips in non – diabetic cases were 383.39±152.35 mg/dL, 388.42±17.34 mg/dL respectively. The mean of blood glucose from test fingertips -RHMF and RHRF in diabetic cases were 448.56±152.02 mg/dL, 385.22±164.42 mg/dL respectively which was elevated significantly as compared to control fingertip - LHMF p-value < 0.05

Table 3. shows mean of blood glucose level in the test fingertips - RHMF and RHRF in non – diabetics after alcohol swab cleaning was 181.58±75.83 mg/dL, 159.12±49.69 mg/dL respectively.
This study is compatible with other studies conducted by Hirose T et al (Tokyo, Japan 2011), Josivan Lima et al (Rio Grande do Norte, Brazil 2016), MA Olamovegun et al (Ogbomoso, Nigeria 2016). Our study is inconsistent with study done by Mahoney JJ et al (California, USA 2011). In this Mahoney JJ et al elaborates that hand sanitizers containing emollients may be better tolerated than washing hands with soap or detergents, perhaps due to alcohol removes fewer skin surface lipids and is less drying. However, the frequency of use of hand sanitizer for skin cleaning prior to glucose testing is unknown. Hydroquinone-containing body lotions induce falsely elevated capillary glucose measurements that persisted up to 60 minutes after usage.

**DISCUSSION**

In our study population there is a significant elevation in fingertips blood glucose level after application of sweet items and even after cleaning with alcohol swab. There is no significant difference between the mean of blood glucose in the test fingertips - RHMF and RHRF after washing with water as compared to the control fingertips- LHMF. Washing hands with water is superior to cleaning with alcohol swab before taking fingertip blood glucose. This study is compatible with other studies conducted by Hirose T et al (Tokyo, Japan 2011), Josivan Lima et al (Rio Grande do Norte, Brazil 2016), MA Olamovegun et al (Ogbomoso, Nigeria 2016).

Our study is inconsistent with study done by Mahoney JJ et al (California, USA 2011). In this Mahoney JJ et al elaborates that hand sanitizers containing emollients may be better tolerated than washing hands with soap or detergents, perhaps due to alcohol removes fewer skin surface lipids and is less drying. However, the frequency of use of hand sanitizer for skin cleaning prior to glucose testing is unknown. Hydroquinone-containing body lotions induce falsely elevated capillary glucose measurements that persisted up to 60 minutes after usage.

**CONCLUSION**

There is a significant elevation in fingertip blood glucose level after application of sweet items and even after cleaning with alcohol swab. There is no significant difference between the mean of blood glucose of the test fingertips - RHMF and RHRF after washing with water as compared to the control fingertips - LHMF. Water is superior to alcohol swab in cleaning the hands after handling sweet items before taking fingertip blood glucose levels. Health care providers, pharmacists and other professionals should play their role to educate the people to create awareness.

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**Table No. 3:** Comparison of mean of blood glucose in control - LHMF and test – RHMF after cleaning with alcohol swab among diabetic and non-diabetic cases (n=154)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Control - LHMF</th>
<th>Test - RHMF after cleaning with alcohol swab</th>
<th>P-value</th>
</tr>
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<tbody>
<tr>
<td><strong>versus RHMF</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Diabetes n=36</td>
<td>224.55±73.61 mg/dL</td>
<td>270.56±109.69 mg/dL</td>
<td>0.001</td>
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<tr>
<td>Non-diabetes n=118</td>
<td>106.24±17.52 mg/dL</td>
<td>181.58±75.83 mg/dL</td>
<td>0.001</td>
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<tr>
<td><strong>versus RHRF</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Diabetes n=36</td>
<td>224.55±73.61 mg/dL</td>
<td>241.67±109.69 mg/dL</td>
<td>0.001</td>
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<tr>
<td>Non-diabetes n=118</td>
<td>106.24±17.52 mg/dL</td>
<td>159.12±49.69 mg/dL</td>
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**Table No. 4:** Comparison of mean of blood glucose in control - LHMF and test - RHMF and RHRF after washing with water among diabetic and non-diabetic cases (n=154)

<table>
<thead>
<tr>
<th>Variables</th>
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<th>Test - RHMF after washing with water</th>
<th>P-value</th>
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</thead>
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<td><strong>versus RHMF</strong></td>
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<td></td>
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<tr>
<td>Diabetic n=36</td>
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<tr>
<td><strong>versus RHRF</strong></td>
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<tr>
<td>Diabetic n=36</td>
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<tr>
<td>Non-diabetic n=118</td>
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<td>96.50±18.12 mg/dL</td>
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</table>

Mean of blood glucose level in the test fingertips - RHMF and RHRF in diabetics after alcohol swab cleaning was 270.56±109.69 mg/dl, 241.67±109.69 mg/dl respectively which was elevated significantly as compared to control fingertip - LHMF p-value < 0.05.

Table 4. shows mean of blood glucose level in the test fingertips - RHMF and RHRF in non-diabetic after washing with water was 97.76±17.86 mg/dl, 96.50±18.12 mg/dl respectively. There is no significant difference between the mean of blood glucose of the test fingertips - RHMF and RHRF after washing with water as compared to the control fingertips - LHMF p-value > 0.05.

There is no significant elevation in blood glucose levels after alcohol swab cleaning with water among diabetic and non-diabetic cases after alcohol swab cleaning.
Author’s Contribution:

Concept & Design of Study: Shamsuddin Solangi
Drafting: Prem Kumar Maheshwari, Muhammad Adnan Bawany
Data Analysis: Saima Siraj, Shazia Kazi, Sajjad Kazi
Revisiting Critically: Shamsuddin Solangi, Prem Kumar Maheshwari
Final Approval of version: Shamsuddin Solangi

Conflict of Interest: The study has no conflict of interest to declare by any author.

REFERENCES

Comparison of the Clinical Effectiveness of Azithromycin Versus Ceftriaxone in Treatment of Enteric Fever

Hamidullah¹, Sami ul Haq², Iftikhar Ahmad⁴ and Sadaqat Ali²

ABSTRACT

Objective: To compare Azithromycin versus Ceftriaxone in terms of mean time taken (in number of days) for defervescence in children with enteric fever.

Study Design: Randomized Controlled Trial study

Place and Duration of Study: This study was conducted at the Department of Paediatrics, Hayatabad Medical Complex, Peshawar from November, 2015 to May, 2016.

Materials and Methods: A total of 140 patients were selected and divided into Group A and Group B by lottery method. Sampling technique was Non probability consecutive sampling. All patients in Group A were treated with oral azithromycin suspension/capsule (10mg/kg/day; maximum dose, 500mg/day) once daily for 7 days and Group B with Intravenous (I/V) Ceftriaxone (75mg/kg/day; maximum dose, 2.5 g/day) twice daily for 10 days. All medications were administered in the hospital by nursing staff. The Clinical response to the therapy of both drugs were calculated in terms of number of days taken for defervescence. Data were recorded in predesigned proforma by researcher.

Results: Overall Male to female ratio was 1.61:1. Sexdistribution among the groups was insignificant with p-value=0.366. The overall age of the patients was 5.47 years +2.38SD. Defervescence wise distribution shows that Group A have average defervescence of 4.39days+ 1.12SD while in Group B it was 4.46 days+1.1017SD which was insignificant with p-value = 0.693.

Conclusion: Mean defervescence time of azithromycin is better than ceftriaxone in the treatment of enteric fever.

Key Words: Enteric fever, Azithromycin, Ceftriaxone, Defervescence


INTRODUCTION

Typhoid fever, an enteric bacterial infection caused by Salmonella Typhi and Salmonella Paratyphi; is a common and sometimes fatal infection caused in developing countries especially in south Asia because of poor sanitation and unclean water. It is transmitted by fecal oral route and estimated more than 22 million cases worldwide with 200,000 deaths every year have been reported.¹

Chloramphenicol, Ampicillin, Sulfamethoxazole–Trimethoprim andTetracycline have been traditionally used in the therapy of Typhoid fever. After the resistance of chloramphenicol in 1970s, Quinolones were started as1st line treatment of typhoid fever in 1990s.² Due to the extensive usage of Quinolones, their susceptibility has decreased causing certain strains becoming resistant to them.³Ceftriaxone; a third generation cephalosporin, is a highly effective drug and among the most commonly drug used for the treatment of uncomplicated and multi drug resistant typhoid fever.⁴ Because of parenteral route of administration and prolonged defervescence time; Ceftriaxone is less than ideal treatment alternative to Quinolones. Moreover, resistance is also developing to these Cephalosporins.⁵ Azithromycin; first tested in 1990s with good results is very promising alternative to Quinolones and Cephalosporins with good cure rates, oral route of administration and prevention of fecal carriage and relapse.⁶ It also has reduced clinical failure, duration of hospital stay and also well tolerated orally as compared to others.⁷

Clinical response was studied in one study where Mean time to defervescence was 4.5 ± 1.9 days for patients who received Azithromycin and 3.6 ± for patients who received Ceftriaxone. Clinical cure by day 7 was 94% in patients who received Azithromycin and 97% who...
received Ceftriaxone. Cost and compliance, as well as safety and efficacy, need to be considered when choosing regimens for treating enteric fever in countries with limited resources where the disease is endemic. Furthermore, there is no local data of Azithromycin efficacy versus Ceftriaxone, there is no research data available after 2004 to compare their Efficacy and Ceftriaxone is still used as 1st line drug in outdoor patients. We want to compare both the drugs so that better one could be recommended in future.

MATERIALS AND METHODS
The study has approved from hospital ethical committee. Eligible patients were enrolled in trial after taking informed consent. All patients fulfilling the inclusion criteria were included in the study and were admitted in the Inpatient department.

One Hundred Forty patients were divided into Group A and Group B by lottery method.

All patients in Group A were treated with oral azithromycin suspension/capsule (10mg/kg/day; maximum dose, 500mg/day) were administered once daily for 7 days and Group B with Intravenous (I/V)ceftriaxone (75mg/kg/day; maximum dose, 2.5 g/day) were administered twice daily for 10 days. All medications were administered in the hospital by the nursing staff. The Clinical response to the therapy of both drugs were calculated in terms of number of days taken for defervescence. However if patient is not improved with above medicines, he was managed with alternate medicines till his/her complete recovery, the drug was labeled non suitable with limited resources where the disease is endemic.

RESULTS
A total of 140 patients of 2-12 years of age of either gender with enteric fever were observed, which were divided in two equal groups. Patients in Group A were treated with oral azithromycin suspension/ capsule (10mg/kg/day; maximum dose, 500mg/day) were administered once daily for7 days and Group B with Intravenous (I/V) ceftriaxone (75mg/kg/day; maximum dose, 2.5 g/day) were administered twice daily for 10 days.

There were 39(55.7%) male and 31(44.3%) female patients in Group A while 42(60%) were male and 28(40%) were female belonging to Group B. This was statistically insignificant in both the group with p-value 0.366. Overall male to female ratio is 1.61:1. (Table 1) Average age was 5.51 years+ 2.42SD in Group A and contains25(35.5%) patients having less than or equal to 4 years, 30(42.9%) patients 5-7 years, 11(15.7%) patients 8-10 years and 4(5.7%) patients’ lies between the age of more than 11 years of age. While group B have average age of 5.42years +2.35SD and contains 25(35.7%) patients in less than or equal to 4years, 29(41.4%) in 5-7 years, 14(20%) in 8-10 years and 2(2.9%) patients have age more than 10 years of age. The overall average of the patients was 5.47 years +2.38SD. The age distribution among the group was insignificant with p-value 0.791.

Defervescence wise distribution shows that Group A have average defervescence of 4.39days + 1.12SD while in Group B it was 4.46days+1.1017SD which was insignificant with p-value = 0.693. Similarly, weight is also insignificant in both the groups with p-value=0.823.( Table 2) When defervescence was stratified among the age over both the group itwas shown that age group were insignificant defervescence in both the groups. Similarly, when defervescence of the patients were stratified among gender it shows that gender has also insignificant effect in both the groups.

<table>
<thead>
<tr>
<th>Table No.1: Gender distribution in both the groups:</th>
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</thead>
<tbody>
<tr>
<td>Gender</td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Female</td>
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<tr>
<td>Total</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Table No.2: Comparison of defervescence and weight in both the groups.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groups</td>
</tr>
<tr>
<td>---------</td>
</tr>
<tr>
<td>Group A</td>
</tr>
<tr>
<td>Group B</td>
</tr>
<tr>
<td>Group A</td>
</tr>
<tr>
<td>Group B</td>
</tr>
</tbody>
</table>

DISCUSSION
Enteric fever is a potentially fatal multisystem illness caused by Salmonellatyphi or Salmonella paratyphi. It occurs worldwide where water supply and sanitation are substandard. Enteric fever is highly endemic in developing countries, especially in Asia and Africa, with documented high prevalence among children. It is estimated that more than 26.9 million enteric fever
Azithromycin was tested in the 1990s, with good results, and can now be regarded as a promising alternative to fluoroquinolones and cephalosporins.\textsuperscript{15,16,17}

Nine prospective clinical trials employing azithromycin that enrolled culture-positive children and adults with typhoid fever were carried out in Egypt, India, Vietnam, and Bangladesh.\textsuperscript{16,19} The drug was received by a total of 453 patients, of whom 268 (59\%) were children. Its dosage was 10 or 20 mg/kg/day for children and 500 mg/day or 1 g/day for adults, given orally for 7 days in seven trials and for 5 days in two trials. Two trials were not comparable.\textsuperscript{15, 20} Whereas randomized assignments were made to different comparator drugs in the remaining trials: chloramphenicol in one\textsuperscript{16}, Ciprofloxacin in one\textsuperscript{14}, ofloxacin in two,\textsuperscript{18,19} Gatifloxacin in one,\textsuperscript{17} and ceftriaxone in two.\textsuperscript{21,22} Clinical responses in non-comparative trials were that 61 of 64 patients (95\%) treated with azithromycin were a febrile within 7 days of therapy and were considered to be cured.\textsuperscript{15,20}

Our study demonstrated that azithromycin is highly effective for the treatment of uncomplicated enteric fever in children. In this study, clinical cure was obtained in 98\% of patients treated with azithromycin, whereas in Ceftriaxone group, it was 86\%. These findings were comparable with studies done by Wallace et al.\textsuperscript{23} and Girgis et al.\textsuperscript{24}

A study by Tribble et al. demonstrated that a 5-day course of azithromycin (20 mg/kg per day, with a maximum dose of 1000 mg/day) is effective against uncomplicated enteric fever in children and adolescents.\textsuperscript{25} In our study, we used a low dose of azithromycin (10 mg/kg/day once a day) for 7 days and tried to compare with ceftriaxone (75 mg/kg/day; maximum dose, 2.5 g/day) twice daily for 10 days. One of the reasons for this is to reduce the possible side effects related to the azithromycin usage.\textsuperscript{26} Ceftriaxone is highly effective in the treatment of enteric fever but it is less than an ideal drug for its treatment. It shows a slow response with a mean time of 5-7 days or even longer to defervesce, which could be attributed to poor penetration capability of the drug into the cells, and thus difficult to eradicate the bacteria from the intracellular niche. Extended spectrum beta-lactamase (CTX-M-15 and SHV-12 ESBLs) and CMY-2-AmpC beta-lactamase producing S. typhi have been reported.\textsuperscript{27} On the other hand, azithromycin possesses many characteristics for effective and convenient treatment of enteric fever in children with efficacy rate of more than 95\%.\textsuperscript{28,29} However, treatment failure rates of 9.3\% have been observed in earlier studies.\textsuperscript{30}

Two other studies have reported a clinical cure rate of only 82\% and 92\%.\textsuperscript{31,32} In this study we also found that most of the in vitro azithromycin resistant cases responded clinically. Outcomes of treatment were based on duration of defervesence, and development of complications. Regarding duration of defervesence, the average time of defervesence was 4.44 ± 1.25 days in azithromycin group. One previous study\textsuperscript{104} showed the days of defervesence of azithromycin treatment 4.1 ± 1.1 days. Study by Girgis et al.\textsuperscript{31} found that the days of defervesence with azithromycin treatment was 3.8 ± 1.1 days.

Response to treatment with azithromycin was excellent. Franck et al.\textsuperscript{31} found the cure rate 91\% with azithromycin. They concluded that oral azithromycin administered once daily appeared to be effective for the treatment of uncomplicated typhoid fever in children and recommended that the agent could be a convenient alternative for the treatment of typhoid fever, especially in developing countries where medical resources are scarce. Once-daily oral treatment for 7 days (20 mg/kg/day) is convenient and should be favorable for outpatient compliance. Although parenteral azithromycin is available, it has not yet been popular in typhoid fever treatment.

Another study showed that Patients treated with ceftriaxone had a slightly shorter time to defervesence than did those treated with azithromycin (3.9 vs. 4.1 days, respectively); however, the difference was not significant, and both results were within time frames reported in previous typhoid treatment trials.\textsuperscript{93,34-37} Mild and transient gastrointestinal symptoms occurred in both treatment groups, but no adverse event was severe enough to require alteration in therapy.\textsuperscript{34-37}

**CONCLUSION**

In conclusion, azithromycin given for 7 days at a dosage of 10 mg/kg/day (maximum dose, 500 mg/day) appears to be highly effective for the treatment of uncomplicated typhoid fever in children, with clinical cure rates comparable to those for ceftriaxone. Once-daily administration of oralazithromycin may offer a simple treatment regimen for typhoid fever caused by either susceptible or drug-resistant strains of S. typhi and may be suitable for use in areas where medical resources are limited.

**Author’s Contribution:**

Concept & Design of Study: Hamidullah
Drafting: Sami ul Haq
Data Analysis: Ifikhar Ahmad, Sadaquat Ali
Revisiting Critically: Hamidullah, Sami ul Haq
Final Approval of version: Hamidullah

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

**REFERENCES**
28. Trivedi NA, Shah PC. A meta-analysis comparing the safety and efficacy of azithromycin over the
Learning Trends of Medical Students in a Private Sector University
Hussain Bux Kolachi¹, Munir AhmedShaikh¹, Jawad Ahmed Qadri³ and Manzoor Ali²

ABSTRACT

Objective: Identify various learning trends to collect data on computer use and its timing to analyze learning patterns in hostels and day scholars.

Study Design: Analytic study.

Place and Duration of Study: This study was conducted at the Department of Community Medicine, Isra University, Hyderabad from January to December 2017.

Materials and Methods: A questionnaire detailing on learning trends was distributed in 3rd year MBBS students.

Results: A total of 89 students participated in the study including male as 40.4% and females as 59.6%. Western books were liked by 7 (7.94%) students while 92.08 liked Pakistani and non-western books. And regarding their academic performance 38.20% scored high while 61.79% showed either medium or lower performance.

Conclusion: Our study concludes that students are a user of many learning resources like computer and internet, library text books, but it is not clear high use of computer internet will leads to high performance in final results of examination.

Key Words: Student, Trend, Learning, Isra, Performance, Isra, Examination


INTRODUCTION

Learning is an evolving field using technology and information sources in academia and research organizations is part of routine activities these technologies and gadgets are accessible to students particularly in private sectors universities and degree awarding institutions recognized by Higher Education Commission HEC and Pakistan Medical and Dental Council (PM&DC) usually private sector and the assessment system by world federation of Medical Education (W.F.M.E). Such findings were published from Mashhad Iran.¹²³ In a website Quora.com, private colleges have many deficiencies, of hospital wards, faculty, building are not proper. It also mentions that in private universities intelligent students are admitted and teaching facilities are of good standard.⁴ During last many decades’ big growth of medical & dental colleges has been observed in Pakistan. Currently as per P.M.D.C record there are 156 medical and dental colleges out of which 102 in private sector and there is blame that part time teaching is conducted. In an article published in Pub Med it was mentioned that health care and higher education system in U.K has great economic and political challenge. Those involved in teaching medical students and doctors must be trained, devote full time and even given incentive, so that medical students are taught without compromising the educational competencies⁵ Nauman A. Jadoon in a study from Lahore on medical students 61% students reported that they use internet for their learning this trend was same between males and females. Technology assisted learning like Internet provides them instant connection to retrieve updated and fresh information which will ultimately help them to practice evidence based medicine.⁷

MATERIALS AND METHODS

A questionnaire on learning trends was distributed in 3rd year MBBS students of Isra University Halla Road Hyderabad Sindh. The study was conducted during academic year starting from January to December 2017. The place of the study was faculty of Medicine and allied Medical sciences ISRA University. A sample size was 150 students of both gender male and female data was analyzed on SPSS version 22. before distributing questionnaire informed consent was obtained and students were told the data will be used only for research purpose Those who were consented and filled questionnaire were included in study while those who did not consent were excluded out of 150 students 89 filled the questionnaires.
RESULTS

Table 1 is showing distribution of students accordingly to sex there 40.04% male students while 59.06% were female’s students the more girl’s students indicate more admissions secured by females as compared to males. Table 2 showed the trend of books liked and read by medical students according to table Western books were liked by 7 (7.94%) students while 92.08 liked and read Pakistani books or non-western books. i.e. published locally. Table 3 shows that library was used by 76(85.44) % of the students however library was not used by 13 (14.56%) of students. Table 4 shows that 44.95 students opted living in hostels while 55.05% of the students were day scholars. Table 5 shows use of computer and internet by medical students according to table 73 (82.02%) students were user while 16 (17.98%) were non user. Table 6 shows academic performance those majority was computer user but high academic performance in 34 (38.02%) students while 55(61.98%) showed medium or low performance which indicates computer and internet used is not associate high academic performance Table 7 shows self-study pattern among boys and girls 72 (80.90%) do self-study while 17 (19.10%) were not doing self-study.

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<tr>
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<tr>
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Table No.6: Academic performance

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<td>High</td>
<td>34</td>
<td>38.02</td>
</tr>
<tr>
<td>Medium/ low</td>
<td>55</td>
<td>61.98</td>
</tr>
<tr>
<td>Total</td>
<td>89</td>
<td>100</td>
</tr>
</tbody>
</table>

Table No.7: Self-study

<table>
<thead>
<tr>
<th>Self-study</th>
<th>Boys</th>
<th>Girls</th>
<th>Total</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>31</td>
<td>41</td>
<td>72</td>
<td>80.90</td>
</tr>
<tr>
<td>No</td>
<td>05</td>
<td>12</td>
<td>17</td>
<td>19.10</td>
</tr>
<tr>
<td>Total</td>
<td>36</td>
<td>53</td>
<td>89</td>
<td>100</td>
</tr>
</tbody>
</table>

DISCUSSION

Our study shows that majority of students were female (59.6%) while 40.4% were males. This trend is observed in Pakistan, Indian and Iranian studies. The important learning resource is printed medical books. In the past it was a trend that western books were very attraction, high quality, but in our study trend to read locally published or non-western books where found and liked by 92.1% students perhaps good authors and printing technology has defeated the monopoly of western books. Library use was still in practice by student’s trend showed that 85.44% students were going to library because both internet and shelf study books were available for student. The use of computer is observed by 82.02% students while non users were 17.98%, this trend was similar in many published studies. The unusual finding in our study was high academic performance was secured by those who reported they were not using internet or web based information, another words high use of computer and internet is no associated with high academic performance. This needs to be looked into carefully, why non-internet users are receiving high performance marks in examination. The old students of 60's and 80's are good doctors, surgeons without aid of computer and internet technology. Hence the myth that computer and internet results in high performance is not supported by
our study\textsuperscript{4,6,8} as per UNDP report 2018 published April 2018 mentioned that youth in Pakistan have 15% access to internet 85% have no access to internet, while 52% on mobile phone and 48% do not own mobile Phone\textsuperscript{9} in future more information assisted learning will be available but it is guaranty that good medical student and Doctors will be produced. Asia is providing 60% of global health care to the patient while it has 44% of medical schools and hospitals and their low density of physicians in the as compared to Europe. six top countries producing doctors are in Asia\textsuperscript{9}.

When students use E-learning resources it is basically technology such as WWW, internet and multimedia based computer applications The Kings college London has promoted the e learning successfully for medical students in many countries.\textsuperscript{10}

CONCLUSION

Our study concludes that students are a user of many learning resources like computer and internet, library text books, but there is no association between high use of internet to high performance in final results of examination.

Author's Contribution:

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Revisiting Critically: Hussain Bux Kolachi, Munir Ahmed Shaikh
Final Approval of version: Hussain Bux Kolachi

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Maternal Mortality Ratio and its Causes at Nishtar Hospital Multan

Shazia Siddiq, Saima Yasmin Qadir, Zahid Sarfraz and Shahid Irshad Rao

ABSTRACT

Objective: To determine the maternal mortality ratio and its causes at Nishtar Hospital Multan.

Study Design: Prospective observational study

Place and Duration of Study: This study was conducted at the Department of Obstetrics & Gynaecology at Nishtar Hospital Multan over a period of 3 years from January 2015 to October 2017.

Materials and Methods: It included all the mortalities in labour ward due to direct and indirect causes during pregnancy, labour and puerperium. The descriptive statistics were used for age, parity, cause of death and possible factors responsible for death were identified.

Results: There were total of 34394 deliveries and 34050 live births. Total 339 maternal deaths occurred during 3 years period from January, 2015 to 31, October 2017 with MMR 995.6/100,000 live birth. The highest maternal mortality age group was less than 30yrs. Majority of the patients were between P 2-P 4 . Obstetrical hemorrhage was the most frequent cause (41.29%) followed by hypertensive disorders (30.9%), blood transfusion reactions (10.3%), septicemia (8.8%), thromboembolic events (5.8%), ruptured uterus (5.3%), operative complications leading to internal haemorrhage (3.5%) & cardiac disease (1.7%). Less frequent causes were ectopic pregnancy (1.1%) and hepatic failure (0.8%).

Conclusion: Most of these deaths are preventable. Sustained reduction in maternal mortality will only be possible if modern obstetrics care is made available through a system of professional qualified midwifery and referral system along with political commitment and accountability of health providers. Concentrated efforts are required to obtain missing data, accurate data collection, health education awareness and transport facilities to prevent many deaths.

Key Words: Maternal Mortality rate, Hemorrhage, Pregnancy

INTRODUCTION

Maternal mortality has been called “The most related tragedy of our times”. The tragedies are multifunctional in origin, involving interrelated factors and we have to look beyond the medical complications like society attitudes towards woman during infancy, childhood and adolescence the socioeconomic and cultural environment. Childhood is a biological process that gives joy to the mother and family but this becomes tragedy when woman loses her life in performing this familial & social obligation. Pregnancy and childhood is a physiological process, but by no means a risk free. Maternal health care begins from her in utero life. Lack of awareness & delay in seeking health care facility are also important factors where woman’s educational status plays an important role.

Every year globally an estimated 5, 29,000 maternal deaths occur\(^1\). Maternal mortality has a serious impact on the deceased family. Inspite of several initiatives and improvements in the health care facilities there has been no substantial reduction in the maternal mortality in all developing countries which contributes to approximately 98% of all maternal deaths\(^2\). One of the MDG is to reduce the maternal mortality by 75% between 1990 and 2015\(^5\). According to recent survey the MMR in Pakistan is 260 per 100,000 live births. In comparison the MMR in United States is 8 per 100, 000 live birthsin 2005\(^7\) and it increased to 21-22/100,000 in 2013-14(p-0.001)\(^3\). Sloan observed that Nigeria contributes more than any other country in globally in maternal mortality than others\(^6\). The causes of maternal mortality are obstructed labour, hemorrhage, hypertensive disorders in pregnancy (Eclampsia), Sepsis & unsafe abortion. Reduction of maternal mortality is not achieved because of limited awareness of the magnitude in underdeveloped countries. Lack of political will, governmental support and adequate allocation of resources are compounding factors. The poverty, woman empowerment, cultural believes and family constraints all contribute to underutilization of professional delivery services even when they do exist\(^1\). Nabana observed the improvement in health status indicator in last three decades, however maternal mortality is still high. He also observed that
institutional birth rate has increased. He stated that richest women were 5.45 times more likely to give safe births9. Akashi stated that providing the continuity of care (CoC) is important strategy to improve MNCH in Japan9. Then allocation of resources is again very important as in MDG, financial resources were allocated but Martisen observed that individuals of large population receive less assistance so inclusion of population size in allocation of resources can be considered10.

One factor that contributes to high maternal mortality is the delayed use of emergency obstetrics care (EMOC) services11. While Khetan observed that community health workers have played major contribution in improving maternal and child health12. PPH accounts for about 25% of the total & claiming an estimated 150,000 maternal mortalities annually13. Anemia and unsafe abortion are important public health problem accounting for 13% of maternal mortality 14. The other important cause of indirect cause of death is cardiac disease. Mogos observed that heart failure and death has risen significantly from 4.9%to 7.1%15. While Sacoor observed that tuberculosis is a second leading disease. Mogos observed that heart failure and death has risen significantly from 4.9%to 7.1%15. While Sacoor observed that tuberculosis is a second leading cause of death after eclampsia in his community16. Delay in the provision of adequate care is another important factor in the maternal mortality17.

MATERIALS AND METHODS

This is prospective observational study conducted from Jan 2015 to Oct 2017 in Obstetrics & Gynaecology Department of Nishtar medical university and Hospital Multan. It is a public sector tertiary care, 1500 bedded hospital and drains the far flung areas of not only the southern Punjab but also the various remote areas of Baluchistan. It serves as the major referral center for other public & private hospitals. The reason for admission, condition at arrival, possible factors related to and cause of death were identified. Other information’s included age, parity, booking Status and relevant features of index pregnancy were also noted. The proforme and records were reviewed in mortality meetings of the department to analyse and find out the factors responsible for maternal mortality.

RESULTS

There were total of 34394 deliveries and 34050 live births. Total 339 maternal deaths occurred during 3years period from January, 2015 to 31, Oct 2017 with MMR 995.6/100,000 live birth. The highest maternal mortality age group was less than 30yrs. Majority of the patients were between P1-P4. Out of 339 maternal deaths, obstetrical hemorrhage was the most frequent cause (41.29%) followed by hypertensive disorders (30.9%), Blood transfusion reactions (10.3%), Septicemia (8.8%), Thromboembolic events (5.8%), ruptured uterus (5.3%), operative complications leading to internal haemorrhage (3.5%) & Cardiac disease (1.7%), Less frequent causes were ectopic pregnancy (1.1%), & hepatic failure (0.8%).

### Table No.1: Age Distribution of Maternal mortality.

<table>
<thead>
<tr>
<th>Age in Years</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤20</td>
<td>10</td>
<td>4.2%</td>
</tr>
<tr>
<td>21-30</td>
<td>153</td>
<td>65.6%</td>
</tr>
<tr>
<td>31-40</td>
<td>33</td>
<td>14.1%</td>
</tr>
<tr>
<td>≥40</td>
<td>27</td>
<td>11.15%</td>
</tr>
</tbody>
</table>

### Table No.2: Causes of Maternal Mortality.

<table>
<thead>
<tr>
<th>S No.</th>
<th>Causes of Death</th>
<th>No.</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Obstetrical Hemorrhage</td>
<td>118</td>
<td>50.6</td>
</tr>
<tr>
<td>2</td>
<td>hypertensive disorders</td>
<td>58</td>
<td>24</td>
</tr>
<tr>
<td>3</td>
<td>Ruptured uterus</td>
<td>18</td>
<td>7.7</td>
</tr>
<tr>
<td>4</td>
<td>Cardiac disease</td>
<td>11</td>
<td>4.7</td>
</tr>
<tr>
<td>5</td>
<td>Operative complications internal hemorrhage</td>
<td>8</td>
<td>3.4</td>
</tr>
<tr>
<td>6</td>
<td>Thromboembolic event</td>
<td>5</td>
<td>2.1</td>
</tr>
<tr>
<td>7</td>
<td>Hepatic failure</td>
<td>5</td>
<td>2.1</td>
</tr>
<tr>
<td>8</td>
<td>Blood Transfusion</td>
<td>5</td>
<td>2.1</td>
</tr>
<tr>
<td>9</td>
<td>Septicemia</td>
<td>3</td>
<td>1.2</td>
</tr>
<tr>
<td>10</td>
<td>ectopic pregnancy</td>
<td>1</td>
<td>0.4</td>
</tr>
<tr>
<td>11</td>
<td>anesthetic complication</td>
<td>1</td>
<td>0.4</td>
</tr>
</tbody>
</table>

DISCUSSION

Maternal death makes a happy moments of giving childbirth to tragic incidence. The index of the quality of health care delivery system of a country is reflected by its maternal mortality rate. If the definition of maternal death is to include all deaths due to pregnancy & childbirth it must include deaths taking place before childbirth (eg abortion, ectopic pregnancy) those taking place during childbirth (e.g antepartum, intrapartum and postpartum hemorrhage) as well as deaths taking place sometime after actual event of childbirth (eg sepsis). Moreover, not all maternal deaths are directly due to condition resulting solely from pregnancy. Some are caused by preexisting conditions which have been aggravated by pregnancy (eg hepatitis). This definition is clearly made in the Ninth & Tenth revisions of International Classification of Disease (ICD 9 and 10) which define maternal death as follows.

A maternal death is defined as the death of a woman while pregnant or within 42days of termination of pregnancy, irrespective of the duration and the site of the pregnancy, from any cause related to or aggravated by the pregnancy, its management but not from accident or incidental causes.

One Pakistani woman loses life every 30 minutes due to reproductive health complications 18. In Pakistan each year 5 million woman become pregnant, of these 0.7million (15% of all pregnant woman) are likely to experience some obstetric & medical complications. An estimated 30,000 woman die each year due to pregnancy related causes19. Reduction in maternal
mortality is an important MDG of special concern in low income countries like Pakistan. Direct causes of maternal mortality are still the leading causes in our institution, similar to the other teaching institution of the country as in the other developing countries. Hemorrhage, eclampsia, ruptured uterus and puerperal sepsis were responsible for 80% of maternal mortality in this institution during the study period. This is mainly due to late referral of complicated cases to the hospital. In the present study obstetrical hemorrhage was the leading cause of maternal deaths. Majority of these deaths were due to postpartum hemorrhage and the patient delivered outside the hospital ether at their homes or of some small private maternity care centers. These women were brought moribund, in inevitable hypovolemic shock. Sometime there were delays in the availability of laboratory investigations and arrangement of blood & blood products. Deaths due to hypertensive disorders of pregnancy, particularly eclampsia constituted 24% of all deaths. This is also comparable with other studies of developing countries and the other teaching institutions of this country. Indian studies stated that eclampsia is the leading cause of maternal mortality rather than PPH.

Among the indirect causes the major killer was the blood transfusion reactions, hepatic failure and thromboembolic events. During the study period eight patients died because of the operative complications mainly due to internal hemorrhage. These were the patients who operated at periphery for placenta previa followed by obstetrical hysterectomy and referred to the tertiary care center with shock because of internal hemorrhage.

CONCLUSION

Maternal deaths in our region are still very high in comparison with developed countries. Reduction in maternal mortality will only be possible if high-quality obstetrics care is made available to all woman through a system of efficient midwifery and proper referral system along with political commitment. Health care commission has to put great efforts to obtain exact data along with good quality health care system and improve transport facilities to prevent many deaths. In this study we have noticed a very high maternal mortality ratio in tertiary care hospital. There are various reason for this high mortality like:
- Delay in referral to tertiary care center
- Lack of Infrastructure
- Lack of proper facilities at primary and secondary levels
- Lack of awareness
- Low literacy rate
- Problems in the transport facilities

In addition to above mentioned reasons, we noticed that there are problems which we face in the tertiary care hospitals while managing our obstetric patients:
- Overcrowding in the hospitals
- There is delay in the laboratory reports
- Poor blood bank facilities
- Lack of availability of Anesthesiologist
- Lack of Para Medical Staff
- Inadequate Operation theater facilities

It is now three decades since the launch of the Global Safe Motherhood initiatives in 1987 but woman are still dying during childbirth. Fortunately we can prevent their deaths if we invest a few safe and affordable health services.

Recommendations: There are some solutions of these problems.
- Improving Literacy rates
- Better infrastructure
- Construction of New Hospitals to overcome the problem of overcrowding
- Provision of the laboratory in the vicinity of labour ward.
- Availability of blood bank facilities for the arrangement of blood and blood products round the clock.
- Training of more doctors in the field of anesthesia.
- Increase the number of operation theaters.
- Availability of ICU in the labour ward.
- Good training of the residents to deal with obstetrical problems.
- Make child & maternal survival a core national & global health concern.
- Make sure that the appropriate government ministries are accountable to the public about the performance of investments in maternal health.

Women & girls are the driving force in our economies & when women are healthy they play a crucial role in the development of countries.

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Revisiting Critically: Shazia Siddiq, Saima Yasin Qadir
Final Approval of version: Shazia Siddiq

Conflict of Interest: The study has no conflict of interest to declare by any author.

REFERENCES

Objective: To assess the awareness of school girls regarding early marriages in Karachi

Study Design: A Cross-sectional Study

Place and Duration of Study: This study was conducted at the Al Hameed School in Karachi from July 2018 to November 2018.

Materials and Methods: Structured individual questionnaire containing 30 questions was used to collect information from the respondents. Young females between the ages of 12 to 17 were considered eligible for the study. It was used to collect most of the quantifiable information on the causes and impact of early marriage before 18 years. The questionnaire was administered to a representative sample of 284 female students in a specified age group which was conducted in three sessions that took 20 minutes on an average. An informed verbal consent was taken from the candidates. Pilot study was conducted to assess the authenticity of the questionnaire. Data was entered and analyzed using SPSS version 20, with 95% confidence interval and 0.05 p-value.

Results: All the respondents were aged 17 or less. Most of them (94.7%) belong to religion of Islam. The survey was taken by people belonging to different ethnic groups. Almost 70.1% Urdu speaking, 11.3% Sindhi, 8.5% Punjabi, 2.1% Balochi and 6.3% were Pathan.

More than half (73.90%) girls knew about the correct age of marriage. 81% girls believe that early marriage leads to discontinuation of education and inadequate maturity of young girls. 28% of girls thought early marriage extends women's potential child bearing capacity. 40.85% view increased risk of pregnancy complications, a correlation to early marriage. 38.70% of the respondents knew that first 3 months of pregnancy is the most sensitive period of pregnancy. 10.90% girls were of the opinion that mothers' health would suffer more, if teenage mothers did not get proper antenatal care. 36.30% young females were aware that a woman can get high blood pressure and sugar due to pregnancy. About 89.40% respondents view hospital and maternity homes to be the safest place for delivery. 58.50% girls think that early motherhood alter the mood of young females. 38.40% girls were aware that pregnancy at early age can lead to child having low birth weight. 28.50% young girls thought that early marriage/motherhood and depression are associated and it is a driving force for addiction. 13.70% girls supported early marriage.

Conclusion: The study concluded that measures should be taken in order to aware the young girls of our society regarding this important issue or the consequences can be detrimental as less awareness can lead to an incline in maternal mortality.

Key Words: Early marriage, pregnancy, complications, awareness

INTRODUCTION

Early marriage and early conception is a nascent matter across the world and remains widespread problem particularly in developing countries.1 Marriages in which a child under the age of 18 years is involved occur worldwide, but are mainly seen in South Asia, Africa, and Latin America. Early marriage does not imply that children are involved, and the term is vague because an early marriage for one society may be considered late by another. Most of these marriages are arranged by parents, and girls rarely meet their future husbands before the wedding. The girls know that after the wedding they will move to their husband’s household, become the responsibility of their in-laws, and might not see their own family or friends for some time.2 The issue remains prevalent in our society and is a matter of concern because it prevents girls from obtaining an education, enjoying optimal health, bonding with others their own age, maturing, and ultimately choosing their own life partners. Poverty is one of the major factors underpinning early marriage.3 Early marriage is driven by poverty, is perpetuated to ensure girls’ financial futures and to reinforce social ties and has many effects on girls’ health.4 The rationale behind addressing this issue has always been the health

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of that person who has remained a victim of the events which culminates into a vicious cycle. The timing of marriage appears to affect school enrollment among teenagers through its impact on living arrangements. However, the negative impact of marriage on educational achievement does not seem to be a consequence of earlier differences in educational expectations among the teenagers. Now a girl remains fertile with entering a phase in which adolescent pregnancy, often unplanned and unwanted, has a negative impact on the physical, emotional, educational, and economic condition of the pregnant teenager. On the other hand the adolescents who become sexually active need access to reliable contraceptive methods & parenting need psychological support and proper information and motivation not to conceive again during adolescences. Young married girls are a unique, though often invisible, group. Required to perform heavy amounts of domestic work, under pressure to demonstrate fertility, and responsible for raising children while still children themselves, married girls and child mothers face constrained decision-making and reduced life choices. Girl child marriage (i.e., <18 years of age) affects more than 10 million girls globally each year and is linked to maternal and infant morbidities (e.g., delivery complications, low birth weight) and mortality. Half (46%) of child marriages occur in South Asia. Our estimates indicate that each additional year that menarche is delayed postpones marriage 0.74 year. This article sheds light specifically on reason behind perpetuation of early marriages its harmful consequences, shows how it constitutes a barrier to education and enjoyment of girl’s human rights and how it further threatens the development of countries. It focuses on the relationship of age of marriage with: age of onset of sexual activity, timing of first pregnancy and spacing of births, use of contraception and the level of unintended pregnancies, and vulnerability to contracting HIV and other STIs.

MATERIALS AND METHODS

This cross sectional descriptive study was conducted in Al Hameed School in Karachi from July 2018 to November 2018. Structured individual questionnaire containing 30 questions was used to collect information from the respondents. Young females between the ages of 12 to 17 were considered eligible for the study. It was used to collect most of the quantifiable information on the causes and impact of early marriage before 18 years. The questionnaire was administered to a representative sample of 284 female students in a specified age group which was conducted in three sessions that took 20 minutes on an average. An informed verbal consent was taken from the candidates. Pilot study was conducted to assess the authenticity of the questionnaire. Data was entered and analyzed using SPSS version 20, with 95% confidence interval and 0.05 p-value.

RESULTS

All the respondents were aged 17 or less. Most of them (94.7%) belong to religion of Islam. The survey was taken by people belonging to different ethnic groups. Almost 70.1% Urdu speaking, 11.3% Sindhi, 8.5% Punjabi, 2.1% Balochi and 6.3% were Pathan. More than half (73.90 %) girls knew about the correct age of marriage. 81% girls believe that early marriage leads to discontinuation of education and inadequate maturity of young girls. 28% of girls thought early marriage extends women’s potential child bearing capacity. 40.85% view increased risk of pregnancy complications, a correlation to early marriage. 38.70 % of the respondents knew that first 3 months of pregnancy is the most sensitive period of pregnancy. 10.90% girls were of the opinion that mothers’ health would suffer more, if teenage mother did not get proper antenatal care. 36.30% young females were aware that a woman can get high blood pressure and sugar due to pregnancy. About 89.40 % respondents view hospital and maternity homes to be the safest place for delivery. 58.50% girls think that early motherhood alter the mood of young females. 38.40% girls were aware that pregnancy at early age can lead to child having low birth weight. 28.50% young girls think that early marriage/motherhood and depression are associated and it is a driving force for addiction. 13.70% girls support early marriage.

Figure No.1: Awareness amongst young girls about minimal age for marriage.

Figure No.2: Early marriage - A cause of discontinuation of education and inadequate maturity of the young girl.
DISCUSSION

The cutoff expression at which a marriage is labeled 'early' remains fairly constant so far in various studies and is less than 18 years. In our study most of the respondents where either 17 years old or below it. More than half (73.90%) girls knew about the correct age of marriage. 81% girls believed that early marriage leads to discontinuation of education and inadequate maturity of young girls. Consistent findings were in regard to educational level when participants believed that when tied off early it prevents girls from obtaining an education, enjoying optimal health, bonding with others of their own age and maturing. 40.85% viewed increased risk of pregnancy complications, a correlation to early marriage Child bearing capacity which remains a link for those who get into the socially accepted tie early in their lives provided that the adolescent is fertile remains vague for the candidates we scrutinized since very few i.e. only 28% were assertive for it. Mother’s age at 1st marriage and at birth of the 1st child, intervals between consecutive births (spacing), and birth order, among other factors have been found to have a strong bearing upon a child's chances of surviving infancy and early childhood. Studies link it to affect the mother's health also with association between the conditions created by early marriages, harmful reproductive patterns, pregnancy complications, infecundity, and infant and child mortality but respondents of less in number i.e. 40.85% being positive for such link. The Study Showed that 38.70% of the respondents knew that first 3 months of pregnancy is the most sensitive period of pregnancy. Generally the importance of first 12 weeks of pregnancy making up the first trimester lies in its role in development of all vital organs and sensitivity to foreign agents with once pregnancy moving into the second trimester, all the risks of miscarriage and birth defects occurring drop drastically remains a bit vague for our candidates since a lesser number. The Study showed that 10.90% were of view that the entire vicious cycle of getting into early marriage leading to early pregnancy without adequate antenatal care has impact on just mother herself. Consistent findings remains with the impact on psyche of a mother with 58.5% agreeing that mood get altered which can be correlated with a study showing that adolescent pregnancy, often unplanned and unwanted, has a negative impact on the physical, emotional, educational, psychological and economic condition of the pregnant teenager. The Study showed that very few participants i.e. 28.50% believed that early motherhood and depression were chained to addiction although depression is linked as part and parcel of early motherhood evident in the study showing that denial of freedom and personal development attendant on early marriage have profound psychosocial and emotional consequences. Adding to the fore mentioned detail various studies have proved that anxious behavior might further aggravate mother and child health who already are fore burdened with increase risk of complications. As this study theme works on bringing into limelight the thought process regarding early marriages, most of the participants in our study condemned being socially tied off that early with only 13.70% of them supporting early marriages as one remains prevalent in various section of this world. Child marriage persists as a human rights violation despite widespread efforts to eliminate the practice.

CONCLUSION

The current study documents that many young females of our society are still unaware regarding the causes and the consequences that early marriage and early pregnancy can lead to. It is therefore important that measures should be taken on imparting education to the young females in order to secure the future of our upcoming generation.

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Revisiting Critically: Tafazzul H Zaidi, Faheem Ahmed
Final Approval of version: Tafazzul H Zaidi

Conflict of Interest: The study has no conflict of interest to declare by any author.

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INTRODUCTION

Dengue fever is one of the commonest prevalent arthropod born infections. Dengue fever is transmitted by mosquitoes of the genus Aedes aegypti. It is affecting all human being s, of all age group and most the regions of the world. Dengue is affecting people in millions especially in South East Asia. The incidence is higher in urban areas and especially those parts of urban areas where the site is suitable and favorable for the mosquitoes leading to the pathology. The responsible arthropod harbors various serotypes of dengue causing viruses Flavivirus. The disease may be caused by any of the serotypes and patient gets lifelong immunity from that serotype. But this does not make them immune to rest of the serotypes.

Therefore a person infected by one serotype can be infected by rest of the serotypes. Dengue fever is endemic in more than 100 countries of the world with frequent occurring in this part of the world (South East Asia countries). Though the condition is endemic in these countries but its outbreak make it epidemic as well in its endemic zone.

The clinical presentations of the dengue fever ranges from mild self limiting influenza like condition to severe morbid an life threatening dengue-hemorrhagic fever and dengue shock syndrome. Initially the condition is asymptomatic in most of the cases up to 90 percent of the cases leading to non-specific febrile illness and ultimately classic dengue fever. Classic dengue fever is characterized by high grade fever, generalized bodyaches, nausea, vomiting, headache, retro-orbital pain and skin manifestations in the form of maculo-papular rash which is centrifugal pattern. Dengue hemorrhagic fever is manifested when a person affected by one serotype is infected by another serotype can lead to bleeding and endothelial leak. The leakage in this condition leads to hemo-concentration, hypotension and serous cavities fluid accumulation. The plasma leakage is caused by vascular permeability secondary to short acting chemical mediators. Intravascular coagulation and hemorrhagic lesions are caused by immune complexes. Two important parameters which are carried out during management are hemotocrit concentration and platelets count respectively.
A complete and comprehensive clinical assessment of the patient and laboratory investigations is extremely important for the diagnosis of the condition and timely management of the condition. Several diagnostic modalities are available for the diagnosis of the condition. The laboratory work up includes antibodies, complement fixation, ELIZA and PCR\(^{10,12}\).

The clinical presentation of the dengue fever varies in various age groups. Studies have been conducted regarding clinical presentations especially in adult patients. The purpose of the current study was to know about various clinical presentations and to document it in pediatric age group in our setup.

**MATERIALS AND METHODS**

The prospective descriptive study was conducted at the department of Pediatrics Khyber Teaching Hospital, Khyber Medical College Peshawar. The duration was one year from Jan to Dec 2017. Both male and female patients with age fifteen years and below with diagnosis of dengue fever were included in the study.

The study was carried out after permission of ethical committee Khyber Medical College and Khyber Teaching Hospital Peshawar. Patients fitting to the inclusion were selected and biodata and relevant information filed on Proforma.

We took Comprehensive history and did thorough clinical assessment in all cases. A careful scrutiny of past medical records was carried out for each patient. From all patients after observing strict aseptic technique, 5cc of venous blood was obtained and was immediately sent to hospital laboratory for HCT and Dengue NH1. All the laboratory investigations were done under supervision of expert pathologist fellow of CPSP and using same standard laboratory equipment.

All data was filed and assessed in SPSS. Frequencies and percentages were calculated for categorical variables like gender and the results were presented in tabulated form.

**RESULTS**

In this study carried out at KMC/KTH a total of 68 patients were assessed. Pediatric age patients ranged from few months to adolescent age. The dengue fever clinical presentation also varies a lot.

In our current study male patients were more as compared to the female patients ratio was 1.3:1 as given in table 1.

**Table No.1: Sex-wise distribution of Dengue Fever in Children (n=68)**

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>7</td>
<td>10.3</td>
</tr>
<tr>
<td>Female</td>
<td>12</td>
<td>17.6</td>
</tr>
</tbody>
</table>

The age ranged from 1 to 15 years with mean age of 8.35 ± 3.82. The age ranged in various age limits with the maximum number of patients found in age group 6-10 years. The details are given in table 2.

**Table No.2: Age-wise distribution of Dengue fever (n=68)**

<table>
<thead>
<tr>
<th>Age in Years</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-2</td>
<td>7</td>
<td>10.3</td>
</tr>
<tr>
<td>3-5</td>
<td>12</td>
<td>17.6</td>
</tr>
<tr>
<td>6-10</td>
<td>29</td>
<td>42.6</td>
</tr>
<tr>
<td>11-15</td>
<td>20</td>
<td>29.4</td>
</tr>
<tr>
<td>Total</td>
<td>68</td>
<td>100</td>
</tr>
</tbody>
</table>

One of the important and prime objectives of the study was to find the various clinical presentations of the patients with dengue fever. Table 3 shows the clinical presentations of the dengue fever.

**Table No.3: Frequency of symptoms in children with Dengue Fever (n=68)**

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fever</td>
<td>68</td>
<td>100.0</td>
</tr>
<tr>
<td>Epistaxis</td>
<td>7</td>
<td>10.3</td>
</tr>
<tr>
<td>Anorexia</td>
<td>12</td>
<td>17.6</td>
</tr>
<tr>
<td>Vomiting</td>
<td>20</td>
<td>29.4</td>
</tr>
<tr>
<td>Abdominal Pain</td>
<td>17</td>
<td>25.0</td>
</tr>
<tr>
<td>Myalgias</td>
<td>29</td>
<td>42.6</td>
</tr>
<tr>
<td>Headache</td>
<td>15</td>
<td>22.0</td>
</tr>
<tr>
<td>Skin manifestations</td>
<td>28</td>
<td>28</td>
</tr>
</tbody>
</table>

**DISCUSSION**

Dengue fever is one of the most important conditions affecting people around the globe with various frequencies. The disease is vector borne and its prevalence is highly affected by the environment and vector suitability.

The number of the male patients was more in our study as compared to the female patients. The same results were documented in study conducted at Faisalabad by Aisha et al\(^{13}\). In our study majority of the patients presented in the age group of 6-10 years. The results simulate to international study in this regard\(^{14}\).

As far as the clinical presentation is concerned in our study all patients presented with history of fever. Other studies conducted locally in different cities and pediatric age had the same results\(^{13}\). An international study which has documented epistaxis of 25 % conducted by Kulkarni MJ et al\(^{15}\).

Anorexia and vomiting is again an important clinical presentation. Anorexia and vomiting was present in 17.6 % and 29.4 % respectively. An international conducted at Brazil by de Souza showed frequency of nausea and vomiting as 45 % and 42 % respectively\(^{16}\).

We found abdominal pain as one of the commonest presentation in our study which was present in 25 percent of the cases. A study conducted by Gupta BK et al found frequency of acute abdominal pain as high as 32 percent of the study population\(^{17}\).
In our study we found headache as one of the important problem constituting 22% which was almost half of the cases internationally recorded i.e. 45 % by Lovera D et al18. One of the reasons of this difference is no doubt the young age group population in our study where one cannot express about his or her symptoms. Though the attendants may be expressing in their own language and relating it to the patients.

Cutaneous manifestation is one of the important presenting features of dengue fever. A lot of papers have been written showing various cutaneous and muco-cutaneous manifestations of the problem. We had also recorded cutaneous manifestations of the disease. We found various dermatological manifestations in 28% of the cases. The percentage of the dermatological presentation varies in various national and international studies ranging as high as 64% 19.

CONCLUSION

Dengue fever is one of the most common problems affecting population equally around the globe and if managed carefully can have good prognosis.

Recommendations: Dengue fever is one of the most important conditions affecting people around the globe with various frequencies. The disease is vector born and its prevalence is highly affected by the environment modulating infectivity. Cell Mol Life Sci 2016; 67(16): 2773-86.

Author’s Contribution:

Concept & Design of Study: Arshia Munir
Drafting: Muhammad Aqeel Khan, Sabahat Amir
Data Analysis: Muhammad Bilal, Khattak, Mukhtar Ahmad
Revisiting Critically: Arshia Munir, Muhammad Aqeel Khan, Sabahat Amir
Final Approval of version: Arshia Munir

Conflict of Interest: The study has no conflict of interest to declare by any author.

REFERENCES

Frequency of Carries Spine in Patients of Tuberculosis with Different Age Groups and Spinal Levels in Pakistan

Naeem Mehmood Mughal¹, Ashfaq Ahmed² and Mohammad Zafar Iqbal³

ABSTRACT

Objective: To determine the frequency of caries spine in patients of Tuberculosis with different levels of spine, different age groups and gender in Pakistan.

Study Design: Observational study

Place and Duration of Study: This study was conducted at the Orthopaedic department at Mohi-ud-in teaching hospital of Mohi-ud-in Islamic Medical College Mirpur AK for three years from Jan. 2015 to Dec. 2017.

Materials and Methods: In this study we included 1000 cases of Tuberculosis out of which 30 consecutive patients of spinal tuberculosis with age groups ranging from 02 to 70 years of either sex, involvement of different spinal level with apparent vertebral lesion on radiograph, presence of mycobacterium tuberculosis on direct examination or on culture of material taken by biopsy, characteristics histology of tuberculosis ad positive response to ATT drugs even without bacteriological proof. The detailed history investigations included blood C/P, ESR, Monteux, Test, X-Ray chest PA view, X-Ray spine, CT scan spine, Bone scan, MRI of spine.

Results: The overall incidence of spinal TB was 3% and the highest incidence of caries spine was found in the age group of 11-20 years and was 36.63%. The sex ratio of male to female was 1:1.3. The spinal level with the highest incidence of tuberculosis involvement of spinal level was lower thoracic regionT9---12

Conclusion: The anti tuberculosis chemotherapy had to be extended upto one and a half year in three patients because their ESR values were not decreased to the normal and their radiological healing was not satisfactory.

Key Words: carries spine, spinal level

INTRODUCTION

Tuberculosis is common in Pakistan and spinal involvement by the disease is also not uncommon. The spine is the commonest site for the involvement of osseous TB. The incidence of carries spine among the TB patients has been reported from 1-5%. The patients with carries spine usually present with advanced disease due to ignorance, lack of medical services and maltreatment by quacks. It is to find out the incidence of TB spine with different age group gender and spinal Level in patients of Tuberculosis in our local population presenting to Mohi-ud-in Teaching hospital.

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Accepted by: September, 2018
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The culture and sensitivity along with histological examination of biopsy material was done in every case. CT-scan, MRI, Bone scan was not done in every case. A haemoglobin level of less than 12g/dl was taken as anemia. The ESR of more than 30mm after 1st hour by wester green method was taken as raised. In case of Montieux test, the in duration of more than 10mm after 72 hours was taken as positive response. The TLC of more than 11000/cub.mm was considered as raised and lymphocyte count of more than 40% was labeled as raised count. The anti-tuberculous chemotherapy was started immediately when there was strong clinical evidence of tuberculosis based on raised ESR, characteristic radiological appearance and positive Montieux test. The chemotherapy was used to be started with four drugs regimen which included Rifampicin, Ethambutol, Isoniazid and Pyrazinamid. Pyridoxine with the dose of 25mg/day was also added to the antituberculous chemotherapy. In young children streptomycin was used instead of Ethambutol. Pyrazinamid was given for eight weeks while Ethambutol was given usually for 3months.

**RESULTS**

The patients from almost every age group were presented in this study. The range of age 2–70 years. The mean age was 29.6 years. The mean age for male was 30.46 years while that for female was28.94 years. The highest incidence of carries spine was found in the age group of 21–30 years(36.33%) while the second highest was found in the age group of 11–20 years(19.98%). It indicates that mostly the young people were suffered from this disease. The incidence of carries spine is low in extremes of age because two age groups 0-10 years and 61-70 years had only one case in each (Table 1).

Patients presented with variety of symptoms as listed in Table 1. Generalized weakness, anorexia and weight loss was present in majority of cases. The spinal deformity was found in most of cases and among the spinal deformities Kyphosis was the most common one. Backache, local tenderness and spinal movement restriction were found in every case. Neural deficit was present in most of the cases and majority was suffered from paraparesis. The total paraplegia was found in few cases and it was of spastic type only. The incidence of sphincters involvement is also not so high. The tuberculous involvement of other body system along with carries spine was also present and it was the involvement of respiratory system mostly which was noted in this study.

**Table No.1: The age incidence for carries spine.**

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Age Group</th>
<th>No. of cases</th>
<th>%age</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1Day – 10 years</td>
<td>01</td>
<td>3.33</td>
</tr>
<tr>
<td>2</td>
<td>11 – 20 years</td>
<td>11</td>
<td>36.33</td>
</tr>
<tr>
<td>3</td>
<td>21 – 30 years</td>
<td>06</td>
<td>19.98</td>
</tr>
<tr>
<td>4</td>
<td>31 – 40 years</td>
<td>05</td>
<td>16.65</td>
</tr>
<tr>
<td>5</td>
<td>41 – 50 years</td>
<td>03</td>
<td>9.99</td>
</tr>
<tr>
<td>6</td>
<td>51 – 60 years</td>
<td>03</td>
<td>9.99</td>
</tr>
<tr>
<td>7</td>
<td>61 – 70 years</td>
<td>01</td>
<td>3.33</td>
</tr>
<tr>
<td>8</td>
<td>71 – 80 years</td>
<td>00</td>
<td>00</td>
</tr>
</tbody>
</table>

**Table No.2: Clinical Presentation**

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Clinical Presentation</th>
<th>No. of cases</th>
<th>%age</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Generalized Weakness</td>
<td>30</td>
<td>100</td>
</tr>
<tr>
<td>2</td>
<td>Anorexia</td>
<td>26</td>
<td>86.66</td>
</tr>
<tr>
<td>3</td>
<td>Weight Loss</td>
<td>27</td>
<td>90</td>
</tr>
<tr>
<td>4</td>
<td>Night Sweats</td>
<td>16</td>
<td>53.33</td>
</tr>
<tr>
<td>5</td>
<td>Afternoon Fever</td>
<td>20</td>
<td>66.66</td>
</tr>
<tr>
<td>6</td>
<td>Spinal Deformity</td>
<td>27</td>
<td>89.91</td>
</tr>
<tr>
<td>7</td>
<td>Scoliosis</td>
<td>00/27</td>
<td>00</td>
</tr>
<tr>
<td>8</td>
<td>Kyphosis</td>
<td>23/27</td>
<td>85.10</td>
</tr>
<tr>
<td>9</td>
<td>Kypho-scoliosis</td>
<td>02/27</td>
<td>7.40</td>
</tr>
<tr>
<td>10</td>
<td>Lordosis</td>
<td>02/27</td>
<td>7.40</td>
</tr>
<tr>
<td>11</td>
<td>Backache</td>
<td>30</td>
<td>100</td>
</tr>
<tr>
<td>12</td>
<td>Distant Radiation of Pain</td>
<td>19</td>
<td>63.27</td>
</tr>
<tr>
<td>13</td>
<td>Local tenderness</td>
<td>30</td>
<td>100</td>
</tr>
<tr>
<td>14</td>
<td>Spinal Movements Restriction</td>
<td>30</td>
<td>100</td>
</tr>
<tr>
<td>15</td>
<td>Thickening of Soft Tissues about the Spine</td>
<td>19</td>
<td>63.27</td>
</tr>
<tr>
<td>16</td>
<td>Tracking of Pus</td>
<td>02</td>
<td>6.66</td>
</tr>
<tr>
<td>17</td>
<td>Paraesthesia</td>
<td>21</td>
<td>69.93</td>
</tr>
<tr>
<td>18</td>
<td>Paraparesis</td>
<td>21</td>
<td>69.93</td>
</tr>
<tr>
<td>19</td>
<td>Paraplegia</td>
<td>04</td>
<td>13.32</td>
</tr>
<tr>
<td>20</td>
<td>Spastic</td>
<td>04/04</td>
<td>100</td>
</tr>
<tr>
<td>21</td>
<td>Flaccid</td>
<td>00/04</td>
<td>00</td>
</tr>
<tr>
<td>22</td>
<td>Paralysis of Upper Limbs</td>
<td>01</td>
<td>3.33</td>
</tr>
<tr>
<td>23</td>
<td>Sphincter’s of Upper Limbs</td>
<td>02</td>
<td>6.66</td>
</tr>
<tr>
<td>24</td>
<td>Other Systems Involvement</td>
<td>06</td>
<td>20</td>
</tr>
<tr>
<td>25</td>
<td>Respiratory System</td>
<td>06/06</td>
<td>100</td>
</tr>
<tr>
<td>26</td>
<td>C.N.S</td>
<td>00/06</td>
<td>00</td>
</tr>
<tr>
<td>27</td>
<td>G.I.T</td>
<td>00/06</td>
<td>00</td>
</tr>
<tr>
<td>28</td>
<td>Genito-urinary System</td>
<td>00/06</td>
<td>00</td>
</tr>
</tbody>
</table>

**The Investigations Done for the Carries Spine.**

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Investigation</th>
<th>No.of cases</th>
<th>%age</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Anemia</td>
<td>26</td>
<td>86.58</td>
<td>10.63 gm%</td>
</tr>
<tr>
<td>02</td>
<td>Raised TLC</td>
<td>11</td>
<td>36.63</td>
<td>8000/mm3</td>
</tr>
<tr>
<td>03</td>
<td>Raised ESR</td>
<td>28</td>
<td>93.04</td>
<td>76.83 mm</td>
</tr>
<tr>
<td>04</td>
<td>Raised Lymphocyte Count</td>
<td>17</td>
<td>56.61</td>
<td>41%</td>
</tr>
<tr>
<td>05</td>
<td>Positive Montieux Test</td>
<td>27</td>
<td>89.91</td>
<td>15 mm</td>
</tr>
<tr>
<td>06</td>
<td>Positive X-rays Chest</td>
<td>06</td>
<td>19.98</td>
<td>--</td>
</tr>
<tr>
<td>07</td>
<td>Positive X-rays Spine</td>
<td>29</td>
<td>96.57</td>
<td>--</td>
</tr>
<tr>
<td>08</td>
<td>C.T Scan</td>
<td>00</td>
<td>00</td>
<td>--</td>
</tr>
<tr>
<td>09</td>
<td>Bone Scan</td>
<td>00</td>
<td>00</td>
<td>--</td>
</tr>
<tr>
<td>10</td>
<td>M.R.I</td>
<td>00</td>
<td>00</td>
<td>--</td>
</tr>
</tbody>
</table>
The Sex Preponderance: In this study out of 30 patients 17 were female while 13 were male with the male to female ratio 1:1.3 given table 3.

Incidence of spinal levels involvement: The spinal levels with the highest incidence of tuberculous involvement was lower thoracic T9-T12. While the second highest incidence found in mid-thoracic T5-T8. The proportion of patients with spinal involvement at different spine levels in given in table 4.

Table No.3: The sex preponderance

<table>
<thead>
<tr>
<th>Sex</th>
<th>No. of Cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>13</td>
<td>43.29</td>
</tr>
<tr>
<td>Female</td>
<td>17</td>
<td>56.61</td>
</tr>
</tbody>
</table>

Table No. 4: The incidence of spinal level involvement by carriers

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Spinal Level</th>
<th>No. of Cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Upper Cervical (C1-C4)</td>
<td>00</td>
<td>00</td>
</tr>
<tr>
<td>02</td>
<td>Lower Cervical (C5-C7)</td>
<td>01</td>
<td>3.33</td>
</tr>
<tr>
<td>03</td>
<td>Upper Thoracic (T1-T4)</td>
<td>06</td>
<td>20.00</td>
</tr>
<tr>
<td>04</td>
<td>Mid Thoracic (T5-T8)</td>
<td>08</td>
<td>26.64</td>
</tr>
<tr>
<td>05</td>
<td>Lower Thoracic (T9-T12)</td>
<td>09</td>
<td>30.00</td>
</tr>
<tr>
<td>06</td>
<td>Upper Lumbar (L1-L3)</td>
<td>04</td>
<td>13.32</td>
</tr>
<tr>
<td>07</td>
<td>Lumbo-Sacral (L4-S1)</td>
<td>02</td>
<td>6.66</td>
</tr>
</tbody>
</table>

Spinal level with cases.

<table>
<thead>
<tr>
<th>Name of study</th>
<th>No. of patients with TB</th>
<th>Musculoskeletal Involvement</th>
<th>Spinal involvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK study 1999-2004</td>
<td>n=729</td>
<td>n-61(8%)</td>
<td>5%</td>
</tr>
<tr>
<td>US study 2002-2011</td>
<td>n-75858</td>
<td></td>
<td>3%</td>
</tr>
<tr>
<td>Present study</td>
<td>n=1000</td>
<td></td>
<td>3%</td>
</tr>
</tbody>
</table>

DISCUSSION

In this study 1000 cases tuberculosis out of which 30 cases of spinal tuberculosis were found in all TB patients presenting in our institution during the three year period (2015–2017). Most of the cases included in the study belonged to the low and middle Socio-Economic classes of the society. The disease was found to be more common in female, with male to female ratio of 1:1.3. Twenty three patients 73% are less than 40 years of age and the highest incidence of the disease is found in the age group of 11-20 years 37% percent followed by 22-30 years 19.98% and 31-40 years 16.65%. According to this study Carries Spine is the disease of teenagers and young adults. This finding is similar to the studies in endemic countries where spinal tuberculosis is more common in younger children and adults whereas disease is more prevalent in adults in developed world and Middle East.2,3,4

The usual symptoms presented in the study are generalized weakness 100%, backache 100%, weight loss 90%, spinal deformity 90%, Anorxia 87%, Paraparesis 70% and Parathesis 70%. Usually, patients seek advice only when there is severe pain, marked deformity, or neurological symptoms6. The afternoon fever and night sweats are also not uncommon. The common signs found are local tenderness 100%, spinal movements, restriction and soft tissue thickness about the spines 63%. Kyphosis was the most common spinal deformity seen 85%. The tracking of pus was found only in a few cases 6.66%. The neural deficit was found in majority of the patients 87% and paraparesis was the most common 80% type of neural deficit. The paraplegia 13.32% found was only of spastic type and there were no cases of flaccid paraplegia. The faeco- Urinary incontinence was not a common finding 7%. Majority of the patients 61% with neural deficit presented early within one month duration of disease. While there were only two patients in whom the duration of neural deficit was upto 4 months. The complete neural recovery did happen in these late presenting cases but it was slow and took upto six months. Concurrent or past history pulmonary tuberculosis is frequent in patients with spinal tuberculosis and the incidence ranges from 50 and 75% in osteoarticular tuberculosis and up to 67% of patients in spinal tuberculosis.7,8 However the low incidence in our study may be due to small number of patients. This finding correlates with the highest incidence 77% of thoracicspine. The Spinal level involvement reported by Hodgson, the highest incidence of T12, L1 and L2 Vertebrae. (Hodgson AR: THE spine, Philadelphia, 1975)

The common laboratory finding were raised ESR 93% and anemia 87%. The spinal X-Ray were suggestive in 97% of cases. CT scan and MRI done and suggestive of 100% accuracy.

The material obtained on biopsy was send for culture and sensitivity staining for acid fast bacilli and histopathology in every case. The culture and sensitivity staining for AFB were negative in all cases and it may be due to anti tuberculosis chemotherapy which the patients were already taking or faulty laboratory techniques. The histopathology reports were suggestive most of the time.

The anti tuberculous chemotherapy initiation with four drug regimen was continued in all cases at least for 3 month.

CONCLUSION

The anti tuberculosis chemotherapy had to be extended upto one and a half year in three patients because their
ESR values were not decreased to the normal and their radiological healing was not satisfactory.

**Author’s Contribution:**

Concept & Design of Study: Naeem Mehmood Mughal
Drafting: Ashfaq Ahmed
Data Analysis: Mohammad Zafar Iqbal
Revisiting Critically: Naeem Mehmood Mughal, Ashfaq Ahmed
Final Approval of version: Naeem Mehmood Mughal

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

**REFERENCES**

Factors Responsible for Tension Headache Among Medical Students in Karachi

Faheem Ahmed, Tafazzul H Zaidi and Kiran Mehtab

ABSTRACT

Objective: To assess the frequency of tension headache episodes among medical students in Karachi.

Study Design: Cross-sectional study.

Place and Duration of Study: This study was conducted at the Sindh Medical College, Dow Medical College and Sindh Institute of Oral Health Sciences, Karachi from April 2018 to November 2018.

Materials and Methods: Non-probability purposive sampling. An informed verbal consent was taken from the candidates. Pilot study was conducted to assess the authenticity of the questionnaire. A structured questionnaire was then distributed, got filled, data was entered and analyzed using SPSS version 20, with 95% confidence interval and 0.05 p-value.

Results: A total of 429 medical students of DMC, SMC and DIKHIOS were asked about the tension headache. Out of these 307(71.6%) were female and 122(28.4%) were male. Among these, 79.7% of students felt tension headache during exams, 9.8% felt it before presentation, and 5.4% felt due to undue circumstances of the city. 3.3% while watching T.V and 1.9% felt while watching news. About 44.3% of these students felt more tension headache/anxiety in examination hall, 23.1% at home, 16.3% experience it at some new place, 10.3% at university and 6.1% at their work. 70.9% of these students could not concentrate on their studies due to tension headache, 9.8% could not concentrate on their health, 8.6% on their work, 5.8% could not give attention to their family and 5.1% could not tend to their outdoor activities. Accordingly to 48% of the medical students, tension headache got relieved by sleeping while 23.5% used tea/coffee to get rid of it, 14.5% students did other activities, 9.1% listened to songs and 4.9% got relieved by smoking. 64.3% students felt their GPA/grade was not affected by tension headache and 57.1% avoided socializing when they had tension headache and 63.9% of them thought that the tension headache was not affecting their relationship with friends and family.

Conclusion: This study concluded that stress and anxiety is the most common complaint among medical students this leads to tension type headache due to numerous psychological and physical stressors, tough medical curriculum and socio-economic conditions.

Key Words: Tension headache, anxiety/stress, impact, medical students


INTRODUCTION

Anxiety can be defined as a feeling of worry, nervousness, or unease about something with an uncertain outcome in medical terms it is a nervous disorder marked by excessive uneasiness and apprehension, typically with compulsive behaviour or panic attack.1 Anxiety is a normal human emotion that everyone experiences at times. Some anxiety is good for you. It keeps you alert and can help you to perform well, if it excess it can make you depressed and damage your physical health.2

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Appearance looks strained, with increased sweating from the hands, feet, and axillae.3 People are prone to flare up at times of high stress and are frequently accompanied by physiological symptoms such as headache, sweating, muscle spasms, tachycardia, palpitations, and hypertension.4 At times, anxiety or stress can be presents as tension headache alone Many people feel anxious, or nervous, when faced with a problem at work, before taking a test, or making an important decision. Anxiety can cause such distress that it interferes with a person's ability to lead a normal life.5 Anxiety in greater or lesser degree is found in agitated, depression and obsession states particularly, and also in such states as organic dementia hysteria and schizophrenia6. Tension-type headache (TTH) is usually described as a pain that feels like a tight band round your head or a weight on top of it. The pain can last from 30 minutes to several days, or may be continuous7. Any activity that causes the head to be held in one position for a long time without moving can cause a headache. Such activities include typing or other computer work, fine work with the hands, and using a microscope. Sleeping...
in a cold room or sleeping with the neck in an abnormal position may also trigger a tension headache. Psychosocial stressors play an important role in precipitating and maintaining TTH. Hence, a biopsychosocial approach should be adopted for care. Anxiety mediates the effect between headache frequency and quality of life, but not the effect of either headache intensity or duration. Anxiety totally mediates the effects of headache frequency on vitality, social functioning and mental health. Tension-type headache is the common type of headache that most people have at some time. One study found that, on average that about half of adults have a tension-type headache every now and then - less than one a month. This is called infrequent episodic tension-type headache. About a third of adults have two or more tension-type headaches per month, but fewer than 15 a month. This is called frequent episodic tension-type headache.

Studies show that people who are prone to the effects of stress as well as anxiety and depression are more likely to suffer from frequent headaches.

**MATERIALS AND METHODS**

A Cross-sectional study was conducted on a sample of 429 medical students. The sample was taken through Non-Probability Purposive Sampling from 3 medical Universities of Karachi, within a study period of 8 months from April to November 2018. An informed verbal consent was taken from the candidates. Pilot study was conducted to assess the authenticity of the questionnaire. A structured questionnaire was then distributed, got filled, data was entered and analyzed using SPSS version 20, with 95% confidence interval and 0.05 p-value.

**RESULTS**

A total of 429 medical students of SMC, DMC and SIOHS were asked about the tension headache. Out of these 307(71.6%) were female and 122(28.4%) were male. Among these, 79.7% of students feel tension headache during exams, 9.8% feel it before presentation, and 5.4% feel due to undue circumstances of the city, 3.3% while watching T.V and 1.9% feel while watching news. About 44.3% of these students feel more tension headache/anxiety in examination hall, 23.1% at home, 16.3% experience it at some new place, 10.3% at university and 6.1% at their work. 70.9% of these students can’t concentrate on their studies due to tension headache, 9.8% can’t concentrate on their health, 8.6% on their work, 5.8% can’t give concentration to their family and 5.1% can’t give concentration to their outdoor activities. According to 48% of the medical students, tension headache get relieved by sleeping while 23.5% use tea/coffee to get rid of it, 14.5% students do other activities, 9.1% listen to songs and 4.9% get relieve by smoking. 64.3% students feel their GPA/grade is not affected by tension headache and 57.1% avoid socializing when they have tension headache and 63.9% of them think that the tension headache is not affecting their relationship with friends and family.

**Table No.1: Questionaire**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Question asked</th>
<th>During Exams %</th>
<th>While Watching News %</th>
<th>Before Presentation %</th>
<th>Under Circumstances Of The City %</th>
<th>While Watching Match %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>When do you frequently feel tension headache/ anxiety?</td>
<td>79.7</td>
<td>1.9</td>
<td>9.8</td>
<td>5.4</td>
<td>3.3</td>
</tr>
<tr>
<td>2</td>
<td>At which place do you feel more tension headache/ anxiety?</td>
<td>23.1</td>
<td>10.3</td>
<td>44.3</td>
<td>6.1</td>
<td>16.3</td>
</tr>
<tr>
<td>3</td>
<td>I cannot concentrate due to tension headache/ anxiety on my</td>
<td>70.9</td>
<td>5.6</td>
<td>9.8</td>
<td>8.6</td>
<td>5.1</td>
</tr>
<tr>
<td>4</td>
<td>Identify from below how your tension headache/ anxiety is relieved</td>
<td>23.5</td>
<td>4.9</td>
<td>48.0</td>
<td>9.1</td>
<td>14.5</td>
</tr>
</tbody>
</table>

**Table No.2: Questionaire**

<table>
<thead>
<tr>
<th>S.No</th>
<th>Question Asked</th>
<th>Yes %</th>
<th>No %</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Is this tension headache / anxiety affecting your grades/ GPA?</td>
<td>35.7</td>
<td>64.3</td>
</tr>
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<td>6</td>
<td>Do you avoid socializing when you have tension headache/ anxiety?</td>
<td>57.1</td>
<td>42.9</td>
</tr>
<tr>
<td>7</td>
<td>Do you think your tension headache/ anxiety is affecting your relationship with friends and family?</td>
<td>36.1</td>
<td>63.9</td>
</tr>
</tbody>
</table>
Majority of medical students experienced tension headache/Anxiety during examination

Figure No.1: Frequencies of Medical Students Experienced Tension Headache / Anxiety (N=429)

Majority of medical students experienced tension headache/Anxiety at examination hall

Figure No.2: Frequencies of At What Place Medical Students Experienced Tension Headache / Anxiety (N=429)

Figure No.3: Frequencies of Medical Students Couldn't Concentrate on Studies (N=429)

Majority of tension headache/Anxiety relieved by sleeping

Figure No.4: Frequencies of Tension Headache/Anxiety Relieving Factors (N=429)

Figure No.5 (a): Those who Experienced Headache/Anxiety

Figure No.5 (b): Those who Never Experienced Headache/Anxiety

Figure No.6 (a): Those who Experienced Headache/Anxiety

Figure No.6 (b): Those who Never Experienced Headache/Anxiety

Figure No.7 (a): Those who Experienced Headache/Anxiety

Figure No.7 (b): Those who Never Experienced Headache/Anxiety
DISCUSSION

Tension headaches occur when neck and scalp muscles become tense, or contract. The muscle contractions can be a response to stress, depression, a head injury, and anxiety. Other triggers of tension headaches include, Alcohol use, Caffeine (too much or withdrawal) even too much use of caffeine in coffee can make a person uncomfortably anxious, Colds, flu, or a sinus infection, Dental problems such as jaw clenching or teeth grinding, Eyestrain, Excessive smoking, Fatigue or overexertion. Any activity that causes the head to be held in one position for a long time without moving can cause a headache. Such activities include typing or other computer work, fine work with the hands, and using a microscope. Sleeping in a cold room or sleeping with the neck in an abnormal position may also trigger a tension headache. It presents as dull, pressure-like (not throbbing) a tight band or vise on the head all over (not just in one point or one side) Worse in the scalp, temples, or back of the neck, and possibly in the shoulders.

Tension-type headaches can be episodic or chronic. Infrequent episodic, if it occurs less than 1 day a month, Frequent episodic, if it occurs more than 1 day but fewer than 14 days each month or chronic if it occurs or more days each month for at least 3 months. Tension-type headaches predominated in males and was more frequent among medical students. Headache is one of the most common complaints during medical curriculum and it occurs due to numerous psychological and physical stressors, which are more common in medical students than general population.

The purpose of our study was to evaluate the frequency of tension types of headache in medical students and associated factors. The results demonstrate that prevalence of headache is high among medical students. A total of 429 medical students of SMC, DMC and SIOHS were asked about the tension headache. Out of these 307(71.6%) were female and 122(28.4%) were male. 79.7% of students felt tension headache during exams, 9.8% feel it before presentation, and 5.4% feel due to undue circumstances of the city, 3.3% while watching T.V and 1.9% feel while watching news. This was similar to a study where the tension headache accounted for 59% and migraine 22% in medical students. The study showed about 44.3% of students felt more tension headache/anxiety in examination hall, 23.1% at home, 16.3% experience it at some new place, 10.3% at university and 6.1% at their work. 70.9% of these students could not concentrate on their studies due to tension headache, 9.8% could not concentrate on their health, 8.6% on their work, 5.8% could not give attention to their family and 5.1% could not tend to their outdoor activities. Frequent headaches can interfere with daily life such as, making daily decisions, affect studies as a result of lack of concentration and the person try to avoid friends and family. Students with Tension Headache tend to perform some non pharmacological maneuvers like, scalp massage, smoking, take tea or coffee or try to sleep.

The study also showed that 64.3% students felt their GPA/grade was not affected by tension headache. This was in contrast to a study conducted in Brazil in 2011 where it was found that academic performance was affected by Tension Headaches. 57.1% avoided socializing when they had tension headache and 63.9% of them thought that the tension headache was not affecting their relationship with friends and family. Tension headaches often respond well to treatment, and do not cause serious medical problems. However, chronic tension headaches can have a negative impact on the quality of life and work.

CONCLUSION

The study concluded stress and anxiety is the most common complaint among medical students this leads to tension type headache due to numerous psychological and physical stressors, tough medical curriculum and socio-economic conditions.

Author’s Contribution:
Concept & Design of Study: Faheem Ahmad
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Data Analysis: Kiran Mehtab
Revisiting Critically: Faheem Ahmad, Tafazzul H Zaidi
Final Approval of version: Faheem Ahmad

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Entering the Post-Antibiotic Era: A Review of 200 Cultures from a Tertiary Care Hospital in Lahore

Aneela Chaudhary¹, Muhammad Asim Rana¹, Dawar Ayyaz² and Khalid Waheed³

ABSTRACT

Objective: To analyse the spectrum of resistance of various pathogens against commonly used antibiotic in a tertiary care hospital, Lahore.

Study Design: Retrospective study

Place and Duration of Study: This study was conducted at the Lahore General Hospital from January 2017 to April 2018.

Materials and Methods: A total of 200 culture reports, sent from medical and surgical departments including ICUs of the hospital. Cultures of sputum, tracheal secretions, blood, pleural fluid, urine and tip of urinary catheter and CVP line were included.

Results: Out of 200 positive cultures, the majority (70%) were of respiratory tract origin. Gram negative bacteria prevailed (92%) as compared to gram positive pathogens which were just (8%). E coli (22%) and Pseudomonas (22%) were the commonest bugs followed by Klebsiella (17%) and Acinetobacter (17%). All gram-negative isolates showed very high rates of resistance against 3rd generation cephalosporins, amoxiclav, ciprofloxacin and gentamycin. Alarming levels of carbapenem resistance was documented in Acinetobacter (55.9%) and Klebsiella (51%) isolates. Ecoli (22%) and pseudomonas (31%) were relatively less resistant to carbapenems. MRSA accounted for 62.5% of staphylococcal samples.

Conclusion: The rapid and exponential rise in antimicrobial resistance is a serious threat for patient in the 21st century. It has reached alarming levels in different parts of world. There is an urgent need to develop and enforce strict controls on antibiotic usage.

Key Words: Antibiotic resistance, culture, pathogens, Bacterial resistance

INTRODUCTION

Antibiotic resistance varies with time and place.¹ A variety of antibiotics are used to combat common and everyday infections, but due to poor prescription practices, poor application of updated knowledge, antibiotic overuse and extended use of antibiotics in agricultural and animal farming, we are facing a global epidemic of antibiotic resistance.² There is spatio-temporal co-relation with antibiotic usage and resistance patterns.

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high rates of resistance and serious gaps in antibiotic surveillance, standard maintenance and data sharing. The report further documents the multifactorial causes of antibiotic resistance citing misleading advertisements, “quacks”, polypharmacy practices, individual bias towards costly broad spectrum antibiotics, irrational prescription practices and availability of over the counter (OTC) drugs and most importantly poor reporting at the micro level by hospitals and laboratories.

A study was conducted by the Proceedings of the National Academy of Sciences (PNAS) on the use and sale of antibiotics in 76 countries. The results showed that the consumption of antibiotics has tremendously increased from 2000 to 2015, especially in low and middle-income countries. A lack of proper infection control and barrier nursing in hospital environment and in food supply chain where animals are given antibiotics for various reasons, have huge contribution in worsening this situation. Today, bacteria are characterized not only by single drug resistance but also by multi, extremely and pan-antibiotic resistance. Multi-Drug resistant organisms are resistant to most of the antibiotics available.

The World Health Organization has warned about carbapenem, third generation cephalosporin, aminoglycoside and fluoroquinolone resistant bacteria worldwide and have published a list of resistant bugs according to the pathogenicity and priority so that appropriate measures should be taken by countries to combat the situation and to develop new antibiotics. In a developing country like Pakistan it is of utmost importance that we change our prescription practices to and focus on using less broad spectrum antibiotics. Continuous and dedicated monitoring of sensitivity pattern of bacteria in our setups should be mandatory to avoid unnecessary mortality and morbidity and financial burden on governments and patients. Due to isolation and fear of resistant bugs, carbapenem and Colistin like antibiotics are routinely prescribed as empirical treatment even outside ICU which is resulting in emergence of superbugs which are resistant to all major antibiotics.

**MATERIALS AND METHODS**

We conducted a retrospective audit of 200 positive culture reports, sent from Medical and Surgical Departments including ICUs of the Lahore General Hospital, Lahore which were ordered by pulmonologist from January 2017 to April 2018. Cultures of sputum, tracheal secretions, blood, pleural fluid, urine and tip of urinary catheter and CVP line included. Data was analysed by SPSS version 24.

**RESULTS**

A Total of 200 cultures were studied, among which (61) were from sputum, tracheal aspirate (58), urine (22), pleural fluid (21), blood (19), whereas catheter tip and CVP line tip were (11) and (8) respectively (Fig 1). Gram negative bacteria prevailed at (92%) and gram-positive pathogens were just (8%). (Fig 2). Among gram negative bacteria, Escherichia coli and pseudomonas were the most common bugs isolated 45 (22%) each followed by Klebsiella 35 (17.5%), Acinetobacter 34 (17%), Proteus 7 (3%) and Enterococcus 5 (3%).

**Figure No. 1: Type of samples**

**Figure No. 2: Percentage according to Gram staining**

**Figure No. 3: Prevalence of bacteria**

Among gram positive pathogens, Staphylococcus aureus was 24 (12%) and Streptococcus pyogenes 5 (2.5%) (Fig 3). Overall antibiotic resistance patterns revealed highest rates of resistance against third generation cephalosporins and Amoxicillin-clavulanic acid followed by ciprofloxacin (Fig 4). Over all resistance against ceftriaxone was (85%), cefotaxime
(84%) ceftazidime (77%) whereas Amoxiclav (83.5%) and ciprofloxacin (82%). Among aminoglycosides gentamycin had higher resistance (60%) than amikacin (39%). Overall resistance against meropenem, imipenem and piperacillin-tazobactam was (34.5%, 36% and 39.5%) respectively which is lesser than cefoparazone–salbactam combination (52%). Colistin was least resistant (9%) followed by tigecycline (18%). Resistance patterns of individual bacteria against commonly used antibiotics are shown in (Table 1). Proteus showed 100% resistance against ceftriaxone, cefotaxime and ciprofloxacin but remained 100% sensitive to carbapenams, tigacyclin and colistin. Klebsiella and Acinetobacter showed alarming resistance rates against almost all groups of antibiotics and were more resistant than E coli. S. aureus was 62.5% resistant to amoxiclav and no resistance was documented against vancomycin and linezolid.

**DISCUSSION**

Antibiotic resistance is a natural evolutionary mechanism that protects bacteria against antibiotics to which they had been exposed. The most alarming discovery of the recent years is that antimicrobial-resistance genes and their genetic vectors, once evolved in bacteria of any kind anywhere, can spread indirectly...
through the world's interconnecting commensal, environmental, and pathogenic bacterial populations to other kinds of bacteria anywhere else. Antibiotic consumption is the main driver of antibiotic resistance. Unsupervised and injudicious use of antibiotics in human and animals have favoured the emergence of superbugs. According to a report issued by proceedings of national academy of sciences (PNAS), from 2000 to 2015, there was 65% increases in consumption of antibiotics. The World health organization has issued a list of pathogens that are huge threat for clinicians. Carbapenam resistant Acinetobacter, Pseudomonas, Klebsiella and E.coli and methicillin resistant Staphylococcus aureus are at top of this list. In our study gram negative bacteria were most prevalent, among which E coli and pseudomonas were the commonest bugs isolated (22% each) followed by Klebsiella and Acinetobacter (17% each). It is consistent with many studies done around the world and in Pakistan. Results of studies conducted by Rizvi et al from Pakistan were comparable to our study and revealed E.coli, Klebsiella, and pseudomonas are the most prevalent bugs in hospital infections. Acinetobacter has emerged as another common microorganism known for ventilator associated pneumonia.

In our study, over all high rates of resistance were seen against 3rd generation cephalosporins, co-amoxiclav and ciprofloxacin (85.5%, 83.5%, 82% respectively) while colistin remained the most effective drug with lowest rates of resistance (9%). Among aminoglycosides higher resistance was seen against gentamycin (60%) than amikacin (39%). These results are consistent with the findings of Naeem et al. Acinetobacter showed highest resistance rates against Amoxi-clav (94%), cephalosporins (85%), ciprofloxacin (97%) and considerable resistance against carbapenems and pipraccillin-tazobactam (55.9% and 50% respectively). It was least resistant to colistin (17%). Klebsiella followed a similar pattern of resistance which is alarming for us. E. coli and pseudomonas were relatively less resistant to carbapenem (22% and 31% respectively) and against colistin (11.2% and 4.5% respectively) but both pathogens were highly resistant to 3rd generation cephalosporins (86.7% and 84.5% respectively). These results are consistent with findings of Tashima et al. 3rd generation cephalosporins and aminoglycosides, which remained main defence against gram negative bacterial infections are proving ineffective now and we have to rely more on carbapenems and colistin.

In European Centre for Disease Control (ECDC) annual report, a clear gradient from low to high resistance is evident as you move from west to east and north to south Europe. The data for 2017, concerning carbapenem-resistant germs such as Acinetobacter, show the European percentage of resistant strains at 50% in 2015, with Italy alone reporting 78%; Klebsiella at 66% (in Slovakia) while E coli is relatively less resistant and highest is (1.9%) in Greece. In our study, among staphylococcus, (62.5%) were Methicillin resistant (MRSA) and were 100% sensitive to vancomycin and Linezolid. A study conducted my Kakkar et al in India documented MRSA (47%), carbapenem resistant Klebsiella (57%), E coli (13%) and pseudomonas ( 50%). Worrisome resistance rates have been observed in North Korea as well with Acinetobacter resistance against cefotaxime (84%) and imipenem (85%).

Antimicrobial resistance is worldwide now and a serious threat to public health. For bacterial infections, prompt treatment with effective antimicrobial agents is especially important and is one of the single most effective interventions to reduce the risk of fatal outcome. Emergence of resistant bacterial strains means that standard treatments are no more working and infections are harder to treat with same antibiotics. This would lead to spread of infections, longer hospital stays increased economic and social costs and high mortality. Despite being a resource limited country a recent study suggests that with proper training techniques, mentorship courses, didactic training workshops and adherence to International Health Regulation (IHR) laboratories both private and public can and should lead the line against antimicrobial resistance.

CONCLUSION

The rapid and exponential rise in antimicrobial resistance is a serious threat for patients in the 21st century. It has reached alarming levels in different parts of world and Pakistan is particularly vulnerable due to multiple reasons identified. There is an urgent need to develop and enforce strict controls on antibiotic usage. Hospitals and private labs must co-operate to provide extensive data to chart resistance patterns or risk a crisis.

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Concept & Design of Study: Aneela Chaudhary
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Data Analysis: Dawar Ayyaz
Revisiting Critically: Aneela Chaudhary, Khalid Waheed, Muhammad Asim Rana
Final Approval of version: Aneela Chaudhary

Conflict of Interest: The study has no conflict of interest to declare by any author.

REFERENCES

Pattern of Presentation of Congenital Heart Diseases in Children
Salman Mustaan Khan, Ihsan ul Haq, Sajjad Hussain, Sardar Khan and Zahir Said

ABSTRACT

Objective: To determine the pattern of presentation and clinical features in patients with Congenital Heart Disease admitted in Pediatric department, Saidu Teaching Hospital Swat.

Study Design: Descriptive / Cross-sectional study

Place and Duration of Study: This study was conducted at the Department of Pediatrics, Saidu Teaching Hospital Swat, from March 2018 to September 2018.

Materials and Methods: In this study 120 children fulfilling the inclusion criteria were enrolled after getting informed consent. The information obtained was organized on a predesigned proforma and descriptive statistics were applied on the collected data.

Results: In this study, the male to female ratio was 1.9: 1. Most of the children with Congenital Heart Disease presented below one year of age (57.5%), followed by 30.8% of children whose age ranged from 1 to 5 years and only 11.6% presented above 5 years. 65% of the patients presented with Respiratory distress. Fever (47.5%) and feeding difficulty (40.8%) were other common symptoms. Tachypnoea (59.1%) was the most common symptom observed followed by tachycardia (55%), murmur (54.1%) and hepatomegaly (48.3%).

Conclusion: In our study, the most common clinical presentation of children with congenital heart disease was respiratory distress and tachypnea, most of them doing so below one year of age.

Key Words: Congenital Heart Disease, Tachycardia, Tachypnoea.

INTRODUCTION

Congenital Heart Disease (CHD) is defined as structural or functional heart defect that is present at the time of birth, even if it is discovered much later. Its prevalence is almost 8-9 per 1000 live births. Women at high risk of having an infant with CHD include those with diabetes, a family history of CHD or exposure to drugs such as indomethacin. In addition, first trimester Rubella exposure and residence at high altitudes are associated with increased incidence of Patent Ductus Arteriosus (PDA). Other infants at high risk for CHD include those with abnormalities of other systems and those with syndromes related to abnormal karyotypes.

Congenital Heart Defects are classified into Acyanotic and Cyanotic. The common acyanotic lesions are ventricular septal defects (VSD), atrial septal defects (ASD), atrioventricular canal defect, pulmonary stenosis, PDA, aortic stenosis and coarctation of aorta while Tetralogy of Fallot and Transposition of Great Arteries are the common cyanotic CHD. Other rare cyanotic defects include Tricuspid Atresia, Total Anomalous Pulmonary Venous Return, Truncus Arteriosus and Hypo-plastic Left Heart Syndrome. Children with CHD commonly present with symptoms like respiratory distress, fever, feeding difficulty, failure to thrive, exercise intolerance, and cough while tachypnoea, tachycardia, murmur, hepatomegaly, chest in drawing, basal crepitations, wheeze, central cyanosis and cardiomegaly are the common presenting signs. Moreover, growth is more affected in children with congenital heart lesions than normal children and they often present with various degrees of malnutrition. In acyanotic CHD, congestive cardiac failure is the most common complication while hypoxia is the primary concern in infants with cyanotic defects. Furthermore CHD has a great deal of impact on child development.

Rapid diagnosis and appropriate management is the key to reduce mortality and morbidity in this fragile patient population. Most cases are detected upon referral for cyanosis, clubbing or cardiac murmur. The number of patients with CHD is on the rise because of steady addition and increased longevity. Delayed recognition of CHD may have a serious impact on the long term outcome of the affected children.

CHD is an important group of disease, which steadily adds to the overall burden of cardiac ailments. Despite improved medical care, CHD remains a leading cause
of neonatal and infant mortality and morbidity and there is wide spectrum of presentation\cite{13}. This study was conducted to know about the various modes of presentation of CHD in children.

MATERIALS AND METHODS

This cross sectional study was carried out in the Department of Pediatrics, Saidu Teaching Hospital Swat from 10\textsuperscript{th} March 2018 to 9\textsuperscript{th} September 2018. A total of 120 cases with Congenital Heart Disease were collected.

The sampling technique was Non Probability convenience sampling and all consecutive patients fulfilling the inclusion criteria were included.

**Inclusion Criteria:** All patients, both male and female, aged between day one to 15 years, having Congenital Heart Disease were included in the study.

**Exclusion Criteria:** Patients having acquired heart diseases like Rheumatic Carditis, Infective Endocarditis and Viral Myocarditis, were excluded from the study.

**Data Collection Procedure:** Institutional Ethical Committee permission was sought before starting the study. All patients with CHD admitted in pediatric department, presenting with symptoms like respiratory distress, fever, feeding difficulty, sweating during feeding, failure to thrive and bluish discoloration and signs like tachypnoea, tachycardia, cyanosis, murmur, hepatomegaly, severe malnutrition and clubbing were enrolled for the study after written informed consent. All this information was recorded on a predesigned proforma.

**Data Analysis:** As this was a descriptive study, so no inferential statistics were applied. Different variables were considered using means (for age) and percentages. The data was analyzed on Excel Spread Sheet.

RESULTS

In this study the age group of children ranged from newborn to 15 years of age. The lowest age of presentation was a newborn 2 days old and the oldest child who presented with CHD was 12 years old with mean age of 26.6 months. Most of the patients with CHD, 69 in number (57.5%), presented below 1 year of age including both neonates (0-30 days) and infants (31 days –1 year). The neonates who presented with CHD were 17 (14.2%) and the infants were 52 (43.3%). Those children who presented with CHD beyond infancy were 51 (42.5%). Out of later, 14 (11.6%) children presented above 5 years of age.

In this study, 79 (65.8%) children were males and 41(34.2%) were females with a male to female ratio of 1.9:1.

Respiratory distress was the most common symptom observed, in 78 children (65%). The most common observed sign was tachypnea, in 71 children (59.1%). Other symptoms with which children presented were fever in 57 (47.5%), feeding difficulty in 49 (40.8%), sweating during feeding in 46 (38.3%), failure to thrive in 45 (37.5%), bluish discoloration of lips, tongue and fingers in 41 (34.1%), exercise intolerance (easy fatigability) in 29 (24.1%), cough in 25 (20.8%), and chest pain in 7 (5.8%) cases. The frequency distribution of clinical signs in children with CHD is shown in Figure 2. Cardiomegaly was found in 26 (21.6%) children on chest radiograph. Distribution of types of acyanotic CHD is shown in Table 1.

![Figure No.1: Frequency distribution of cyanotic and acyanotic CHD (n=120)](image1)

**Table No 1: Distribution of types of Acyanotic CHD (n=120).**

<table>
<thead>
<tr>
<th>Disease</th>
<th>No. of cases</th>
<th>Percentage %</th>
</tr>
</thead>
<tbody>
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<td>Ventricular Septal Defect</td>
<td>43</td>
<td>35.8</td>
</tr>
<tr>
<td>Patent Ductus Arteriosus</td>
<td>9</td>
<td>7.5</td>
</tr>
<tr>
<td>Pulmonary Stenosis</td>
<td>9</td>
<td>7.5</td>
</tr>
<tr>
<td>Atrial Septal Defect</td>
<td>8</td>
<td>6.7</td>
</tr>
<tr>
<td>Aortic Stenosis</td>
<td>2</td>
<td>1.7</td>
</tr>
</tbody>
</table>

Tetralogy of Fallot in 32 (26.7%), Transposition of Great Arteries in 15 (12.5%) and Tricuspid Atresia were found in 2 (1.7%) children with cyanotic CHD. In this study 3 (2.5%) children died. All children who died had cyanotic CHD. Among these children, one was neonates.

![Figure No 2: Frequency distribution of clinical signs in Children with CHD (n=120)](image2)
DISCUSSION

Although this study was a hospital based study and gives neither the true incidence and prevalence of CHD nor its pattern of presentation in total population, yet results are comparable with other local and international studies.

CHD is an important cause of morbidity and mortality in children. There is a wide spectrum of presentation of heart disease in children, out of which, one of the fact is that congenital heart lesions present more commonly during infancy. Our study also concurred with this and showed that maximum number of children with CHD presented below 1 year of age. This can be further compared with the study done by Otaigbe BE, where most of the patients with CHD presented between 0-12 months of age. Similarly, study conducted by Sadoh WE showed that maximum diagnoses were made within first year of life.

The Congenital Heart Disease in children shows predominance in males. Our study also showed similar results with 65.8% male children presenting with CHD. This can also be compared with the local studies by Zahid SB et al and Rashid U et al. In the later study male to female ratio was 3:1. One of the study conducted by Saleh HK showed that females were more frequently affected than males in congenital cardiac diseases, which might be because of the fact that it was a retrospective study and was based on only referred patients for echocardiography.

In this study, 59.2% children had acyanotic and 40.8% had cyanotic CHD. This can be compared with the local studies like Mohammad N et al and Zahid SB et al, as well as in international data like study conducted by Shah GS, where maximum number of children presented with acyanotic lesions.

Depending on the type of CHD, the presentation can show considerable variations. Our study showed that respiratory distress was the most common symptom. This can be attributed to the fact, that acyanotic or left to right shunt lesions were pre-dominant in our study and can be explained by the pathophysiology and clinical course of such lesions, especially VSD, which later was found in 35.8% of children in our study. After birth in patients with left to right shunts, the pulmonary vascular resistance may remain higher than normal, and thus the size of left to right shunt may initially be limited. As pulmonary vascular resistance continues to fall in the first few weeks after birth, because of the normal involution of the media of small pulmonary arterioles, the size of the left to right shunt increases. Eventually a large left to right shunt ensues, and clinical symptoms become apparent, with patient commonly presenting with respiratory distress. This is encountered usually as tachypnoea and tachycardia in the clinical setup, which both were the clinical signs frequently observed in our study. This was comparable with study conducted by Meshram RM.

In this study, 36.7% were severely malnourished. This is comparable with one of the western studies which showed that 52% children with CHD had weight less than 3rd centile. In our study 5.8% children complained of chest pain. All these children were aged 8 years and above. The chest pain was related to cough involving the exertion of thoracic musculature and not due to pericardial or myocardial involvement.

Study by Goarge IO et al showed that VSD was the most common congenital cardiac lesion. In our study too, as mentioned earlier VSD was the most common CHD. This is also comparable with studies conducted by Abah RO et al, Kenney N and Farooqui R et al. Tetralogy of Fallot was the most common cyanotic CHD in our study, comparable to the study done by Amro K.

In this study, 3 children with CHD died, who all had cyanotic lesions. Though outcome of CHD was not the objective of our study however, this indicates that early recognition and appropriate management is required as it causes death of thousands of children in developing countries.

CONCLUSION

In our study, the most common clinical presentation of children with acyanotic CHD was respiratory distress and tachypnea, most of them doing so below one year of age. The predominant presentation of cyanotic CHD was, as expected, cyanosis. VSD was most common acyanotic lesion while the most common cyanotic lesion was Tetralogy of Fallot.

REFERENCES
Reverse Sural Artery Perforator Flap: Modified Pedical Dissection Technique

Kamran Khalid, Ammara Rabbani, Imran Shehzad, Muhammad Nasrullah, Muhammad Tariq Iqbal and Barira Bashir

ABSTRACT

Objective: To study the versatility of reverse sural artery perforator flap by modified pedical dissection technique, as are liable loco-regional flap to reconstruct distal limb and foot defects.

Study Design: Case series study

Place and Duration of Study: This study was conducted at the Jinnah Burn & Reconstructive Surgery Centre, Lahore from January 2010 to July 2017.

Materials and Methods: A total of 62 patients, 19 females (30%) and 43 males (70%) between 3 to 68 years of age with mean age of 19.4 years were included. Patient presenting to emergency department with 8 wounds on anterior distal 1/3 of tibia, 16 of ankle, 29 of heel and 9 wounds on dorsum of foot were included. Pre-operative hand held Doppler was done in all cases to mark the perforators. Per operative perforators were marked and a reliable perforator (> 1mm) size was selected and flap elevated. Adipo-fascial pedicle is elevated, with a width of 4cm to include the sural nerve and vein.

Results: Of the 62 cases operated in 50 patients (80%) the 2nd distal perforator at 7-10 cm and in 12 patients (20%) proximal perforator at 5 cm was found to be of good size. Adipo-fascial pedical width was kept at 4 cm. All flap survived completely. Only minor complications were seen in 8 (13%) flaps, distal 1cm tip necrosis in 3 flap and distal tip epidermolysis in 5 patients healed completely without intervention.

Conclusion: With the appropriate pre-operative planning and per-operative modifications sural flap is a reliable and versatile workhorse flap for distal lower limb and foot defect reconstruction.

Key Words: Reverse sural artery perforator flap, Modified pedical dissection technique, Dominant perforator, Pre-operative Doppler ultrasonography

INTRODUCTION

Complex Soft tissue defects of distal third of tibia, ankle and foot is always a problematic areas for reconstruction due to paucity of well vascularized local donor tissue.a Free tissue transfer can bring a good amount of tissue to desired place in experienced hands only.2 But due to lack of logistics and an experienced microsurgical personal, free tissue transfer is not an option in every centre.4, 5

Beside free tissue transfer, reverse sural artery flap is a versatile loco-regional flap to reconstruct these defects.

The major advantage of this flap is a constant blood supply that does not sacrifice any major artery of the lower limb.6 This flap was first described by Masquelet et al and become a popular option for many of these difficult wounds before the era of microvascular surgery but fell out of fame due to high complication rate. Studies have shown high complication rate in reverse sural artery perforator flap due to venous congestion, which takes place through venae comitantes of the sural nerve and the lesser saphenous vein.8

In the popliteal fossa popliteal artery gives a branch to both the heads of gastrocnemius muscle and another branch that continues as the sural artery that divides into median, lateral and medial branches. The median sural artery accompanies the sural nerve and vein and supplies the posterior mid-calf skin and subcutaneous tissue. These sural artery fasciocutaneous vascular network communications with septocutaneous perforators of the peroneal artery in the distal third of the calf along with the neurocutaneous perforators from vasa nervosum of the sural nerve, forms the basis of the distally based sural artery perforator flap.9

Classically literature has describes about 3-6 perforators, but more consistent one are present at an average of 5, 10 and 15 cm from the lateral malleolus. The conventional method of flap dissection proceed from proximal to distal, but in our technique we have
first done the distal dissection of pedicle in order to localize a reliable perforator for flap perfusion and then proceeded proximally. For the venous congestion the pedicle width was kept at 4 cm (2cm each on either side of the sural nerve and vein) to avoid this complication.10

MATERIALS AND METHODS

This study was carried out at Jinnah Burn & Reconstructive Surgery Centre Lahore within 7 years from January 2010 to July 2017. A total of 62 patient 19 females (30%) and 43 males (70%) between 3 to 68 years of age with mean age of 19.4 years were included. Patient presenting to emergency department with 8 wounds on anterior distal 1/3 of tibia, 16 of ankle, 29 of heel and 9 wounds on dorsum of foot were included. Patient with varicose vein, severe vascular insufficiency and injury in the zone of pedicle were excluded from the study. A pre-operative hand held Doppler was done in all cases to mark the perforators. Initially anaesthesia fitness and informed consent was taken. Patients were operated in either prone or lateral position. Under tourniquet control debridement was done and wound dimensions were measured. Flap marking was done as follows, posterior midline calf was marked from popliteal fossa to the heel. Flap axis were drawn from mid popliteal point to the tip of lateral malleolus. Provisionally perforators were marked at 4-5cm, 7-10 cm and 13-15 cm from the tip of lateral malleolus along the axis depending upon the initial Doppler signals. Arbitary Flap marking was done based on pivot around the distal two perforator location. Dissection is started distally with skin and superficial fat layer was dissected of the pedical leaving the deep layer of fat on fascia including sural nerve and vein. Laterally deep fascia was incised along the length of peroneus longus and elevated with muscle retracted laterally. Peroneal artery perforators were identified originating between the soleus and peroneus long muscle and piercing the deep fascia. Per operative perforators were marked and a reliable perforator (> 1mm) size was selected and flap marking readjusted. Adipo-fascial pedicle is elevated, with a width of 4cm to include the sural nerve and vein. At the proximal margin of the flap, the nerve and the vessels are ligated and severed. The skin island is elevated with the deep fascia. The donor site defect and the pedical were closed with split thickness skin graft. Patient was discharged after 1st dressing change on 4th post-operative day. The data was entered and analyzed through SPSS-20.

RESULTS

Of the 62 cases operated in 50 patients (80%) the 2nd distal perforator at 7-10 cm was a selected for flap elevation based upon per operative perforator size >1mm diameter. Only in 12 patients (20%) proximal perforator at 5 cm was found to be of good size. In all cases width of adipo-fascial pedical was kept at 4 cm. All flap survived completely. Only minor complications were seen in 8 (13%) flaps with no intervention required. Distal 1cm tip necrosis in 3 flap healed by secondary intention and distal tip epidermolysis in 5 patients healed completely without intervention. There was no loss of split skin graft and no complaints related to the sacrifice of the sural nerve. Paresthesia on the lateral border of the foot was overcome with in 4-6 months (Tables 1-3, Figs. 1-4).

Table No.1: Frequency and percentage of genders (n=62)

<table>
<thead>
<tr>
<th>Sex</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>43</td>
<td>70.0</td>
</tr>
<tr>
<td>Female</td>
<td>19</td>
<td>30.0</td>
</tr>
</tbody>
</table>

Table No.2: Frequency and percentage of site of defect (n=62)

<table>
<thead>
<tr>
<th>Site of defect</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distal 1/3 tibia</td>
<td>8</td>
<td>12.9</td>
</tr>
<tr>
<td>Ankle</td>
<td>16</td>
<td>25.8</td>
</tr>
<tr>
<td>Heel</td>
<td>29</td>
<td>46.8</td>
</tr>
<tr>
<td>Dorsum of foot</td>
<td>9</td>
<td>14.5</td>
</tr>
</tbody>
</table>

Table No.3: Location of dominant perforator for sural flap elevation

<table>
<thead>
<tr>
<th>Location</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proximal perforator (at 5 cm from lateral malleolus)</td>
<td>50</td>
<td>80.0</td>
</tr>
<tr>
<td>Distal perforator (7-10 cm from lateral malleolus)</td>
<td>12</td>
<td>20.0</td>
</tr>
</tbody>
</table>

Figure No.1: Pre-operative wound

Figure No.2: Per-operative Flap and Perforator marking
DISCUSSION

There are a number of pedicled flaps used for the reconstruction of lower limb defects. The major disadvantage is their small size, limited arc of rotation and trauma in the vicinity of flap. With limited local viable tissue, free tissue transfers is another option but surgery is mostly lengthy and costly, require expertise and functional donor-site morbidity. The advantages of the reverse sural artery flap, it is a single stage procedure, simplicity of the design, easy to execute and no further damage to limb vascularity. So the reverse sural artery flap is an ideal alternative to all local flap and free tissue transfer, with easy dissection, greater reliability and preservation of limb vascularity and better arc of rotation.

Upon initial adoption of this procedure there was great frustrations among the surgeons due to high venous congestion leading to flap failure. Since then there have been number of operative technique modifications published in literature in order to solve this issue. They included either leaving the skin intact over the pedicle or raising an adipofascial flap, exteriorizing the pedical or supercharge the flap by doing venous anastomosis distally. Baumeister et al study has shown 36% combined rate of partial and complete flap necrosis. We revisited the possible flaws in surgical technique leading to high failure and with our modified surgical technique we have been able to achieve a significant low complication rate of as low as 12%.

As literature has shown that reverse sural artery flaps are based on distal 5cm perforator and the flap being raised from proximal to distal without per operative confirmation of the perforator size and dominance. Our surgical modification of distal pedicle first dissection has shown that peroneal artery perforator at 5cm is dominant (> 1mm diameter on inspection) in only 20% of the case while in majority 80% of the patient perforator at 7-10 cm is always reliable. So we per operatively modified the flap basis and the flap extended accordingly even up to proximal part of calf without significant complication rate. Also the pedicle width was kept to minimum of 4 cm and in all the cases pedicle was exteriorised and covered with split thickness skin graft. So with these factors avoided we have experienced a very low and minor complications in our flaps with no cases of complete flap loss.

One major drawback of planning the flap on 2nd distal perforator is that it increases the pedicle length and the amount of tissue to be perfused. This can be overcome by delaying the flap and have not shown any increase in flap complication rate which we intend to show in our future study.

CONCLUSION

So with careful pre-operative planning and per-operative modifications this flap is still a reliable and versatile workhorse flap for distal lower limb and foot defect reconstruction other than free tissue transfer.

Author’s Contribution:
Concept & Design of Study: Kamran Khalid
Drafting: mmara Rabbani, Imran Shehzad
Data Analysis: Muhammad Nasrullah, Muhammad Tariq Iqbal, Barira Bashir
Revisiting Critically: Kamran Khalid, mmara Rabbani, Imran Shehzad
Final Approval of version: Kamran Khalid

Conflict of Interest: The study has no conflict of interest to declare by any author.

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**Original Article**

**Vitamin D, Parathyroid Hormone and Metabolic Syndromes in Morbidly Obese Children**

Sana Javaid, Zukhruf Maryam, Maroofa Habib

**ABSTRACT**

**Objective:** To observe the association of the parathyroid hormone and vitamin-D with the occurrence of metabolic syndromes in severely obese children.

**Study Design:** A prospective observational study

**Place and Duration of Study:** This study was conducted at the Department Pediatric Medicine of Nishtar medical university and hospital, Multan from July, 2018 to December, 2018.

**Materials and Methods:** Age, BMI, gender, serum vitamin-D, parathyroid hormone level, serum calcium, total cholesterol, HDL, LDL, triglycerides, fasting blood glucose and presence or absence of metabolic syndrome were equated between the two groups of the patients, taking normal or low vitamin-D levels as grouping variable. Then, the comparison was done taking normal or high PTH levels as grouping variable. Chi-square and student t tests were applied accordingly. The dissimilarities were reflected statistically significant if the p≤0.05.

**Results:** Out of 58, 37 children had low vitamin-D while 21 children had normal vitamin-D levels. The prevalence of metabolic syndromes was 75.7% and 33.3% in the children with low and normal vitamin-D levels, respectively (p=0.002); and differences in serum calcium, PTH, vitamin-D, total cholesterol, HDL, LDL and triglycerides were statistically significant (p≤0.05). Thirty five children had high PTH levels while 23 children had normal PTH levels. The prevalence of metabolic syndromes was 62.8% 56.5% in the children with high and normal PTH levels, respectively (p=0.629); and differences in serum PTH, vitamin-D, HDL and triglycerides were statistically significant (p≤0.05).

**Conclusion:** Vitamin-D, but not parathyroid hormone, is considerably associated with the occurrence of the metabolic syndromes in severely obese children.

**Key Words:** Vitamin-D, parathyroid hormone (PTH), obesity, children, metabolic syndromes.

**Citation of articles:** Sana Javaid, Zukhruf Maryam, Maroofa Habib Vitamin D, Parathyroid Hormone and Metabolic Syndromes in Morbidly Obese Children. Med Forum 2019;20(1):81-85.

**INTRODUCTION**

Obesity is one of the major health complications all across the world. There has been observed significant increase in obesity among the western population in the past thirty years. It is expected that almost one third of the adult population comprises of obese people. Obesity is considered to have significant effect over the health and thought to cause cancer and cardiovascular diseases, consequently decreasing the life expectancy. Owing to the obesity, cardiovascular risk factors which include insulin resistance, adiposity, hypertension, dyslipidemias, and glucose intolerance have been increased significantly and these factors are usually termed as metabolic syndromes. Almost 20% of the adult population of the United States is affected with metabolic syndromes and the prevalence is thought to increase with the increase in obesity. Vitamin D plays role in maintaining mineral homeostasis and normal skeletal structure. Provitamin D precursor, transforms to previtamin D3 after absorbing ultraviolet light from the skin, which in turn converted to 25-hydroxyvitamin D3 in liver and then to 1,25-dihydroxyvitamin D3 in the kidneys. Diets are also a good source of vitamin D. Serum 25-hydroxyvitamin D is measured to assess the vitamin D status. Vitamin-D are adequate in the people living in sun exposure areas of land. Not only metabolic bone disease is triggered by vitamin D deficiency, but other chronic disorders are also associated with deficiency. The association of vitamin D deficiency has been observed with type-II diabetes mellitus and cardiovascular diseases. Therefore the link of vitamin D deficiency and metabolic syndromes has also been suggested. It is supposed to be due to the non-calcemic functions of vitamin D as vitamin-D receptors are present in most of the cells in the body.

Vitamin-D deficiency is observed to be more in the obese population and is assumed to be due to the...
accumulation of vitamin-D in the abundant fat cells. Extent of obesity and vitamin-D levels have the inverse relationship, which is why to establish whether vitamin-D deficiency or the obesity is responsible for the incidence of metabolic syndromes. Inverse association between vitamin-D and metabolic syndromes has been witnessed in various studies\(^\text{11, 14-17}\) but some studies have found no significant relationship\(^\text{18, 20}\). As there is interplay between parathyroid hormone (PTH) levels and vitamin-D, according to some researches, PTH is also thought to have relationship with the incidence of metabolic syndromes\(^\text{18, 20}\) while others have failed to observe any relation\(^\text{16, 19}\). Many studies have been performed to observe the link of vitamin-D and PTH with the incidence of metabolic syndromes in the adult population but the data regarding these associations in the obese children in not available. So, we are conducting this study to observe the association of the PTH levels and vitamin-D concentration with the occurrence of metabolic syndromes in severely obese children of south-east Asian population.

**MATERIALS AND METHODS**

This prospective observational study was conducted in the department of Pediatric Medicine of Nishtar Medical University and Hospital, Multan. The duration of the study was July 2018 to December 2018. We included 58 obese children, using non-probability consecutive sampling technique, after calculating the sample size from the reference study\(^\text{14}\). Hospital review board was consulted and ethical approval was obtained before commencing the study. Parents of all the children were informed about the nature and procedure of the study and written consent was taken. Included children were 4 to 13 years old and their BMI was above 30 kg/m². All the children below 3 years of age, having BMI less than 30 kg/m², malabsorption syndromes and with developmental delay were not a part of the study. All patients were kept under strict observation and venous samples were obtained after overnight fasting. Age, weight, gender and height were documented for all the patients. All the blood samples were analyzed for serum level of PTH, vitamin-D, calcium, total cholesterol, HDL-C, LDL-C, triglyceride and fasting blood glucose levels. Evaluation of the patients was done for the diagnosis of metabolic syndromes. Metabolic syndromes were diagnosed if at least derangement in 3 of the following parameters were present; abdominal circumference, fasting blood glucose levels, HDL cholesterol, triglycerides and blood pressure. Normal range for serum vitamin-D was taken as 20-50 ng/ml, and for serum PTH levels was taken as 10-65 pg/ml. BMI of all the patients was calculated from their weight and height.

Age, BMI, gender, serum vitamin-D, serum parathyroid hormone level, serum calcium, total cholesterol, HDL-C, LDL-C, triglycerides, fasting blood sugar levels and the presence or absence of metabolic syndrome were documented for all the patients. All the data was put in SPSS version 23 and analyzed. First, all the variables were compared taking normal or low vitamin-D levels as grouping variable. Then, all the variables were compared taking normal or high parathyroid hormone levels as grouping variable. Pearson chi square test was applied on nominal data and student t test was applied on the continuous data. The dissimilarities were considered statistically significant if the p≤0.05.

**RESULTS**

On comparison of the two groups based on the sufficient or poor levels of vitamin-D in the serum, 37 children had low serum vitamin-D while 21 children had normal vitamin-D. The occurrence of metabolic syndromes was 75.7% in the children with low vitamin-D and 33.3% in the children with normal vitamin-D levels (p=0.002). Among the children deficient in vitamin-D, mean age was 7.56±2.47 years, BMI was 37.51±3.48 kg/m², 22 were males and 15 were females; while among the children with normal vitamin-D, mean age was 8.66±2.27 years, BMI was 38.71±4.01 kg/m², 10 were males and 11 were females (p values 0.092, 0.237 and 0.384, respectively). Mean serum calcium, PTH and vitamin-D levels were 8.1±0.8 mg/dl, 52.97±8.40 ng/ml and 15.19±2.50 ng/ml in the children deficient in vitamin-D; and 8.6±0.6 mg/dl, 45.57±8.67 pg/ml and 34.09±9.19 ng/ml in the children with normal serum vitamin-D (p-value 0.032, 0.002 and <0.001, respectively). Mean serum total cholesterol, HDL, LDL, triglycerides and fasting blood sugar were 156.35±31.47 mg/dl, 34.32±7.19 mg/dl, 110.68±11.93 mg/dl, 161.16±20.81 mg/dl and 93.81±10.9 mg/dl in the children deficient in vitamin-D; while 142.29±21.45 mg/dl, 42.52±6.58 mg/dl, 105.52±14.73 mg/dl, 96.57±27.17 mg/dl and 87.62±13.7 in the children with normal vitamin-D (p-value 0.049, <0.001, 0.180, <0.001 and 0.064, respectively). The difference in serum calcium, PTH, vitamin-D, total cholesterol, HDL, LDL and triglycerides were statistically significant. Table-I

On comparison of the two groups based on the PTH levels in the serum, 35 children had high PTH levels while 23 children had normal PTH levels. The prevalence of metabolic syndromes was 62.8% in the children with high PTH levels and 56.5% in the children with normal PTH levels (p=0.629). Among the children with high PTH level, mean age was 8.11±2.29 years, BMI was 37.51±3.58 kg/m², 21 were males and 14 were females; while among the children with normal PTH level, mean age was 7.74±2.54 years, BMI was 38.61±3.83 kg/m², 11 were males and 12 were females (p values 0.562, 0.273 and 0.362, respectively). Mean
serum calcium, PTH and vitamin-D levels were 8.4±0.7 mg/dl, 53.34±8.48 ng/ml and 17.03±6.76 ng/ml in the children with high PTH level; and 8.2±0.8 mg/dl, 45.65±8.29 pg/ml and 29.65±11.56 ng/ml in the children with normal serum PTH level (p-value 0.338, 0.001 and <0.001, respectively). Mean serum total cholesterol, LDL, LDL triglycerides and fasting blood sugar were 154.43±30.69 mg/dl, 35.51±6.91 mg/dl, 157.89±25.34 mg/dl and 92.7±11.45 mg/dl in the children with high PTH level; while 146.43±25.76 mg/dl, 40.01±8.86 mg/dl, 107.17±36.12 mg/dl and 89.74±13.41 in the children with normal vitamin-D (p-value 0.307, 0.035, 0.741, <0.001 and 0.361, respectively). The difference in serum PTH, vitamin-D, HDL and triglycerides were statistically significant.

Table 1: Comparison between patients with normal and deficient vitamin D level

<table>
<thead>
<tr>
<th>Variable</th>
<th>Patients with vit. D deficiency (n=37)</th>
<th>Patients without vit. D deficiency (n=21)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, years</td>
<td>7.56 ± 2.47</td>
<td>8.66 ± 2.27</td>
<td>0.092</td>
</tr>
<tr>
<td>BMI, Kg/m2</td>
<td>37.51 ± 3.48</td>
<td>38.71 ± 4.01</td>
<td>0.237</td>
</tr>
<tr>
<td>Gender, male/female</td>
<td>22 / 15</td>
<td>10 / 11</td>
<td>0.384</td>
</tr>
<tr>
<td>Serum Calcium, mg/dl</td>
<td>8.1 ± 0.8</td>
<td>8.6 ± 0.6</td>
<td>0.032</td>
</tr>
<tr>
<td>Serum PTH, pg/ml</td>
<td>52.97 ± 8.40</td>
<td>45.57 ± 8.67</td>
<td>0.002</td>
</tr>
<tr>
<td>Serum Vitamin D, ng/ml</td>
<td>15.19 ± 2.50</td>
<td>34.09 ± 9.19</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Metabolic syndrome, n (%)</td>
<td>28 (75.7)</td>
<td>7 (33.3)</td>
<td>0.002</td>
</tr>
<tr>
<td>Total cholesterol, mg/dl</td>
<td>156.35 ± 31.47</td>
<td>142.29 ± 21.45</td>
<td>0.049</td>
</tr>
<tr>
<td>HDL, mg/dl</td>
<td>34.32 ± 7.19</td>
<td>42.52 ± 6.58</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>LDL, mg/dl</td>
<td>110.68 ± 11.93</td>
<td>105.52 ± 14.73</td>
<td>0.180</td>
</tr>
<tr>
<td>Triglycerides, mg/dl</td>
<td>161.16 ± 20.81</td>
<td>96.57 ± 27.17</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Fasting blood sugar, mg/dl</td>
<td>93.81 ± 10.9</td>
<td>87.62 ± 13.7</td>
<td>0.064</td>
</tr>
</tbody>
</table>

Table 2: Comparison between patients with normal and high serum PTH level

<table>
<thead>
<tr>
<th>Variable</th>
<th>Patients with high PTH levels (n=35)</th>
<th>Patients with normal PTH levels (n=23)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, years</td>
<td>8.11 ± 2.29</td>
<td>7.74 ± 2.54</td>
<td>0.562</td>
</tr>
<tr>
<td>BMI, Kg/m2</td>
<td>37.51 ± 3.58</td>
<td>38.61 ± 3.83</td>
<td>0.273</td>
</tr>
<tr>
<td>Gender, male/female</td>
<td>21 / 14</td>
<td>11 / 12</td>
<td>0.362</td>
</tr>
<tr>
<td>Serum Calcium, mg/dl</td>
<td>8.4 ± 0.7</td>
<td>8.2 ± 0.8</td>
<td>0.338</td>
</tr>
<tr>
<td>Serum PTH, pg/ml</td>
<td>53.34 ± 8.48</td>
<td>45.65 ± 8.29</td>
<td>0.001</td>
</tr>
<tr>
<td>Serum Vitamin D, ng/ml</td>
<td>17.03 ± 6.76</td>
<td>29.65 ± 11.56</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Metabolic syndrome, n (%)</td>
<td>22 (62.8)</td>
<td>13 (56.5)</td>
<td>0.629</td>
</tr>
<tr>
<td>Total cholesterol, mg/dl</td>
<td>154.43 ± 30.69</td>
<td>146.43 ± 25.76</td>
<td>0.307</td>
</tr>
<tr>
<td>HDL, mg/dl</td>
<td>35.51 ± 6.91</td>
<td>40.01 ± 8.86</td>
<td>0.035</td>
</tr>
<tr>
<td>LDL, mg/dl</td>
<td>108.34 ± 12.43</td>
<td>109.52 ± 14.37</td>
<td>0.741</td>
</tr>
<tr>
<td>Triglycerides, mg/dl</td>
<td>157.89 ± 25.34</td>
<td>107.17 ± 36.12</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Fasting blood sugar, mg/dl</td>
<td>92.77 ± 11.45</td>
<td>89.74 ± 13.41</td>
<td>0.361</td>
</tr>
</tbody>
</table>

DISCUSSION

We observed in this study that the occurrence of the metabolic syndromes was considerably high among the children who had low levels of vitamin-D. On the other hand, the occurrence of metabolic syndromes was not significantly dissimilar in the children who had higher levels of parathyroid hormone. Among the children who had low serum vitamin-D, there was significantly high levels of parathyroid hormone. Children with raised levels of parathyroid hormone had significantly low levels of serum vitamin-D. We observed significantly higher levels of total cholesterol, serum LDL-C, and serum triglycerides in the children who were deficient in vitamin-D. These children also had significantly lower levels of serum calcium and serum high density lipoproteins. However, the difference in the fasting blood glucose levels was not observed to be significantly different. Considering higher levels of serum parathyroid hormone, there were considerably low level of serum vitamin-D and serum high density lipoproteins, but significantly higher levels of serum triglycerides. However, there were no significant differences were observed in serum calcium levels, serum total cholesterol and serum low density lipoproteins, and fasting blood glucose levels in the children who had higher serum parathyroid hormone level. The prevalence of metabolic derangements were found to be significantly more based on the decreased
levels of serum vitamin-D rather than based on higher levels of serum parathyroid hormones. Previsouly studies have been directed on the adult obese persons to observe the correlation of parathyroid hormone and vitamin-D with the occurrence of metabolic syndromes. Ford ES et al. 11 performed the study on 8421 adult patients and they observed that there lies an inverse relationship of serum vitamin-D levels and the occurrence of the metabolic syndromes. Lower levels of vitamin-D tend to promote the prevalence of the metabolic syndromes. Botella-Carretero JI et al. 14 conducted similar study and found that vitamin-D deficiency is associated with the increased prevalence of the metabolic syndromes. Hyppönen E et al. 15 observed that the prevalence of the metabolic syndromes was low in the presence of higher serum vitamin-D levels. Reis JP et al. 16 observes an inverse relationship of prevalence of metabolic syndrome with vitamin-D but no relation with serum parathyroid hormone could be established. Lu L et al. 17 performed a study on the Chinese population and observed the similar results. Reis JP et al. 18 conducted a study on elderly population and observed linear relation of serum PTH with the occurrence of the metabolic syndromes. They observed no association of vitamin-D with the prevalence of the metabolic syndromes. Rueda S et al. 19 observed effect of parathyroid hormone or vitamin-D over the prevalence of the metabolic syndromes. Hjelmesæth J et al. 20 performed a study on Caucasian adult population and concluded that parathyroid hormone level was the only significant predictor of the occurrence of the metabolic syndrome but vitamin-D had no significant relation.

CONCLUSION

Vitamin-D is significantly linked with the prevalence of the metabolic syndromes in severely obese children but parathyroid hormone level has no significant predictive value of the occurrence of metabolic syndromes.

Author’s Contribution:
Concept & Design of Study: Sana Javaid
Drafting: Zuhurf Maryam
Data Analysis: Maroofa Habib
Revisiting Critically: Sana Javaid, Zuhurf Maryam
Final Approval of version: Sana Javaid

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Vesicovaginal Fistula Seen in Southern Punjab-Etiology and Management

Asif Imran¹, Tanvir-ul-Haq², Kishwar Naheed³ and Sarfraz Hassan²

ABSTRACT

Objective: To describe etiology of Vesicovaginal Fistula (VVF) to investigate surgical outcome of Vesicovaginal Fistula repair after use of different management techniques.

Study Design: Retrospective study

Place and Duration of Study: This study was conducted at the Urology, Multan Institute of Kidney Diseases Multan, Urology Department BVH Hospital Bahawalpur from January 2017 to November 2018.

Materials and Methods: Surgical repair of urinary fistula was performed in 40 patients included in the study. Main variables of study were etiology of VVF, site, previous failed repair, size, presentation, surgical repair technique and outcome.

Results: Mean age of patients in study was 33.9±3.6 years. Most of the patients developed fistula due to gynecologic surgery (60%) out of which abdominal hysterectomy was more frequent cause (45%). In 12 patients (30%) VVF occurred following obstructed and prolonged labor and in 4 patients VVF was seen after cesarean sections due to reasons other than obstructed labor. Abdominal approach was used in majority of patients 75% and remaining patients underwent vaginal repair. The outcome was successful in 87.5% of cases.

Conclusion: Gynecologic surgery is the most common cause of urinary fistula. In cases of previous failed repairs abdominal approach can be used due to its high success rate.

Key Words: Vesicovaginal fistula, Surgical management, Failed repair, Abdominal approach.


INTRODUCTION

Vesicovaginal fistula (VVF) is an abnormal passage between the genital and urinary tract. It is more often seen in Africa and Asia. Prevalence rate of VVF is 1.6/1000 in reproductive age women in sub-Saharan Africa and 1.2/1000 in South Asia.¹ A recent review shows just over thirteen percent of fistula were iatrogenic, obstetric complications of surgery including cesarean sections (80%) while remaining (20%) occurred during gynecologic surgery not related to pregnancy.² Risk factors for VVF development include age>20 years, first pregnancy, labor greater than 24 hours, delivery at home, height<150cm, lack of education, poor antenatal care and having male fetus.³⁵

Women present with continuous urinary incontinence as they develop urogenital fistula.⁶ Following cesarean section women suffer from incontinence of urine after 7-10 days postoperatively while this complaint is noted immediately due to obstructed labor.⁷ Injury to uterus or ureter following cesarean section may occur leading to different symptoms. The cause of obstetric fistula is the lack of labor and delivery services. Poor infrastructure such as communications and transportation, lack of female education, social and economic dependence are other etiological factors. The areas where women are affected, quality data collection is much difficult.⁸

There is high degree of depression, exclusion from social network, role loss, and economic deprivation in fistula women. There is a report from a study that small number of women avoided child bearing after fistula repair. They get isolated and develop marital conflict.⁹ Prolong and obstructed labor was the most common cause of VVF but now there is increase in number of vesicovaginal fistula formation due to gynecologic surgeries.¹⁰ More or less these etiological factors are seen in our community especially Southern Punjab Districts. We aim to study etiology and management of obstetric VVF and VVF development after gynecologic surgery.

MATERIALS AND METHODS

Retrospective study was completed in the department of urology, Multan Institute of Kidney Diseases Multan,
Urology department BVH hospital Bahawalpur from January 2017 to November 2018. Forty patients were included in the study after taking written consent. Patients with history of previous failed repair of fistula were also included. Complete history about parity, age, etiology, presentation, previous surgical repair and their outcome was taken. Examination of patients for size, site of fistula, and vaginal stenosis was also taken. Complete urine examination, x ray KUB, USG abdomen, blood urea, serum creatinine and intravenous urography was done in all patients. Patient’s urine sample was taken for sensitivity with sterile speculum in taking aseptic measures. Number, size of fistula, location in relation to trigone and involvement of ureteral orifice was assessed with cystoscopy.

The fistula was repaired through transabdominal approach. After giving lower midline incision, rectus sheath was cut and recti muscles were split. Peritoneum was reached and incised. Urinary bladder was approached and opened. Fistula was identified and small Foley's catheter was passed into fistulous tract to make it more prominent. Fistulous tract was excised and flap of anterior vaginal wall was raised. Then vaginal rent was closed with 3/0 vicryl in two layers and in second layer margins of rent were inverted. Rent in posterior bladder wall was closed with 3/0 vicryl. For better drainage of urine suprapubic and urethral catheter was passed. Continuous drainage was ensured for two weeks.

For those patients in which fistula location was subtrigonal, repair of fistula was done through transvaginal route. Flap splitting technique was used in which after identifying fistula the Foley's catheter was inserted through fistulous opening. Fistulous tract was made more accessible as traction on Foley catheter was applied. A vaginal flap was separated away from bladder by giving circular incision around the fistulous opening. Flap was made for tension free defect closure. Vicryl 3/0 was used to close bladder wall. Vicryl 3/0 was again used for closing of vaginal mucosa in running interlocking manner. Bladder drainage was confirmed and ensured for period of two weeks. Broad spectrum antibiotics were given. Patients were followed up at 1 month, 2 months and 6 months after surgery. After two weeks of surgery, cystogram was performed to exclude presence of fistula. The success of repair was also assessed by clinical evaluation.

Data was entered and analyzed by using SPSS version 23. Continuous variables like age, symptoms duration. Frequency and percentages were calculated for qualitative data like frequency of outcomes after VVF repair. Student t test and Chi-square test was applied to see association among variables. Probability of p≤0.05 was considered statistically significant.

**RESULTS**

Mean age of patients in our study was 33.9±3.60 years (26-39). Median duration of symptoms was 9 months. The etiology of fistulae is shown in table 1. Most of the patients developed fistulae due to gynecologic surgery(60%) out of which abdominal hysterectomy was more frequent cause (45%). There were two fistulas that occurred after cesarean sections for reasons other than obstructed labor. There was densely adherent placenta accreta in these patients. On cystoscopy location of fistula seen in majority of patients was supratrigonal 75%,10% near to bladder neck and 15% below in trigonal area. Fistulas were divided into two types simple and complicated based on characteristics of fistula such as number, size, site, ureteral involvement and number of previous repairs. Simple fistulas were present in 22 patients (55%) and eighteen women(45%) had complicated one. In twenty seven patients(67.5%) repair of fistula was done first time and thirteen(32.5%) had at least one failed repair. Those fistulas which were supratrigonal were repaired intraabdominal and trigonal or below trigone located were repaired vaginally.

At six months follow up, 35 patients(87.5%) had a successful result and five(12.5%) had failed repairs. Surgical outcomes were compared between simple versus complicated group and also regarding the number of previous repairs as shown in table 2. No statistical significant difference was found between the success rate of simple and complicated fistulas or between primary and previous repairs.

**Table No.1: Etiology of Fistula**

<table>
<thead>
<tr>
<th>Etiology of fistula</th>
<th>n=40 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obstetric</td>
<td></td>
</tr>
<tr>
<td>Vaginal delivery after prolong and obstructed labor</td>
<td>10(25)</td>
</tr>
<tr>
<td>Cesarean section following obstructed Labor</td>
<td>2(5)</td>
</tr>
<tr>
<td>Cesarean section for reasons other obstructed labor</td>
<td>4(10)</td>
</tr>
<tr>
<td>Total</td>
<td>16(40)</td>
</tr>
<tr>
<td>Gynecologic</td>
<td></td>
</tr>
<tr>
<td>Total abdominal hysterectomy</td>
<td>18(45)</td>
</tr>
<tr>
<td>Vaginal hysterectomy</td>
<td>4(10)</td>
</tr>
<tr>
<td>Vaginoplasty</td>
<td>2(5)</td>
</tr>
<tr>
<td>Total</td>
<td>24(60)</td>
</tr>
</tbody>
</table>

**Table No.2: Result of VVF repair based on type of fistula and previous failed repairs**

<table>
<thead>
<tr>
<th>Type of Fistula</th>
<th>Outcome</th>
<th>n= (%)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simple</td>
<td>Successful</td>
<td>20(90)</td>
<td>0.471</td>
</tr>
<tr>
<td>Failed</td>
<td>2(10)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complicated</td>
<td>15(83.3)</td>
<td>3(16.6)</td>
<td>0.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of Previous Repairs</th>
<th>No Previous Repairs</th>
<th>Successful</th>
<th>Failed</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Previous repairs ≥1</td>
<td>24(92.3)</td>
<td>9(64.2)</td>
<td>5(35.7)</td>
<td>.70</td>
</tr>
<tr>
<td></td>
<td>3(7.7)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
DISCUSSION

Mean age of the patients in present study was 33.9 ±3.60. In recent study of Etabbal AM et al; mean age of the patients at presentation was 29.4±8.4 years which is close to present study. Giedam in 2016 reported higher incidence of vvf in younger patients, the mean age was 22.3±7.24 years. Most of the women were between 15-24 years. In past years obstetric fistula was the main cause of genitourinary fistula. Poor management of obstructed and prolong labor is the primary cause of fistula in developing countries. Now there is change in trend of VVF development regarding etiology. In present study hysterectomies including abdominal and vaginal contribute to 60% of the fistulas formation. Rates of developed nations as gynecologic surgeries mainly abdominal hysterectomies rather than obstetric traumas are causes of fistulas are closure to our calculations. There should be meticulous dissection of bladder from cervix and proximal vagina, sutures be placed only on vagina without involving fibers of detrusor muscle in order to avoid VVF development.

Excessive use of electrocautery should be avoided while working in close proximity to the bladder. Women with fistula come late to health care facility. Median duration of symptoms in our study was 9 months. This is social debilitating condition and women are neglected in their families that may be the cause of delay in seeking treatment. There is difference of opinion in route of repair. However it depends upon surgeon experience and nature of fistula. In transvaginal approach simple excision and repair is preferred in some centres with high rates of success. Tatar B et al; used vaginal approach for VVF repair and found less hospitalization time for these patients. Different other techniques have been described but consensus about ideal approach is still needed. Success was seen in 87.5% of patients in present study. In other studies open abdominal approach was used with success rate of 94%. Higher than our study. Inferior success rate is probably is due to presence of 18 patients with complicated vesicovaginal fistulas. In literature it is reported that extravesical VVF repair has similar cure rates as transvesical VVF repair. In our study abdominal repair was performed in patients with fistula located atsubtrigonal area or when there was involvement of ureter. Combined vaginoabdominal approach has been used in many studies for management of VVF. Less invasive techniques also have given excellent results in VVF repair. Some studies show laparoscopic for prevention of infection, postoperative care and duration of catheterization are related with complications of fistula surgery. Vaginal approach for VVF repair has shown excellent results in different studies as well. In our study subtrigonal located fistula was repaired through transvaginal approach. The limitations of our study were relatively small sample size and retrospective nature.

CONCLUSION

Result of our study reveals that gynecologic surgery is the most common cause of urinary fistula. In cases of previous failed repairs abdominal approach can be used due to its high success rate.

Author’s Contribution:
Concept & Design of Study: Asif Imran
Drafting: Tanvir-ul-Haq
Data Analysis: Kishwar Naheed, Sarfraz Hassan
Revisiting Critically: Asif Imran, Tanvir-ul-Haq
Final Approval of version: Asif Imran

Conflict of Interest: The study has no conflict of interest to declare by any author.

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and social reintegration policy and programming. Cult Health Sex 2015;17(2):150–64.


Acacia Arabica Protects Against Ethanol-Induced Hepatotoxicity in Albino Mice
Zaffar Iqbal Malik¹, Sabahat Gul², Aftab Ahmad³ and Faiz Ahmed Faiz⁴

ABSTRACT

Objective: In quest of alcoholic hepatotoxicity cure, using the albino mice as model compared the structural characterizations induced in hepatocytes with ethanol alone and its combination with Acacia arabica.

Study Design: Comparative analytical study

Place and Duration of Study: This study was conducted at the Anatomy Department UHS Lahore from October 2015 to November 2015.

Materials and Methods: Twenty one male albino mice were distributed into three equal groups; group A was run as control, group B was served with ethanol 5gm/kg/day for 6 weeks. Group C was pretreated with extract of Acacia arabica leaves 200mg/kg/day followed 30 minutes later with treatment by ethanol 5gm/kg/day, for 6 weeks. Blood samples were obtained at the end of experimental period for assessing liver enzymes. Five micron thick serial sections of liver were taken and stained with H & E and PAS for microscopic examination.

Results: Group B showed an increase in serum ALT, AST and GGT levels; overall structure of liver was disturbed; necrosis, pyknosis, apoptosis and vacuoles were evident. An improvement in the level of liver enzymes and liver histology was noticed in mice of group C, indicating protective effect of leaves extract of Acacia arabica.

Conclusion: Prior treatment with aqueous extract of leaves of Acacia arabica showed hepato-protection against ethanol-induced hepatotoxicity in mice.

Key Words: Ethanol, ALT, AST, GGT, Acacia arabica


INTRODUCTION

Alcohol misuse and its medical and social consequences are a major health dilemma in various areas of the world. ethanol is quickly absorbed, and peak serum concentration occurs 30-60 minutes after ingestion. Its absorption begins in the oral mucosa and continues in the stomach and intestine. Ethanol abuse distorts many organ systems predominantly the liver, producing both acute and chronic liver disease. About 85% of the ethanol is metabolized in the liver, where it is oxidized to acetaldehyde; the rest is excreted through the lungs and kidneys. Breakdown of ethanol occurs chiefly by two recognized pathways. The one involves its oxidation to organic compound, acetaldehyde, by alcohol dehydrogenase. The other pathway responsible for ethanol breakdown is the microsomal ethanol oxidizing system (MEOS); the principal component of this system is cytochrome P450 2E1, which can marked ly oxidize alcohol to acetaldehyde.

The production of free radicals play an imperative role in alcohol induced cellular damage. Acetaldehyde formed through the CYP2E1 system produces reactive free oxygen radicals; their elevated levels can create a state of oxidative stress, which outcomes in cell damage. The cell, oxygen radicals may likewise interact with fat molecules through lipid peroxidation. Ethanol brings several harmful metabolic fluctuations in the liver such as bigger production of lactate, uric acid and fatty acid; its extreme use for a long period leads to development of alcoholic liver disease i.e. hepatic steatosis, hepatitis (alcoholic) and cirrhosis. Thus 82% of heavy drinkers develop hepatic steatosis, 10-30% hepatitis, and nearly 10% develop cirrhosis.

It has been reported that excessive intake of ethanol increases absorption of endotoxins due to increased permeability of mucosa of small intestines; these endotoxins activate the Kupffer cells of the liver, which increase in production of tumor necrotic factor (TNF) that in turn leads to liver injury. Circulating antioxidant enzymes, containing catalase, superoxide dismutase, glutathione reductase and glutathione...
peroxidase show active roles in relieving tissue injury brought by free oxygen radical formation\textsuperscript{[9,10]}. On basis that the alcoholic liver injury is produced on account of production of free oxygen radicals, it was presumed that antioxidant will possibly prevent alcoholic liver disease by combating the damage caused by the oxygen radicals\textsuperscript{[11]}. The forename "acacia" is taken from the Greek word "akia" meaning "sharp point," and is related to the sharp spiky bushes and trees\textsuperscript{[12]}. Acacia is an extensively growing, evergreen tree with more than 1350 species. The acacia arabica plant is found all over the world. It belongs to family Mimosaceae\textsuperscript{[13]}. This plant has a range of bioactive constituents such as phenolic acids, alkaloids, terpenes, tannins, and flavonoids which are accountable for several biological and pharmacological properties like hypoglycaemic, anti-inflammatory, antibacterial, anti-platelet aggregator, anti-hypertensive, analgesic, anti-cancer, and anti-atherosclerosis, all due to their strong antioxidant and free radical scavenging actions\textsuperscript{[14]}. Hepatotoxicity due to ethanol has been testified to cause significant rise in the levels of serum Aspartate amino-transferase, Alanine amino-transferase, and Gamma glutamyl-transferase. The present study is, hence, designed to conclude the effect of Acacia arabica on serum levels of AST, ALT and GGT in hepatotoxicity due to alcohol, in albino mice.

MATERIALS AND METHODS

Twenty one healthy full-grown male albino mice, 6-8 weeks old, weighing 30±5g were gained from Veterinary Research Institute Lahore; these were equally distributed into three groups (A, B and C). Each group was kept in a separate cage in the experimental research laboratory of University of Health Sciences, Lahore. These were kept in an imprecise environment having temperature at 23 ±2°C, humidity at 50 ± 5% and, dark and light cycle of12 hours each. The mice were given standard diet and water ad libitum. The body weight of animals was documented in the start, regularly each week and then at the completion of experiment.

Group A worked as control; 20mL/kg/day of distilled water was given additionally orally to each mouse for 6 weeks. Group B was given 5gm/kg/day of ethanol orally for 6 weeks. Group C was pretreated with 200mg/kg/day Acacia arabica leaves extract, 30 minutes earlier serving mice with 5gm/kg/day of ethanol orally daily for 6 weeks.

Fresh leaves of Acacia arabica for use in this study were collected from rural area of Bahawalpur. Its botanical identity was determined and authenticated by the Botanist of Department of Botany, Punjab University, Lahore. The plant leaves were washed carefully with running tap water and entirely shade dried at room temperature. The air-dried plant material was crushed and macerated in water for one week with occasional shaking. The extract was sieved and concentrated to produce a light green residue under reduced pressure on a rotatory evaporator at PCSIR, Labs Complex, Lahore. The yield of the extract was found to be 3%. Dose of ethanol was based on previous studies in which ethanol was given at 5gm/kg/day, orally.

After scarifying the animals under anesthesia, 3 mL of blood was taken by cardiac puncture at end of experimental period. The blood was allowed to stand for 1 hour and centrifuged at a speed of 3000 rpm for 10 minutes. The serum was taken with the help of dropper and kept in sterile tubes at -20°C until used for the biochemical evaluations.

Kits for ALT, AST and GGT were obtained from Human Company, Germany. The liver of the mice was removed and 3–5 mm thick pieces were cut out after its gross examination, fixed in formalin for 48 hours and processed to make paraffin blocks. Sections of 5µm thickness were obtained and stained with haematoxylin and eosin, and PAS stains.

Statistical Analysis: The data were analyzed by computer software SPSS version 20.0. One way ANOVA was applied to compare the mean bodyweight, ALT, AST, etc. among study groups. Mean difference observed by using Post Hoc Tukey test. Fisher’s exact test was applied to get associations among qualitative variables. p value ≤ 0.05 was taken as statistically significant.

RESULTS

Liver functions were assessed biochemically using enzymatic markers ALT, AST and GGT; their values were raised significantly (p value0.001) in group B, confirming ethanol as hepatotoxic; the values of the test came down significantly by Acacia arabica leaves extract in group C showing its hepatoprotective effect (Table 1).

In the present study, all animals were active and healthy; however, those of group B showed a slight degree of drowsiness. Group A showed normal liver histology i.e. dark brown color of liver having smooth surface. Microscopically each hepatic lobule had a vein in its center and portal triads at its periphery. The hepatocytes were arranged in radiating cords proceeding to the periphery from the central vein, having sinusoids in between, lined by discontinuous endothelial cells; among them were kupffer cells with rounded prominent nuclei. The hepatic sinusoids were seen to be anastomosing with each other and opening into the lumen of central vein, lined by flattened endothelial cells (Fig. 1).

Hepatocytes were polyhedral in form, each with a vesicular nucleus and 1–2 nucleoli. Some hepatocytes were binucleated. Portal area comprised a branch each of the portal vein, hepatic artery and bile duct. Branch of portal vein had a wide lumen, lined by endothelial
cells and containing erythrocytes; the hepatic artery had a narrow lumen and thick wall when compared to portal vein; the bile duct had, however, a lining of low cuboidal epithelium.

In group B, the histopathological studies of liver showed loss of general architecture of liver, pyknosis, apoptosis, vascular degeneration, vascular congestion with periportal inflammation (Fig. 2), all supported by biochemical analysis, which showed raised levels of enzymes in animals of group B; group C was pretreated with Acacia arabica leaves extract and was subsequently given ethanol daily for 6 weeks; histological examination of the liver and biochemical parameters improved and were near to normal values in group C (Figs. 3, 4 and 5) thus indicating protective effect of Acacia arabica against alcoholic toxicity.

Table No.1: Shows comparison of mean values of serum biochemical parameters of liver in U/L among groups.

<table>
<thead>
<tr>
<th>Enzymes</th>
<th>Group A Mean ± SD</th>
<th>Group B Mean ± SD</th>
<th>Group C Mean ± SD</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALT</td>
<td>53.714±2.870</td>
<td>148.857±5.336</td>
<td>62.428±2.225</td>
<td>0.001*</td>
</tr>
<tr>
<td>AST</td>
<td>56.429±2.573</td>
<td>179.286±4.348</td>
<td>68.571±3.867</td>
<td>0.001*</td>
</tr>
<tr>
<td>GGT</td>
<td>28.714±3.638</td>
<td>169.00±5.627</td>
<td>40.429±2.820</td>
<td>0.001*</td>
</tr>
</tbody>
</table>

*Significant p value ≤ 0.05

ANOVA and Post Hoc Tukey test showed increase in size of hepatocytes, and the difference when compared with group A was statistically significant (p value 0.001); however, size of hepatocyte nuclei, size of central vein and number of kupffer cells in group B were comparable to group A. The size of hepatocytes and that of their nuclei in group C decreased and were comparable to those of group A. The size of central vein and number of kupffer cells in group C decreased but were also comparable to group A. This indicates that in group C, the toxic effects of ethanol were reduced by treatment with Acacia arabica; the enzyme levels and histological picture of the liver structure were restored to almost normal level of the control in group C. Analysis by ANOVA and Fisher’s exact test revealed statistically significant differences between values of the control and Acacia arabica treated groups when matched with ethanol served group (p value 0.001). This is clearly indicative of protective result of Acacia Arabica leaves in hepatotoxicity caused by ethanol.

Figure No. 1: Photomicrograph of a liver section from group A, showing central vein (CV) surrounded by radiating cords of hepatocytes (H), rounded or polyhedral in shape; containing central nuclei (N) with clear nuclear membrane and with prominent nucleoli (Nu), and enclosing sinusoidal spaces (S) lined with Kupffer cells (K). H & E stain. X400.

Figure No. 2: Photomicrograph of liver section from group B, showing congested central vein (CV) filled with blood, indicative of vascular congestion, surrounded by deranged cords of hepatocytes (H) showing vacuolar degeneration; hepatic sinusoids (S) are lined by Kupffer cells (K). The hepatocytes contain central nuclei (N) and cytoplasmic vacuoles (V). Binucleated and apoptotic hepatocytes (Ap H) are also seen. H & E stain. X400.

Figure No. 3: Photomicrograph of liver section from group C showing near to normal structure; portal area having portal vein (PV) and bile duct (BD) lined with cuboidal epithelium, surrounded by radiating cords of hepatocytes (H) containing central nuclei (N); Kupffer cells (K) lining sinusoidal spaces (S); binucleated cells (BN) and cells with pyknotic nuclei (pNu) are also seen. H & E stain. X400.
DISCUSSION

The level of ALT, AST and GGT in group B animals’ serum was considerably raised when matched to those in group A (p value < 0.05); this was probably due to creation of reactive oxygen species, together with protein oxidation and lipid per oxidation which caused hepatocytes injury. These findings are comparable to those stated by Enomoto et al. (2003), who explored the effect of Pioglitazone in prevention of liver injury by ethanol in rats. Current work also showed that in group C, there was substantial reduction in the value of serum ALT, AST and GGT when matched to group B (p value < 0.05); viewing that Acacia arabicagreatly decreased the escape of enzymes and also restored the structure of the organ. Elevated levels of serum AST, ALT and GGT are indications of hepatocellular injury. In the current study, Acacia Arabica made substantial amelioration in the levels of AST, ALT and GGT in group C, and this is a mark of healing of hepatic tissue damage caused by ethanol. Evidence proposes intensely that alcohol causes buildup of reactive oxygen species, creating oxidative stress causing liver hurt; this happens, particularly when antioxidant protection against reactive oxygen species is reduced due to their depletion as scavengers. Identical mechanism is probably factual for the findings in present investigation. These results show that Acacia Arabica extensively reinstated the liver cell architecture impaired by ethanol which was established by histopathological examination and liver function tests. Phytochemical screening showed that Acacia arabicahas active pharmacological components such as flavonoids, alkaloids, and phenolic compounds. However, it had been previously stated that such phytoconstituents like phenolic compounds, flavonoids and tannins are recognized to be hepatoprotective in different experimental models. It is, hence, supposed that the hepatoprotective action shown by the Acacia Arabica is perhaps due to phyto-constituents existing in the plant.

CONCLUSION

The outcome of the current research shows that the treatment with Acacia Arabica effectively ameliorated the hepatotoxicity induced by ethanol in mice, possibly on account of high content of flavonoids, alkaloids, phenolics, steroids, terpenoids, saponins, and tannins, presumably, the protection was also provided due to synergistic action of precise components present in the extract for example gallic acid, umbelliferone, kaempferol and niloticanewhich together act as antioxidant and free oxygen radical scavenger, thus ameliorating the ethanol induced hepatotoxicity.

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Revisiting Critically: Zaffar Iqbal Malik, Sabahat Gul
Final Approval of version: Zaffar Iqbal Malik

Conflict of Interest: The study has no conflict of interest to declare by any author.

REFERENCES


Perception of 2nd Year Medical Students about the Role of Interactive Lectures of Anatomy in an Integrated Modular Curriculum
Humaira Gulnaz, Noor Ijaz, Saqib Mansoor, and Nabila Kaukab

ABSTRACT

Objective: To evaluate the role of interactive lectures in the teaching of anatomy in an integrated curriculum. Perception of students regarding importance of anatomy in clinical studies. Effectiveness of teaching innovations in anatomy lectures.

Study Design: Observational study.

Place and Duration of Study: This study was conducted at the University College of Medicine and Dentistry, University of the Lahore from June 2018 to November 2018.

Materials and Methods: Second professional MBBS students (n=125/150) were given well-structured & pretested questionnaire containing various queries to investigate their perception about teaching & learning of anatomy.

Results: The majority of the students was of the opinion that anatomy is an interesting subject (79%) and is relevant to clinical studies (90.4%). General anatomy is perceived to be more difficult than systemic anatomy by (56.0%) of the students. Integration of anatomy with clinical knowledge helped in understanding of disease concept according to 88.8% of the students. Majority of the students agreed that clinical correlation done in lectures was beneficial (74.4%) and explanation given was satisfactory (54.4%). Number, duration and flow of lectures was adequate according to 70.4%, 68.0% and 60.8% of the students. As far as quality of lecture is concerned, there was an agreement of students that they are encouraged to ask questions (68%), delivery, pace of lecture was suitable, and lectures stimulated their interest in subject according to (56.8%) of the students. Material used during lectures was readable, useful and innovative according to 62.4%, 76.8% and 68.8% of the students. Didactic lecture was thought to be effective teaching method by (59.2%) of the students with power point presentation as an ideal learning media of (55.2%) students.

Conclusion: Majority of the students recommended that integrated teaching should be adopted along with case base learning and group discussion. An interactive lecture is an effective methodology in teaching of integrated curriculum.

Key Words: Interactive lectures, Anatomy, Teaching, Medical students, Integrated curriculum


INTRODUCTION

The student’s feedback is of immense importance in quality enhancement on both sides teaching and learning. The quality of knowledge is directly reflected by the student’s perceptions and feedback for which surveys are conducted in higher educational institutes to review the methodology and improve the quality and contents of ongoing programs. Effective feedback from the students is important for reviewing the methodology and improving the quality and contents. Anatomy teaching in terms of content and methodology has undergone major changes in recent times due to time constraints, scarcity of cadavers, rapid advance in IT, and changes in the demand of medical profession. Moreover, there has been a major paradigm shift in medical education from passive, didactic, teacher central approach to active clinical based and student centered approach. The debate on how to teach anatomy in the most effective way continues, and there is not yet a workable solution to integrate the two lines of thoughts (teacher centered/student centered) that can resolve the dispute between the two approaches.

The available literature on use of various instructional strategies employed for teaching and learning anatomy
suggested that the challenges should not be to determine the superiority of one methodology over another but to capitalize on learning benefits offered by different methods.9,10 Learners should have opportunity to use multiple resources, thus favoring flexibility in the acquisition of knowledge. Proper amalgamation of traditional teaching methodologies such as lectures, dissection and newer teaching method like PBL, TBL, CBL and computer-aided learning, would help to catalyze the shift from pedagogy to andragogy.10

MATERIALS AND METHODS
The present study had target population of 150 students who had completed one year of integrated curriculum and appeared in first professional in University of the Lahore. The questionnaire was developed after careful review and pretesting. The Performa was finalized and given to the students for their unbiased opinion. About 83.33% of the students (N=125) filled and returned the questionnaire. The questionnaire consisted of seven components dealing with: perception about subject, teaching methodology, and quality of lectures, teaching tools, and method of teaching, changes recommended and assessments. The response was categorized as Strongly Agree =1, Agree =2, Neutral 3, Disagree = 4 and Strongly Disagree =5. Strongly agree and Agree were grouped to gather as Agree and Strongly Disagree and Disagree were grouped to gather as Disagree. The data thus collected were fed to spreadsheet and converted to axe. file. Frequency and percentages along with Mean±SE were used for analysis.

RESULTS
The study comprised 125 students as respondents. Almost 51% of the respondents were male and rest were female (Fig 1).

Figure No.1: Gender distribution of the respondents.

Perception about subject: The average response of the students was 1.91±0.104 as students found anatomy as an interesting subject. The majority of students agreed with the statement (80%) while rest (20%) was neutral or found the subject difficult to understand. The majority of the students (90.4%) were of the opinion that knowledge of anatomy was helpful in developing the understanding of clinical subjects with an average response of 1.62±0.073 (Table 1).

An average response of 1.71±0.069 was obtained in the question regarding the understanding of disease concept through integration (88.8%).

Figure No.2: Average subject perception.

Teaching methodology: The clinical correlation was done in anatomy lectures according to 74.4% with an average response of (2.13±0.087). As majority of the students (60.8%) were in agreement with the flow of lecture in delivery of contents and its impact on understanding of topics with an average score of 2.5±0.98 (Fig 3). The points highlighted during lecture and their explanation helped to improve the clarity and understanding of subject matters with an average response of 2.14±0.086 and 2.49±0.091 respectively, (Fig 3)

Figure No.3: Teaching and methodology.

Quality of Lecture: Three queries were made as regards the quality of lectures i.e. encouragement to ask questions, speed of delivery and teaching methodology used (Fig 4). About 68% of the students were in agreement with the statement that they were encouraged to ask questions with an average response of 2.26±0.095. (Fig 4) Majority of students (56.8%) with an average response (2.47±0.095) agreed with the statement that delivery and pace of lectures was suitable to the level of understanding in the class.
About 60.8% of the students showed an average response of (2.52±0.099) which is towards agreement about stimulating the interest in subject with the use of lectures and demonstrations.

**Teaching Tools:** As concerns the readability of presentations and the ease of understanding of concepts and facts, the average opinion score were 2.35±0.089 with highest degree of agreement in opinion “Agree” (62.4%). About 76.8% of students found displayed teaching material useful with average opinion score of 2.14±0.085. The 68.8% (Table 1) of the students agreed that the clinical case presentation and videos are helpful in better understanding of the subject with an average opinion of 2.25±0.109. (Fig5)

**Method of teaching:** Most of students agreed with the statement “Didactic lecture is very effective teaching method in anatomy” but degree of neutral opinion was also high (26.4%) with average score of 2.49±0.100 (Table 1, Fig 6). A salient proportion of students (55.2%) were agreed upon power point presentation as an ideal method but again neutral opinion was also high (24.8%) with average score of 2.60±0.108.

**Changes recommended:** About 70.4% and 68% of the students found the number and duration of the lectures adequate with an average response of 1.72±0.84 and 1.66±0.77, respectively. 50.4%, 64.8% and 48.8% of the students recommended introduction of integrated teaching method, case based learning and group discussions respectively with an average opinion score of 1.63±0.064, 1.43±0.057 and 1.68±0.067, respectively. (Table 1, Fig 7)
Assessments: About 81.6% of the students were of the opinion the written exams were efficient method of assessment with an average score of (2.03±0.078). As consideration of the viva voce as an assessment tool is concerned 81.6% of the students agreed that it helps them to improve subject knowledge and application of skills with an average response of 2.45±0.097 (Table 1, Fig 8).

Table No.1: Perception of students about anatomy (percentage of respondents)

<table>
<thead>
<tr>
<th>Query</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perception about subject</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anatomy is an interesting subject</td>
<td>80%</td>
<td>10.4%</td>
<td>9.6%</td>
</tr>
<tr>
<td>Knowledge of Anatomy helps in clinical post</td>
<td>90.4%</td>
<td>6.4%</td>
<td>3.2%</td>
</tr>
<tr>
<td>Integration of Anatomy teaching with clinical help in better understanding of disease concept</td>
<td>88.8%</td>
<td>9.6%</td>
<td>1.6%</td>
</tr>
<tr>
<td>General anatomy is more difficult to understand than systemic anatomy</td>
<td>56.0%</td>
<td>28.8%</td>
<td>15.2%</td>
</tr>
<tr>
<td>Teaching methodology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching of clinical correlation is being done in anatomy lectures</td>
<td>74.4%</td>
<td>16.0%</td>
<td>9.6%</td>
</tr>
<tr>
<td>Flow of lectures clearly explained the content which help you to understand the topic well</td>
<td>60.8%</td>
<td>21.6%</td>
<td>17.6%</td>
</tr>
<tr>
<td>Highlighting of important points during lecture helped you for further study in each topic</td>
<td>68.8%</td>
<td>24.8%</td>
<td>6.4%</td>
</tr>
<tr>
<td>Explanation given to clarify the subject contents is satisfactory</td>
<td>58.4%</td>
<td>25.6%</td>
<td>16%</td>
</tr>
<tr>
<td>Quality</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Encouraged students to ask questions and give answers during lectures</td>
<td>68%</td>
<td>16.8%</td>
<td>15.2%</td>
</tr>
<tr>
<td>Delivery and pace of lectures was suitable to the level of your understanding in the class</td>
<td>56.8%</td>
<td>28.8%</td>
<td>14.4%</td>
</tr>
<tr>
<td>Lectures and demonstrations were taken in a way that stimulated interest in the teaching of subject</td>
<td>60.8%</td>
<td>20.8%</td>
<td>18.4%</td>
</tr>
<tr>
<td>Teaching tools</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Readability and easy to follow concepts and facts from displayed lecture material</td>
<td>62.4%</td>
<td>22.4%</td>
<td>15.2%</td>
</tr>
<tr>
<td>Usefulness of displayed teaching material like photographs in relation to lecture contents</td>
<td>76.8%</td>
<td>13.6%</td>
<td>9.6%</td>
</tr>
<tr>
<td>Innovative methods like clinical case presentation and videos were included in lectures to help provide understanding of the topic</td>
<td>68.8%</td>
<td>12.0%</td>
<td>19.2%</td>
</tr>
<tr>
<td>Exams</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessments conducted in the form of written examinations served the purpose to make you aware of your grasp of the subject</td>
<td>81.6%</td>
<td>12.8%</td>
<td>5.6%</td>
</tr>
<tr>
<td>Assessments conducted in the form of viva voce examinations helped you to improve your subject knowledge and application skills</td>
<td>81.6%</td>
<td>28.8%</td>
<td>11.2%</td>
</tr>
</tbody>
</table>

Methods:

<table>
<thead>
<tr>
<th>Opinion about change recommended</th>
<th>Excess</th>
<th>Adequate</th>
<th>Inadequate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Didactic lecture is very effective teaching method in anatomy</td>
<td>59.2%</td>
<td>26.4%</td>
<td>14.4%</td>
</tr>
<tr>
<td>Power point presentation of teaching material is an ideal learning media in anatomy</td>
<td>55.2%</td>
<td>24.8%</td>
<td>20%</td>
</tr>
<tr>
<td>Number of lectures</td>
<td>19.2%</td>
<td>70.4%</td>
<td>10.4%</td>
</tr>
<tr>
<td>Duration of lectures</td>
<td>23.2%</td>
<td>68.0%</td>
<td>8.8%</td>
</tr>
<tr>
<td>Introduce integrated teaching method</td>
<td>50.4%</td>
<td>36.0%</td>
<td>13.6%</td>
</tr>
<tr>
<td>Introduce case based learning</td>
<td>64.8%</td>
<td>27.2%</td>
<td>8.0%</td>
</tr>
<tr>
<td>Introduce group discussions</td>
<td>48.8%</td>
<td>34.4%</td>
<td>16.8%</td>
</tr>
</tbody>
</table>

DISCUSSION

The students’ feedback is of immense importance for quality enhancement on both sides teaching and learning.³ The present study was carried out at University of the Lahore. The second professional MBBS students (n=125/150) were given a well-structured and pretested questionnaire containing various queries to investigate their perceived opinion about teaching and learning of anatomy. The average students found the anatomy an interesting subject. Most of the students agreed with the statement about subject’s difficulty. The majority of the students were of the opinion that knowledge of anatomy was helpful in clinical understanding (90.4%). An average response of 1.71±0.069 was observed while understanding of disease concept by integration of anatomy teaching was the query.¹¹ Again, majority of students were of the opinion “agree” (88.8%). An and et al. (2015) also found that majority of medical students found knowledge and integration of anatomy useful while it was also found difficult subject-³ The clinical and classroom learning was being correlated in anatomy lectures according to students’ point of view. All queries about contents were inclined towards agreement.⁵ A majority of the students was in agreement with the flow of lecture in delivery of contents and its impact on understanding of topics. The students also found clinical correlation useful in a study by Goyal et al. (2010), Mostafa et al. (2012) and Sheikh et al. (2015).¹²,⁴,¹³ The points highlighted during lecture and their explanation helped improve the clarity and understanding of subject matters with significant degree
of agreements among the students. Quadri et al. (2016) also found similar results while conducting survey of the medical students.\textsuperscript{14}

Three queries were made as regards the quality of lectures i.e. encouragement to ask questions, speed of delivery and demonstrations. The student’s average response was towards agreement while a larger proportion of the students were with neutral along with signifying students.\textsuperscript{2,11}

As concerns the readability of presentations and the ease of understanding of concepts and facts, the average opinion score was with highest degree of agreement in opinion “Agree”. Majority of students found material displayed useful to a degree of “Agree”. The 68.8% of the students testified the clinical case presentation and videos and found it helpful in better understanding of the subject. Nagar et al. (2012) and Shah et al. (2014) also found same results while investigating the teaching interventions and innovations in medical sciences professional classrooms.\textsuperscript{2,11,15}

Most of students agreed with the statement “Didactic lecture is very effective teaching method in anatomy” but degree of neutral opinion was also high. A salient proportion of students was agreed upon power point presentation as ideal method but again neutral opinion was high with average also converging to it.\textsuperscript{16,2}

The students found the number and duration of lectures adequate with highest percentage in “Adequate” option. The integrated teaching method, case based learning and group discussions got average opinion score of 1.63±0.064, 1.43±0.057 and 1.68±0.067, respectively with significant percentage of student in agreement to it.\textsuperscript{2}

The students of medical sciences (81.6) were of the opinion the written exams were efficient method of assessment (2.03±0.078) of your grasp on the subject of anatomy. As consideration of the viva voce as assessment tool of subject knowledge and application skills, the 16.0% of the student were in “Strongly Agree” category while 44.0% were in “Agree” opinion category with average opinion score of 2.45±0.097. Goy et al. (2010), Mostafa et al. (2012), Nagar et al. (2012) and Quadri et al. (2016) reported results of their studies in the similar fashion and suggested continuity of the same standard procedures.\textsuperscript{12,2,14}

Our study was not without limitations. This survey investigated opinions of students only which is not of conclusive evidence. Secondly, questionnaire was anonymously filled so we could not take into account any personal and context specific factors.

**CONCLUSION**

Integration of classroom and clinical knowledge with the improved interactive lecturing can help improve the medical teaching and learning.

**REFERENCES**


Transabdominal and Transvaginal Ultrasonography Comparison for Ectopic Pregnancy Diagnosis
Bushra Mehmood1, Tanzila Rafiqe2 and Rabia Khurram2

ABSTRACT

Objective: To evaluate the exactness / correctness of transabdominal and transvaginal ultrasonography in diagnosis of ectopic pregnancy of clinically suspected cases.

Study Design: Cross-sectional study

Place and Duration of Study: This study was conducted at the Department of Radiology & Imaging, Shahida Islam Medical Complex, Lodhran from January 2017 to December 2017.

Materials and Methods: One hundred and twenty patients were included in this investigation with clinical ectopic pregnancy suspicion. Keeping in view the selection criteria, 60 patients experienced both the transabdominal and transvaginal ultrasonography. Histopathologically diagnose was considered as gold standard against which exactness / correctness of two diagnostic modalities were evaluated.

Results: 73.1% sensitivity, 75% specificity, 95% positive predictive value, 30% negative predictive value and 73.3% accuracy of Transabdominal ultrasonography for assessment of suspected ectopic pregnancy as a diagnostic modality, while as transvaginal ultrasonography 92.3%, 75%, 96%, 60% and 90% sensitivity, specificity, positive predictive value, negative predictive value and accuracy respectively.

Conclusion: Transvaginal was superior to Transabdominal ultrasonography for suspected ectopic pregnancy evaluation. Therefore, exact and early diagnosis of ectopic pregnancy, transvaginal ultrasonography is significant as well as important.

Key Words: Transabdominal ultrasound, Transvaginal ultrasound, Ectopic pregnancy

INTRODUCTION

Outside uterine cavity, implantation of fertilized ovum represents by ectopic pregnancy. The rate of ectopic pregnancy is upto 16.9/1000 announced pregnancies and is expanding.1,2 The primary issue of ectopic pregnancy is non-explicit clinical introduction. Symptoms can fluctuate from vaginal spotting to vasomotor stun with haemoperitoneum. The exemplary set of three of brief time of amenorrhoea, sporadic vaginal draining and stomach torment is available in forty five percent of patients. Typical and atypical both clinical introductions can imitate different conditions, for example, premature birth, early pregnancy, salpingitis, ovarian cyst rupture, normal intra-uterine pregnancy, appendicitis, endometriosis-gastroenteritis, urinary tract affecting diseases, diverticulitis and so on.

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Subsequently, early and dependable finding of ectopic pregnancy is real test for clinician and is fundamental to keep away from dangerous bleeding or resulting infertility.

Sonography has turned into a vital apparatus in the analysis of suspected ectopic pregnancy.3 Ultrasonography is a modest, broadly accessible, basic and quick and non-invasive symptomatic methodology for quick recognition, nearness and pregnancy area. A calculation dependent on stomach sonographic discoveries is recommended by creators which seem valuable for clinical assessment of suspected ectopic pregnancies.4 Be that as it may, stomach ultrasonographic exactness can be influenced by variables, for example, weight, inadequate bladder filling and obscuration of pelvic structures by gut gas.

Through use of vaginal ultrasonography, these issues can e decreased because transducer is nearer to pelvic organs then it is with abdominal technique. Furthermore, through use of high frequency transducer, improved resolution might be achieved.5 For ectopic pregnancy assessment, few investigations conducted at abroad to compare the transvaginal and Transabdominal ultrasonography correctness but in our country no such investigation yet to be conducted. In this way, the examination was done to see whether transvaginal ultrasonography is better than Transabdominal
ultrasonography in the assessment of the patients with suspected ectopic pregnancy by contrasting the discoveries of two imaging strategies with that of histopathology discoveries and accordingly to discover the affectability, particularity and exactness of transvaginal and transabdominal ultrasonography for ectopic pregnancy evaluation.

MATERIALS AND METHODS

This cross-sectional study was conducted in Radiology & Imaging Department, Shahida Islam Medical Complex from January 2017 to December 2017. One hundred and twenty patients were included. The cases of ectopic pregnancy detected incidentally and clinically suspected were included in the investigation. Those cases were excluded from this study who have normal intra-uterine pregnancy and abnormal intra-uterine pregnancy. Patients without histopathology reports were also excluded from study and those were also excluded who were not admitted in this hospital. During the period of study, 60 patients were selected according to inclusion criteria. A brief explanation about the procedure was given to all patients and after that all undergo for both transvaginal and transabdominal ultrasonography. Executed transabdominal sonography by 3.5MHz probe and after that transvaginal sonography was also executed immediately by 7.5MHz convex probe right after the abdominal scan with empty bladder utilizing standard method / procedure. Adnexa & uterus imaging were executed in transverse planes and sagittal both. During ultrasound investigation, extraordinary note was made on nearness of adnexal mass, peritoneal gathering in cul de sac and hepatorenal pocket, additional uterine gestational sac and developing life with heart action. The criteria for conclusion of ectopic pregnancy incorporated an additional uterine gestational sac containing an embryo or a fetal post or an unfilled additional uterine sac. Complex or strong adnexal mass, peritoneal accumulation, pseudo-gestational sac were viewed as suggestive and corresponded with pregnancy test (βhCG) Beta-human Chorionic Gonadotrophin in urine and serum. All patients experienced surgery and tissue tests histopathology report gathered. After data collection, transvaginal and transabdominal ultrasonography individually sensitivity, specificity, positive predictive values and negative predictive values in the diagnosis of ectopic pregnancy were calculated by suitable statistical method. Fisher Exact Test was used to compare the transvaginal and transabdominal ultrasonographic outcomes. <.05 p value was consider to be significant.

RESULTS

In 60 patients, transvaginal and transabdominal ultrasonography diagnostic correctness was compared, who have suspected ectopic pregnancy. In these 60 patients, who have positive pregnancy test, there was no embryonic sac was acknowledged. Utilizing the criteria of a double decidual sign pseudo sac and non explicit internal uterine echoes were identified (Fig.1). Through transvaginal ultrasonography 48 cases were diagnosed out of 52 cases which ectopic pregnancy proved histopathologically while 38 cases were diagnosed by transabdominal ultrasonography. Out of 48, 10 ectopic pregnancies identify through transvaginal ultrasonography a gestational sac with living embryo were noticed outside the endometrial cavity. In other ectopic pregnancies 10 cases diagnose through transvaginal ultrasonography a specific gestational sac with foetal pole and echogenic rim were identified. Different less explicit analytic discoveries on transvaginal ultrasonography in patients with recorded ectopic pregnancies included; in 16 patients an ectopic gestational sac represented by a thick walled anechoic structure with echogenic rim, in 20 patients a complex adnexal mass, in 36 patients cul de sac fluid, in 6 patients pseudo sac and in 12 patients non-specific echoes.

With living embryo and extra-uterine gestational sac in 4 cases detected by transabdominal ultrasonography, in 6 cases gestational sac with non-living embryo and in 10 cases without embryo gestational sac. There was found adnexal mass in 16 cases, in 26 cases peritoneal fluid, 4 cases pseudo sac and in 8 cases non specific echoes. There were 4 ectopic pregnancies missed by transvaginal ultrasonography which were detected through transabdominal ultrasonography. In two patients, above the uterus located a gestational sac with fetus and in other two patients, above uterus a complex mass was located beyond the view field of transvaginal probe (Fig. 2).

As compared to transabdominal ultrasonography, transvaginal ultrasonography was sensitive significantly in detection of gestational sac with embryo and without embryo. Between these two modalities peritoneal fluid, other non specific echoes, adnexal mass and pseudo sac detection was comparable (table-I).

![Figure No. 1: Transabdominal sonography showed uterus sagittal with debris filled pseudo gestational sac associated with an ectopic gestation](image)

In transabdominal ultrasonography missed cases, 5mm to 12mm diameter a small ectopic sac shown by the
transvaginal ultrasonography. Ectopic sacs become visible as a ring with 3mm to 5mm thick echogenic contour (Fig. 3).

Figure No. 2: Ectopic pregnancy, transvaginal ultrasonography showing empty uterus with collection in peritoneal cavity. Mixed echogenic adnexal mass in transabdominal sonography missed by transvaginal because of its location at higher position.

Figure No. 3: Transvaginal Sonography shows gestational-sac with foetal pole in left adnexal area. Decidual reaction shows by Uterus.

Figure No. 4: Ectopic pregnancy. Transabdominal Sonography showing empty uterus with a structure i.e. sac like in Rt adnexa. No internal embryo or yolk-sac was demonstrated. Transvaginal Sonography clearly demonstrated foetal pole inside gestational-sac. Vaginal checking permitted a more precise location of the sac contents i.e. yolk sac / fetal pole and cul-de-sac fluid little amount as shown in figure 4.

Out of 8 patients who had different conclusion by histopathology 6 related with both indicative modalities and just a single intra-uterine pregnancy was erroneously analyzed as ectopic by every technique for examining; for this situation a hemorrhagic corpus luteum sore with abundant fluid were found at medical procedure.

The investigation outcome uncovered that affectability of transabdominal ultrasonography and transvaginal ultrasonography was 73.1% & 92.3% individually. In both techniques specificity (75%) was same might be because of sample size was small. 73.3% diagnostic accuracy pertaining to transabdominal ultrasonography and 90% pertains to transvaginal ultrasonography. Transabdominal ultrasonography positive predictive value was 95% and thirty percent negative predictive value. Positive predictive value (96%) of transvaginal ultrasonography and 60% negative predictive value as shown in Tables 1-3.

### Table No.1: Transvaginal and transabdominal Ultrasonography outcome comparison (n=60)

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Transvaginal</th>
<th>Transabdominal</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gestational Sac Present</td>
<td>36(60%)</td>
<td>20(33.3%)</td>
<td>0.035</td>
</tr>
<tr>
<td>Gestation Sac Absent</td>
<td>24(40%)</td>
<td>40(66.7%)</td>
<td></td>
</tr>
<tr>
<td>Adnexal Mass Present</td>
<td>20(33.3%)</td>
<td>16(26.7%)</td>
<td>0.389</td>
</tr>
<tr>
<td>Adnexal Mass Absent</td>
<td>40(66.07%)</td>
<td>44(73.3%)</td>
<td></td>
</tr>
<tr>
<td>Peritoneal Fluid Present</td>
<td>36(60%)</td>
<td>26(43.3%)</td>
<td>0.151</td>
</tr>
<tr>
<td>Peritoneal Fluid Absent</td>
<td>24(40%)</td>
<td>34(56.7%)</td>
<td></td>
</tr>
<tr>
<td>Pseudo Sac Present</td>
<td>6(10%)</td>
<td>4(6.7%)</td>
<td>0.500</td>
</tr>
<tr>
<td>Pseudo Sac Absent</td>
<td>54(90%)</td>
<td>56(93.3%)</td>
<td></td>
</tr>
<tr>
<td>Non-specific echoes present</td>
<td>12(20%)</td>
<td>8(13.3%)</td>
<td>0.365</td>
</tr>
<tr>
<td>Non-specific echoes absent</td>
<td>48(80%)</td>
<td>52(86.7%)</td>
<td></td>
</tr>
</tbody>
</table>

### Table No.2: Transvaginal ultrasonography accuracy for detection ectopic pregnancy

<table>
<thead>
<tr>
<th>Diagnosed Accuracy</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity</td>
<td>92.3%</td>
</tr>
<tr>
<td>Specificity</td>
<td>75%</td>
</tr>
<tr>
<td>Positive Predictive Value</td>
<td>96%</td>
</tr>
<tr>
<td>Negative Predictive Value</td>
<td>60%</td>
</tr>
<tr>
<td>Accuracy</td>
<td>90%</td>
</tr>
</tbody>
</table>

### Table No.3: Transabdominal ultrasonography accuracy for detection ectopic pregnancy

<table>
<thead>
<tr>
<th>Diagnosed Accuracy</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity</td>
<td>73.1%</td>
</tr>
<tr>
<td>Specificity</td>
<td>75%</td>
</tr>
<tr>
<td>Positive Predictive Value</td>
<td>95%</td>
</tr>
<tr>
<td>Negative Predictive Value</td>
<td>30%</td>
</tr>
<tr>
<td>Accuracy</td>
<td>73%</td>
</tr>
</tbody>
</table>

**DISCUSSION**

Female sonographic assessment associated with having an ectopic pregnancy requires right elucidation of both
intra-uterine and extra-uterine discoveries. One patient may have in excess of one finding. Nearness of intra-uterine pregnancy basically prohibits an ectopic pregnancy and ectopic pregnancy is roughly 1 of every 30000. An intra-uterine development sac with a live hatchling is sure evidence of an intra-uterine pregnancy. Yet in the lion’s share of patients the gestational age might be five to six weeks and the sac will be unfilled. Separation between a genuine development sac and a pseudo sac might be troublesome. Utilizing the criteria of twofold decidual sign three pseudo sac was distinguished by transvaginal ultrasonography, in six cases non specific inward uterine echoes were recognized. Transabdominal echoes are most likely due to hyperplastic endometrium and blood inside the endometrial cavity.

Through transvaginal ultrasonography, 60% cases of extra-uterine gestational sac was seen in the present examination and transabdominal ultrasonography cases was 33.3%. This is in concurrence with the consequences of Nyberg et al who found in his patients 65% of ectopic sac. Through transabdominal ultrasonography 44% cases of ectopic sac found by Cacciatore et al in his investigation.

In the adnexa a live embryo sonographic exhibit is specific for ectopic pregnancy diagnosis. This outcome was shown in 10 (16.7%) cases with ectopic pregnancy analyzed by transvaginal ultrasonography. This finding was comparable with the finding of Cacciatore et al who detected 21% cases of ectopic foetus. In this investigation, 4 (6.7%) cases of live embryo detected through transabdominal ultrasonography. This finding is predictable with the findings of Hussain et al who detected 8% cases of live embryo through transabdominal ultrasonography in an investigation.

Through transvaginal ultrasonography diagnosed ectopic pregnancy in other 16(26%) cases and by transabdominal ultrasonography 10(16.6%) cases a thick walled anechoic structure with an echogenic rim represents ectopic gestational-sac with no incipient organism or yolk-sac was observed. This isn’t long way from Thorsen et al. With the help of transvaginal ultrasonography non-specific features were detected i.e. adnexal mass in 33.3% cases, peritoneal collection 60%, pseudogestational sac in 10% cases and non-specific echoes in 20% cases. The comparing discoveries were 26.7%-43.3%-6.7% and 13.3% if there should be an occurrence of transabdominal ultrasonography. No noteworthy distinction noted between two methodology and this connected well with different examinations. The real points of interest of transvaginal ultrasonography were an exact assessment of adnexal surface and enhance perception of the substance of the sac, demonstrated likewise by past examinations.

Accordingly, more ectopic pregnancies were analyzed while still unruptured.

Transvaginal ultrasonography analysis displayed 50(83.3%) ectopic pregnancy and 10(16.7%) different determination. Transabdominal ultrasonography finding was 40(66.7%) ectopic pregnancy and 20(33.3%) different conclusion.

Out of 60 cases, 52 (86.7%) cases had ectopic pregnancy as shown by the histopathological diagnosis and 8 (13.3%) had different ailments. Through transvaginal ultrasonography, 48 cases were analyzed as ectopic pregnancy. This disparity between transvaginal ultrasonography and histopathological conclusion was because of 4 cases of ectopic pregnancy were erroneously analyzed as pelvic inflammatory infection by transvaginal ultrasonography.

Out of 52 histopathologically demonstrated ectopic, transabdominal ultrasonographic conclusion was ectopic pregnancy in 38 cases and 14 cases were dishonestly analyzed as pelvic incendiary infection (10) and typical / normal discoveries (4). 6 cases related with both transabdominal ultrasonography and transvaginal ultrasonography out of 8 cases which had different histopathology analysis and 2 cases of hemorrhagic corpus luteal sore was erroneously analyzed as ectopic pregnancy by both methodologies.

It was obvious from present investigation that transvaginal ultrasonography was better than transabdominal ultrasonography. For cases in which transvaginal ultrasonography was predominant, this strategy gave clear proof of ectopic pregnancy in 10 cases in which transabdominal ultrasonography was exhibited non-specific masses or ordinary adnexa. In different situations where the two strategies prompted right determination, transvaginal ultrasonography gave extra valuable data. Missed ectopic pregnancy by transvaginal ultrasonography in 4 cases that was situated in a high area the field of perspective of transvaginal transducer.

The investigation outcome uncovered that sensitivity of transabdominal ultrasonography was 73.1% and transvaginal ultrasonography sensitivity was 92.3%. 75% specificity was same in both procedures might be because of small sample size. 73.3% diagnostic accuracy of transabdominal ultrasonography and 90% was transvaginal ultrasonography. 95% positive predictive value and 30% negative predictive value of transabdominal ultrasonography and 96% & 60% in case of transvaginal ultrasonography. 95.9% sensitivity and 73.3% specificity of transabdominal ultrasonography was discovered by Kim et al 73.9% was positive predictive value. 96% sensitivity, 88% specificity and 95% positive predictive value of transvaginal ultrasonography was found by Hopp et al in his investigation. In another investigation, sensitivity was 100%, specificity 98.2%, positive predictive value 98% and 100% negative predictive value of transvaginal ultrasonography.
The utilization of higher recurrence transvaginal transducer test the determination of the ectopic gestation.

CONCLUSION

This investigation demonstrates that transvaginal ultrasonography is better than transabdominal ultrasonography to early discover the ectopic pregnancy, however, to maintain a strategic distance from errors both is required as transvaginal ultrasonography has restricted field of view.

Author’s Contribution:
Concept & Design of Study: Bushra Mehmood
Drafting: Tanzila Rafiqe
Data Analysis: Rabia Khurram
Revisiting Critically: Bushra Mehmood, Tanzila Rafiqe
Final Approval of version: Bushra Mehmood

Conflict of Interest: The study has no conflict of interest to declare by any author.

REFERENCES

Surgical Management of Chronic Suppurative Otitis Media; A Cross sectional Comparative Study Between Microscopic and Endoscopic Tympanoplasty

Tahir Hussain Khan¹, Ashfaq Hussain Rana² and Sohail A. Malik¹

ABSTRACT

Objective: To compare the surgical outcomes of Microscopic and Endoscopic Tympanoplasty.

Study Design: Observational/ cross sectional study.

Place and Duration of Study: This study was conducted at the two different hospitals. 1- Al-Tibri Medical College and hospital karachi and Social security Landhi hospital Karachi from July 2017 to June 2018.

Materials and Methods: 76 Patients of both genders were included in this study who had dry tympanic membrane perforations. Age ranges were 18-40 years. Patients were divided in two groups A and B. 38 patients in each group. In group A, Microscopic Tympanoplasty was performed with temporalis fascia graft via post aural approach. In group B, Endoscopic tympanoplasty was performed with the help of tragal cartilage/perichondrium graft via per meatal approach. Observed outcomes of both procedure after 1 day, after 1 week, after 1 month and after 2 months. Variable were pain, bleeding, hearing assessment with PTA in which measured air conduction, bone conduction and AB gap (Air-Bone), duration of surgery, vomiting and vertigo.

Results: 37 patients out of 38 had intact grafted tympanic membrane in group A (M.T.) while all 38 patients had intact grafted tympanic membrane in group B (E.T.). Bleeding was less in group B, as compare to group A. There was no blood-soaked gauze in endoscopic tympanoplasty group. Mean duration of surgery was in endoscopic tympanoplasty group 65.1 ± 3.7 minutes and mean duration of microscopic tympanoplasty was 82.0 ± 5.6 minutes. P value was < 0.001 is significant. Duration of surgery was less in endoscopic tympanoplasty. Hearing was also improved in both groups after tympanoplasty. Post- operative AB gap reduction seen in all patients in both groups. Weber test performed 1st post -operative day it was lateralized towards operated ear which indicate integrity of inner ear. Vomiting and vertigo not present after tympanoplasty in both groups which indicate the safety of vestibular system.

Conclusion: Results of both Microscopic and Endoscopic Tympanoplasty were almost same but endoscopic tympanoplasty is better because this procedure consumed less time, less post- operative pain, less post- operative bleeding and no scar after surgery.

Key Words: Surgical Management, Chronic Suppurative Otitis Media; Microscopic, Endoscopic Tympanoplasty


INTRODUCTION

Chronic suppurative otitis media and its sequelae convey huge money related and general expenses.¹

Introduction.

It has been assessed that 65– 330 million people have discharging ears, 60% of whom experience the insidious effects of phenomenal hearing debilitation ². Among the South-East Asian nations, inevitability rates in Thailand continued running from 0.9 to 4.7% while the Indian typicality of 7.8% is high.³

Otitis media (OM), aggravation of the middle ear, remains the most outstanding explanation behind hearing disability in adolescents. Intense scenes of OM in infant and youths are habitually related with focus ear infections including the pathogens Streptococcus pneumoniae and Haemophilus influenza.⁴

Traditionally, temporalis fascia was utilized for reconstruction of perforated tympanic membrane. Presently exchange is accessible as cartilage. The immovability and strength of cartilage play an important role.⁵
Endoscopic procedure playing a key role in the ear surgery as endoscope assistance has improved the visual exposure of hidden and deep structures of middle ear.6 Inspite of various technical advancements in operating microscope, basic limitations could not be resolved. After approach of rigid endoscope for sinus surgical procedure, Mer and his partners in 1967 presented middle ear endoscopy first time.7

Huge disadvantage of working magnifying microscope is that it gives an intensified picture along a straight line. Endoscope can come closer to the surgical field. Sinus tympani can be viewed easily with endoscope8. CSOM is ordinarily assembled into two sorts, tubotympanic and atticoantral.9

Pseudomonas aeruginosa and Staphylococcus aureus are the most generally perceived high-affect microbial confines in patients with CSOM.10 The saturated and moist condition underpins the prevalence of infectious illnesses of the ear.11 Poor adolescents are more prone of this sickness.12

The existence frameworks of the Eustachian tube are connected with otitis media. Focus ear ventilation, drainage and protection of the inside ear to pathogens are critical components of the The more even edge of the Eustachian tube, the more it may cause otitis media in youngsters. CSOM in a grown-up is foreseen by dull extraotitis media (AOM) or spreads otitis media (EOM) in youth.13

Patients with steady suppurative otitis media (CSOM) respond to anti-microbial drops, regular aural toilet, and control of granulation tissue.14 Tympanic membrane rupture is recognized alongside focus ear mucositis with or without otorrhea.15

Tympanoplasty is gathered into five kinds as demonstrated by Wullstein.16

Trans-canal tympanoplasty can be performed with both magnifying instrument and endoscope.17

**MATERIALS AND METHODS**

76 Patients were participated in this study randomly from Al-Tibri Medical College & Hospital and from Social Security Landhi Hospital Karachi. Duration of study from July 2017 to June 2018. Patients divided into A & B groups. 38 patients were in each group. Microscopic Type 1 tympanoplasty performed in Landhi Hospital via post aurral approach and Endoscopic Type 1 tympanoplasty via per meatal approach in Al-Tibri Medical College & Hospital. Temporalis fascia was used as a graft material in group A (MT). Tragal cartilage was used for graft in group B (ET). Pre-operative PTA advised for hearing assessment in which air conduction, bone conduction and air-bone gap noted. After surgery 1st post-op day weber test done for checking the reservation of inner ear.

Pain, bleeding, vomiting, vertigo in 1st post-operated day, after 1 week, after 1 and 2 months. After 2 months integrity of grafted TM and reduction of air-bone gap noted.

**RESULTS**

A total 76 patients were studied after divided into two groups, in each group 38 pats were participated. Different variables like pain, discharge, bleeding, vomiting, vertigo, PTA, weber test, oto-endoscopic/oto-microscopic examination and duration of surgery in both procedures are used. Graph 1 Shows pain measurement in Endoscopic Tympanoplasty (n=38). It represents mild, moderate and no pain on post-operated day, after 1 week, after 1 month and after 2 months of surgery. Graph 2 Shows pain measurement in Microscopic Tympanoplasty (n= 38). It is the graphical representation of mild, moderate and no pain after surgery, after 1 week, after 1 month and after 2 months. It shows less pain was noted in group B(ET) as compare to group A(MT)

Graph 3 Comparison of bleeding in both groups. It shows the graphical representation of bleeding after tympanoplasty in both groups. Bleeding was less in group B(ET) as compare to group A(MT) due to less trauma and small incision. Table 7 Shows reduction in air-bone gap (AB-gap). In group B, all 38 patients had significantly reduced air-bone gap while in Microscopic Tympanoplasty 37 patients had reduced air-bone gap. Graph 4 is the graphical representation of air-bone gap reduction in both procedures.

Table 1 showing group statistics on PTA. Showing mean, Standard deviation and p-value noted for air conduction, bone conduction and A-B gap in both procedure groups

Table 2 Shows groups comparison of different variables. Over all mean age was 24.6 + 6.1. In endoscopic tympanoplasty (group B) mean age was 26.1 + 6.4 while in group A mean age was 23.2 + 5.7. P-Value was 0.304.

Over all male female ratio was 34:42. In group A the ratio was 14:24 and in group B it was 20:18. Over all graft success rate was 75(98.7%). In group A success rate was 37(97.4%) while in group B, graft success rate was 38(100%)

Pre-operatively mean air conduction was 42.3 + 2.3. in group A pre-operative air conduction was 42.0+2.5 while in group B it was 42.6 + 2.1. Pre-operative P- value was 0.199. Post-operative mean air conduction was 26.9+2.9, post-operative air conduction in group A was 26.7 + 2.6 while in group B it was 27.1 + 1.9. Post-operative P-value was found <0.001 in both groups. Bone conduction remained same after surgery in both groups. Over all mean air-bone gap pre-operative was 29.4 + 3.1dB in group A, air bone...
gap was 29.4 + 3.2 (pre-operative) in group B, air bone gap was 29.4 + 3.0 (pre-operative) Post-operated over all mean of AB-gape was 15.5 + 1.5 in group A. AB gape 15.4 + 1.4 while group B, AB gape 15.5 + 1.7 dB. 

Table No.1: Group statistics on PTA (N=38)

<table>
<thead>
<tr>
<th>Tympanoplasty</th>
<th>Mean (dB)</th>
<th>Std. Deviation</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Air Conduction</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Endoscopic Tympanoplasty</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>via permeatal approach</td>
<td>Before: 42.68, 27.18</td>
<td>2.055, 1.872</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>After: 27.18, 1.872</td>
<td>2.055, 1.872</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Bone Conduction</td>
<td>Before: 13.24, 13.05</td>
<td>2.247, 2.130</td>
<td>&lt;0.715</td>
</tr>
<tr>
<td></td>
<td>After: 13.05, 2.130</td>
<td>2.247, 2.130</td>
<td>&lt;0.715</td>
</tr>
<tr>
<td>AB-gap</td>
<td>Before: 29.42, 15.47</td>
<td>3.099, 1.688</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>After: 15.47, 1.688</td>
<td>3.099, 1.688</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td><strong>Bone Conduction</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Microscopic Tympanoplasty</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Via post aural approach</td>
<td>Before: 42.0, 12.87</td>
<td>2.526, 2.195</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>After: 26.74, 13.00</td>
<td>2.526, 2.195</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>AB-gap</td>
<td>Before: 29.37, 12.87</td>
<td>3.191, 1.388</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>After: 15.42, 13.00</td>
<td>3.191, 1.388</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

Table No.2: Overall groups comparison

<table>
<thead>
<tr>
<th>Variables</th>
<th>Overall (n=76)</th>
<th>ET (n=38)</th>
<th>MT (n=38)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (year)</td>
<td>24.6 ± 6.1</td>
<td>26.1 ± 6.4</td>
<td>23.2 ± 5.7</td>
<td>0.304</td>
</tr>
<tr>
<td>Sex (male: female)</td>
<td>34:42</td>
<td>20:18</td>
<td>14:24</td>
<td>0.249</td>
</tr>
<tr>
<td>Graft success rate</td>
<td>75 (98.7%)</td>
<td>38 (100%)</td>
<td>37 (97.4%)</td>
<td>0.999</td>
</tr>
<tr>
<td>Air conduction (dB)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-operation</td>
<td>42.3 ± 2.3</td>
<td>42.6 ± 2.1</td>
<td>42.0 ± 2.5</td>
<td>0.199</td>
</tr>
<tr>
<td>Post-operative</td>
<td>26.9 ± 2.3</td>
<td>27.1 ± 1.9</td>
<td>26.7 ± 2.6</td>
<td>0.391</td>
</tr>
<tr>
<td>p-value</td>
<td>&lt; 0.001</td>
<td>&lt; 0.001</td>
<td>&lt; 0.001</td>
<td></td>
</tr>
<tr>
<td>Bone conduction (dB)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-operation</td>
<td>13.1 ± 2.2</td>
<td>13.2 ± 2.3</td>
<td>12.9 ± 2.2</td>
<td>0.472</td>
</tr>
<tr>
<td>Post-operative</td>
<td>13.0 ± 2.1</td>
<td>13.0 ± 2.1</td>
<td>13.0 ± 2.2</td>
<td>0.915</td>
</tr>
<tr>
<td>p-value</td>
<td>0.941</td>
<td>0.715</td>
<td>0.793</td>
<td></td>
</tr>
<tr>
<td>AB-gap (dB)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-operation</td>
<td>29.4 ± 3.1</td>
<td>29.4 ± 3.0</td>
<td>29.4 ± 3.2</td>
<td>0.942</td>
</tr>
<tr>
<td>Post-operative</td>
<td>15.5 ± 1.5</td>
<td>15.5 ± 1.7</td>
<td>15.4 ± 1.4</td>
<td>0.822</td>
</tr>
<tr>
<td>p-value</td>
<td>&lt; 0.001</td>
<td>&lt; 0.001</td>
<td>&lt; 0.001</td>
<td></td>
</tr>
<tr>
<td>Duration of Surgery (mins)</td>
<td>73.6 ± 9.8</td>
<td>65.1 ± 3.7</td>
<td>82.0 ± 5.6</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

After surgery AB gape reduced in both groups. In group A reduction was from 29.4 + 3.2 to 15.5 + 1.4. AB gape reduction gained 14dB. In group B, AB gap reduced from 29.4 + 3.2 to 15.5 + 1.7 db. Gain reduction of AB gape was 14dB. Over all mean duration of surgery was 73.6 + 9.8 minutes.
In group A duration of surgery was 82.0 ± 5.6 minutes while in group B, it was 65.1 ± 3.7 minutes. Endoscopic tympanoplasty consumed less time as compared to microscopic tympanoplasty. Weber test lateralized towards operated ear in all patients in both groups very next day of surgery which indicate that there were intact ossicles and vastibulo-cochlear system.

**DISCUSSION**

Sanji, et al: Indian Journal of Otology July 2016 showed in his study, the mean operative time for the Endoscopic Tympanoplasty group was 78.13 minutes and for Microscopic Tympanoplasty group was 94.38 minutes. The difference was statistically not significant (t=.295, P=0.0099). This study was also showed that endoscopic tympanoplasty consumed less time which is similar to our study. Sinha M et al, Int. J Otorhinolaryngology and Head & Neck Surgery 2017 Oct 17 3(4): 874-877. Described in his study that Graft uptake was 95% in Microscopic Tympanoplasty and 91% in Endoscopic Tympanoplasty. Improvement in AB-gap reduction was 23.68dB in Microscopic Tympanoplasty and 16.13dB in Endoscopic Tympanoplasty.

Niteshor, et al: Journal of Medical Society Sep-Dec 2014 was mentioned in his study that 14db gain post operatively. 29 patients showed AB-gap improvement.

Aftab A, Shamsheer A et al: Glob J Oto. 2016 showed in their study that duration of surgery in trans canal Endoscopic Tympanoplasty was 62.37 minutes and post aural mean duration of surgery was 72.15 minutes in Microscopic Tympanoplasty. P value was less than 0.001 which is significant.

Duration of endoscopic tympanoplasty was less as compared to post aural microscopic tympanoplasty, which is similar to our study.

Hsun-Mo Wang et al: J Int. Adv. Otol. 2016: 12(1) 28-31 showed average operation time was 75.5 minutes in Group 1(MT) while average operation time was 50.4 minutes in Group 2(ET). This study revealed less time consumption in Endoscopic group as compared to Microscopic Tympanoplasty. This is also similar to our study.

Kumar Manish, Kanaujia Sk, et al Otolaryngol clinics: An international journal Sep-Dec 2015 have described in their study that pre-operative air-bone gap in conventional myringoplasty (MT) was 31.53 dB while in (ET) group it was 30 dB. Post-operative average air-bone gap was 16.03 dB in conventional myringoplasty, while in endoscopic myringoplasty it was 15 dB.

Average hearing gain in conventional myringoplasty was 15.96 dB and in endoscopic myringoplasty it was 16.03 dB. These results are also similar to our study's result. Graft uptake in microscopic tympanoplasty was 86% while in endoscopic tympanoplasty it was 83%.

Shoeb M et al Int. J Otol. Head & Neck Surgery. Oct 2016 2(4): 184-188 discussed pre-operative average air-bone gap was 38.87 dB in MT while post-operative air-bone gap was 18.13 dB in MT. Reduction of air-bone gap was 20.47 dB in MT while in endoscopic tympanoplasty, air-bone gap reduction was 17.4 dB.

Mean reduction of air-bone gap in both procedures was 19.47 dB. P-value was < 0.05 which was significant in both procedures. Graft uptake in both groups MT and ET showed no statistical difference.

Nayeon Choi, Yangseop Noh et al: Clin Exp Otol. 2017 March; 10(1): 44-49 explained in their study mean operation time was 88.9 min in MT group, significantly longer than the ET group (68.2 min). Graft success rate in ET and MT group was 100% and 95.8% respectively which was not statistically significant. This result is also similar to our study’s result. Pre-operative audiometric parameters including bone conduction, air conduction and air-bone gap were not significantly different between ET and MT group (P = 0.0174, P = 0.276 and P = 0.995 respectively).

Pre and post-operative air-bone gap was analyzed with pair t-test separately in each group. In the ET group pre and post-operative air-bone gap was 18.9 and 9.2 respectively which showed significant improvement (P<0.001). the respective value in the MT group (18.6 dB and 12.5 dB) also represented significant (P<0.001).

Pre-operative bone conduction and three months’ later post-operative bone conduction were compared using pair t-test in each group to evaluate inner ear damage. All groups had no significant difference between pre and post-operative bone conduction (ET=23.9dB vs MT=29.9dB).

DJ Jenina Rachel, Escaldron et al: Philippine journal of Otol-Head and Neck surg., Jan-June 2018 vol.33, described in their study that the mean operation time for the ET group was 86.7 minutes compared to 140.6 minutes for the MT group. The ET group had significantly lower mean operative time than the MT group with a mean difference of 53.9 minutes. Graft uptake was 100% in both Endoscopic tympanoplasty and Microscopic tympanoplasty group. It showed similarity to our study’s result.

Muzafar Dr. Rahil et al: Int. Journal of Scientific and Research Publications, vol 7, August 2017 has described in his study that Mean operative time of the MT group (88.9 minutes) was significantly longer than the ET group (68.9 minutes). Graft success rate in the ET and MT groups were 92% and 95% respectively.

Pre and post-operative AB gap was analyzed with paired t-test separately in each group. In the ET group pre and post-operative AB gap were 18.9dB and 9.2dB respectively which showed significantly improvement (P < 0.001). The respective values in the MT group (18.6dB and 12.5dB) also represented significant (P < 0.00)
CONCLUSION

Endoscopic Tympanoplasty is superior to Microscopic Tympanoplasty because it takes shorter duration of time, less bleeding during and after surgery due to minimal area of incision, less pain and no post-operative visible scar. Although graft uptake and hearing improvement were also similar in both groups.

Author's Contribution:
Concept & Design of Study: Tahir Hussain Khan
Drafting: Ashfaq Hussain Rana
Data Analysis: Sohail A. Malik
Revisiting Critically: Tahir Hussain Khan, Ashfaq Hussain Rana
Final Approval of version: Tahir Hussain Khan

Conflict of Interest: The study has no conflict of interest to declare by any author.

REFERENCES

Impact of Insomnia on Academic Performance Among Undergraduate Medical Students of Chandka Medical College (Shaheed Mohtarma Benazir Bhutto Medical University) Larkana

Vijia Kumar Gemnani1, Jai Kirshin Ambwani2, Barkat Ali Shaikh3, Shabir Ahmed Larik1, Manzoor Ali Shaikh2 and Ehsanullah Malik4

ABSTRACT

Objective: To assess the frequency of insomnia among medical students, secondary to evaluate the impact of insomnia on their educational performance. A valid Athens Insomnia Scale (AIS) was applied to assess the frequency of insomnia and the GPA was computed for academic performance.

Study Design: Cross-sectional study

Place and Duration of Study: This study was conducted at the Chandaka Medical College Larkana from September 2014 to February 2015.

Materials and Methods: In which 248 undergraduate medical students (First to Fourth years MBBS) were selected through a stratified random sampling method. In the current study, the frequency of insomnia among medical students 96(38.7%) was analyzed. In addition, the significant association has seemed between insomnia and academic performance (p<0.016) and frequency of insomnia was observed more in female students. In the current study, a high frequency of insomnia was observed among the medical students, as well as, poor academic performance was observed in insomniac students. In this regard, to improve sleep, there is a great need for good health education and awareness programs to improve the quality of future health personnel.

Results: Our study consist of 248 subjects, each batch (1st year to 4th year) contain equal participants, while female 162(65.3%) was observed high in respect to male 86(34.7%) in all batches. Graph-I

All the participating undergraduate medical students mean age was 20.15 ± 1.413 years and the range of age was 17 to 24 years. Scale GPA 4.0 was used to measure the Academic performance of subjects, therefore 166 (66.9%) subjects secured good performance while 82 (33.1%) subjects obtained low GPA (poor performance).

Conclusion: In the current study shows a high frequency of insomnia in medical students of CMC (1st year to 4th year MBBS) with multiple factors affecting sleep. The frequency of insomnia even high in female students. Insomniac students are found to have an impact on their GPAs (academic performance).

Key Words: Impact, Insomnia, academic, undergraduate, students

INTRODUCTION

Good sleep has been shown to improve the problem-solving skills and to increase memory performance of both children and adult.1,2 Insomnia (repeated difficulty to initiate or maintain sleep or poor quality of sleep) is the most frequent sleep problem as well as the health issue.3,4 Insomnia is one of the big public health challenges, because of its increasing frequency and relation to increasing rate of absence of work, too low job productivity; enhancing the economic burden and increasing medical and social costs.5

The researcher has been highlighted that the frequency of insomnia ranges from 10% to 48% in the general population, and insomnia have an effect on all age groups,6 in another study, majority insomnia seemed in adults 30% while more common in female as compared to male.7 Korean studies, have shown that the frequency of insomnia 22.8% was observed in adults, whereas women are more affected by men.8

Sleeping plays a significant function in learning and memory.9 In Saudi Arabia study, where insomniac
frequency 62.1% was found, and a weak association was calculated among insomniac subjects and academic performance. Also in an American survey, the adult frequency of insomnia was recorded as 30% and appeared to be lack of concentration, short memory, and a bad educational achievement or the work. Another related study was undertaken that illustrated 30% insomniac symptoms in college students next toon effects on the school output (low GPA). In a recent study among teenagers in Hong Kong, symptoms of insomnia (24.8%) were observed, to be associated with weak performance at school. The quality of the sleep has a vital effect on the cognitive functions, including several features; to affect the quality of sleep, like as stress. Moreover, the stress of the examination may be due to the inability to cope with the hard concepts of the study, long duration of coursework, etc more to sleep disturbances and insomnia. As a developing country, there is an enormous need for strategies for the medical sector to improve more importantly the quality of doctor in the future. Consequently, this kind of practice can help to improve productivity, reduce health care costs and a positive impact on society.

This study will help us identify sleep problems and their impact on the academic performance of medical students, so to improve the concept of sleep hygiene; ideas/suggestions can be developed to reduce sleep disorders. In addition, statistical data can help get better the strategic plans for health care and health expenses.

MATERIALS AND METHODS

Our cross-sectional study was conducted at SMBB medical University Larkana, four batches of medical students comprise the population of 248 subjects. Total students were stratified according to batch-wise 1st, 2nd, 3rd, and 4th-year MBBS, and then systematic random sampling applied to select subjects from each batch. During selection, in inclusion criteria, an age of the subjects was 17 years and above, male /female subject from the first year to fourth-year batches was selected. While in exclusion criteria, subjects were not suffering from any serious disease or any history of substance abuse except tea and coffee. The study procedure was reviewed and permitted by the Research and ERC of LUMHS, Jamshoro. Confidentially was assured and then written consented was taken by selected subjects. The insomnia measuring tool Athens insomnia scale (AIS) and a questionnaire included demographic as well as social life characteristics were filled by the students at their respective class rooms. A valid assessment instrument Athens insomnia scale was applied for insomnia measuring while for the diagnosing of insomnia ICD-10 criteria was applied.

AIS is a valid scale that measures the insomniac symptoms accounting of 08 factors as recommended by ICD-10. Each factor was rated 0-3 scales while 0 scales standing “no problem “to 03 digits “very serious problem”. In addition, the sums score from (0-24), therefore a cut - off score of 06 or above on AIS scale to be consider as the diagnosis of insomnia. Academic performance (good & poor performance) among whole medical students were evaluated by Grade point average. The GPA of the students was categorized into 02 categories if GPA is 03 or above (GPA≥3.00/4) considered good performance while GPA remained below the 03 points (GPA<3.0/4) considered poor performance. All GPA record (academic performance) of students was gathered from the Controller's Examination office (SMBBMU) Larkana.

Data Analysis: The data were analyzed using version 16.0 of the Statistical Program for the Social Sciences (SPSS). Means and standard deviation of the quantititative variables were computed as the age of the participants. Calculation of rate, ratio, and proportion are made for qualitative variables for example as gender, educational performance, history of medical illness etc and the chi-square test was applied, Level of significance was adjusted at <0.05.

RESULTS

Our study consist of 248 subjects, each batch (1st year to 4th year) contain equal participants, while female 162(65.3%) was observed high in respect to male 86(34.7%) in all batches. Graph-I All the participating undergraduate medical students mean age was 20.15 ± 1.413 years and the range of age was 17 to 24 years. Table-I Scale GPA 4.0 was used to measure the Academic performance of subjects, therefore 166 (66.9%) subjects secured good performance while 82(33.1%) subjects obtained low GPA (poor performance). Table-2 In addition, Undergraduate medical students in relation to residency as rural 115(46.4%) and urban 133 (53.6%) were recorded, plus 13 (5.2%) subjects were reported to have tobacco use. Table-II Late evening tea user students seemed high proportion 148(59.7%) while female were using tea more than males. As well as use of Benzodiazepine 9(3.6%) and alcohol consumption 02(0.8%) was seemed among medical students.
Subjects 14 (5.6%) were suffering from medical illness, for example, D.M, fibromyalgia kidney and hepatic disorders etc. Table-2
Sleeping disorder with any noise inside or outside the sleeping room was 91 (36.7%), female 46 (53.1%) affected more than males 45 (46.9%). Notice of known psychological disorder among medical students found 05/248 (2%). Table-2
On the analysis of the Athens Insomnia Scale (AIS), the frequency of insomniac symptoms among students showed 96 (38.7%), in which female 62 (64.6%) showed the increased symptom of insomnia than male 34 (35.4%) (p=0.476) Graph-2
The statistical association seemed between insomniac students and their academic performance; insomniac students showed poor academic performance means low GPA <03 as compare to non-insomniac students (p=0.016). graph-3
Table 03 illustrated bivariate analysis the different variables with the score of Athens insomnia scale. In a study, Insomnia and medical illness showed significant collaboration (p=0.043) 9 (9.4%). Sleep trouble among subjects in or out of the sleeping room, as a result of noise, seemed significant association (p=0.006) 45 (46.9) and as well as subjects were lived in rural locale showed significant association to Athens Insomnia Scale (AIS) score (p=0.009).
Moreover, variables of study such as tea usage in late evening (P=0.027), use of benzodiazepine (p=0.003), use of tobacco (p=0.001) showed significant relation with insomnia and other variables such as, sex, academic batch year and alcohol were shown to have negative significant support with insomnia.

Table No.1: Age-wise participation of study population (n=248)

<table>
<thead>
<tr>
<th>Overall mean</th>
<th>20.16+1.505</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age Range</td>
<td>17 to 24 years</td>
</tr>
<tr>
<td>Age</td>
<td>No. &amp; Age</td>
</tr>
</tbody>
</table>
| 17 years     | 05 (02.00%)
| 18 years     | 23 (09.30%)
| 19 years     | 55 (22.20%)
| 20 years     | 54 (21.80%)
| 21 years     | 59 (23.80%)
| 22 years     | 35 (14.10%)
| 23 years     | 12 (04.80%)
| 24 years     | 05 (02.00%)
| Total        | 248 (100%) |

Table No.2: Demographic and other variable in a population study.

<table>
<thead>
<tr>
<th>Variables</th>
<th>N %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>86 (24.7%)</td>
</tr>
<tr>
<td>Female</td>
<td>162 (65.3%)</td>
</tr>
<tr>
<td>Academic performance</td>
<td></td>
</tr>
<tr>
<td>Good</td>
<td>166 (66.9%)</td>
</tr>
<tr>
<td>Poor</td>
<td>82 (33.1%)</td>
</tr>
<tr>
<td>Residence</td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>115 (46.4%)</td>
</tr>
<tr>
<td>Urban</td>
<td>133 (53.6%)</td>
</tr>
<tr>
<td>Any noise in or out</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>91 (36.7%)</td>
</tr>
<tr>
<td>No</td>
<td>157 (63.3%)</td>
</tr>
<tr>
<td>Medical illness</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>14 (05.6%)</td>
</tr>
<tr>
<td>No</td>
<td>234 (94.4%)</td>
</tr>
<tr>
<td>Tea use in late evening</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>148 (59.7%)</td>
</tr>
<tr>
<td>No</td>
<td>100 (40.3%)</td>
</tr>
<tr>
<td>Tobacco</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>13 (05.2%)</td>
</tr>
<tr>
<td>No</td>
<td>235 (94.8%)</td>
</tr>
<tr>
<td>Alcohol</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>02 (0.8%)</td>
</tr>
<tr>
<td>No</td>
<td>248 (99.2%)</td>
</tr>
<tr>
<td>Benzodiazepine</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>09 (03.6%)</td>
</tr>
<tr>
<td>No</td>
<td>239 (96.4%)</td>
</tr>
</tbody>
</table>
DISCUSSION

In our study, insomnia among undergraduate medical students (38.7%), with which it was affected by more than one in three students significantly. In previous studies, 28.1% in Hong Kong studies and another study in Saudi Arabia (62.1%) had shown the frequency of insomnia among medical students.\textsuperscript{19,22} In addition, a study was conducted recently in Pakistan in which students had 72% insomnia.\textsuperscript{21} Another Malaysian study was conducted among adult population showed symptoms of insomnia 34.4%.\textsuperscript{24} As stated that greater variability in the frequency of insomnia is also attributed to that there is no consensus on classification, essentially defines insomnia in the period of its symptoms, frequency, and severity.\textsuperscript{26}

Demographic common variables, sex, and age mostly linked to insomnia. In the gender gap, our study revealed the most of previous researched studies that increase symptoms of insomnia has been shown in female (64.6%) compared to men (35.4%).\textsuperscript{22} In meta-analysis studies, gender differences were celebrated in insomnia, wherein 1265015 men/ Women were selected, where outcome showed that 41% of women have chance more to observe insomniac symptoms than men.\textsuperscript{20}

The current study revealed the studies, that the insomniac symptoms enhancing with the increasing age, such enhanced insomniac symptoms has been observed between the age 19 and 24 years.\textsuperscript{10,25} To our best knowledge, that our study remarkably heightened that impact of insomnia on students’ academic (educational) performance i.e., poor educational performance (GPA score low) seemed in insomniac students as compared to non insomniac students. Due to academic demands, students tend to bear stress at higher levels especially during the exam period. The study in Saudi Arabia was shown weak negative, yet seemed statistical significance relation among insomnia and GPA of medical student and one more study also revealed that discomfort of sleep affects the educational performance negatively.\textsuperscript{12}

Present studies showed that a high proportion of medical students (45%) were residing in sleep disturbing environment and falling asleep due to noise disturbance outside or inside the sleeping room, female subject suffered more. It seemed in research review that approximately 27 percentages of subjects resided in the dormitory. It is observed that regarding the noise, subjects reported difficult more falling asleep as compared to those who did not live in the dormitory.\textsuperscript{21} A study carried out in Pakistan showed that 40.8% subjects felt sleep trouble by means of noise while female disturbed more as compared to male.\textsuperscript{21} Smoking was correlated with the disturbance in sleep due to sleep, which could reduce sleep quality and loss in the health.\textsuperscript{27} Research studies have observed that the use of tobacco compared to non-tobacco users is significantly more prone, trouble in falling asleep in addition daytime sleepiness.\textsuperscript{28,29} Significant association between insomnia and tobacco use 13(5.2%) seemed in our study.

As a Muslim state, alcohol is strongly prohibited, resulting in 02 (0.8%) subjects seem the consumption of alcohol, and there observed to be no significant correlation with insomnia. Excessive use of coffee, alcohol, smoking among medical subjects results in sleep problems as well as daytime sleepiness.\textsuperscript{30,23}

CONCLUSION

In the current study shows a high frequency of insomnia in medical students of CMC (1\textsuperscript{st} year to 4\textsuperscript{th} year MBBS) with multiple factors affecting sleep. The frequency of insomnia even high in female students. Insomniac students are found to have an impact on their GPAs (academic performance).

The researchers conclude that the insomnia is a major problem for the academic performance of medical students and should be taken as such. To solve this problem, one of the ways would be to have health education sessions for medical students for insomnia as a danger mark for their academic performance.

Author’s Contribution:
Concept & Design of Study: Vijia Kumar Gemnani
Drafting: Jai Kirshin Ambwani, Barkat Ali Shaikh
Data Analysis: Shabir Ahmed Larik, Manzoor Ali Shaikh, Ehsanullah Malik
Revisiting Critically: Vijia Kumar Gemnani

Table No.3: Analysis of insomnia with different variables in study population

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>%</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insomnia</td>
<td>Male</td>
<td>34 (35.4%)</td>
<td>0.476</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>62 (64.6%)</td>
<td></td>
</tr>
<tr>
<td>Academic performance</td>
<td>Good</td>
<td>56 (58.3%)</td>
<td>0.016</td>
</tr>
<tr>
<td></td>
<td>Poor</td>
<td>40 (41.7%)</td>
<td></td>
</tr>
<tr>
<td>Residence</td>
<td>Rural</td>
<td>54 (56.2%)</td>
<td>0.009</td>
</tr>
<tr>
<td></td>
<td>Urban</td>
<td>42 (43.8%)</td>
<td></td>
</tr>
<tr>
<td>Medical illness</td>
<td>Yes</td>
<td>09 (09.4%)</td>
<td>0.043</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>87 (90.6%)</td>
<td></td>
</tr>
<tr>
<td>Tea</td>
<td>Yes</td>
<td>65 (67.7%)</td>
<td>0.027</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>31 (33.3%)</td>
<td></td>
</tr>
<tr>
<td>Tobacco</td>
<td>Yes</td>
<td>11 (11.5%)</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>88 (88.5%)</td>
<td></td>
</tr>
<tr>
<td>Alcohol</td>
<td>Yes</td>
<td>02 (02.1%)</td>
<td>0.149</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>94 (97.9%)</td>
<td></td>
</tr>
<tr>
<td>Benzodiazepine</td>
<td>Yes</td>
<td>08 (08.3%)</td>
<td>0.003</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>88 (91.7%)</td>
<td></td>
</tr>
<tr>
<td>Any noise in or out</td>
<td>Yes</td>
<td>45 (46.5%)</td>
<td>0.006</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>51 (53.5%)</td>
<td></td>
</tr>
<tr>
<td>Known psychiatric disor</td>
<td>Yes</td>
<td>08 (08.3%)</td>
<td>0.003</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>88 (91.7%)</td>
<td></td>
</tr>
</tbody>
</table>
REFERENCES


Conflict of Interest: The study has no conflict of interest to declare by any author.
Efficacy of Rosuvastatin 10mg with Atorvastatin 20mg in Lowering Low Density Lipoprotein Cholesterol in Hypercholesterolemia Patients

Shahid Iqbal¹, Fatima Iqbal², Abida Pervaiz³, Hafiz Muhammad Tahir⁴, Neelofar Yousaf⁵ and Farhan Rasheed⁶

ABSTRACT

Objective: To measure the effectiveness of Rosuvastatin 10mg with Atorvastatin 20mg in lowering low density lipoprotein cholesterol.

Study Design: Retrospective study

Place and Duration of Study: This study was conducted at the Jinnah Hospital, Lahore from March 2017 to December 2017.

Materials and Methods: 252 patients were enrolled having equal subjects in each group, using efficacy of Rosuvastatin 50 % (1) and efficacy of atorvastatin 39 % (1) with 95% confidence interval and 80% power of test.

Results: In Rosuvastatin group mean age was 65 years with SD ± 1.61 with male patients 51% and female patients were 49%. While in Atorvastatin Group mean age was 63 years with SD ± 1.93 with 54% patients were male and 46% patients were female. Moreover it was showed that Rosuvastatin appeared to be potent among 82% of the individuals and was not efficacious in 18% of the individuals while Atorvastatin was efficacious in 71% of the individuals and was not beneficial in 29% of the individuals.

Conclusion: In individuals having hypercholesterolemia, it was found that atorvastatin 20 mg is non-superior than Rosuvastatin 10 mg in lowering LDL-C, enabling LDL-C goal towards healthy target values.

Key Words: Rosuvastatin, Atorvastatin, Hypercholesterolemia

INTRODUCTION

Atherosclerotic Cardiovascular disease (ASCVD) consider to be one of the common estrean for morbidity and mortality in the globe.¹ Among the risk factors for ASCVD, hyperlipidemia or dyslipidemia (in a metabolic perspective) is an important reversible predisposing factor in its pathogenesis. It has been found that risk tend to rise markedly with elevation of low-density lipoprotein cholesterol (LDL-C) & declines with elevation of high-density lipoprotein cholesterol (HDL-C). Statins are the mainstream approach that is used medically for prevention of ASCVD due to hyperlipidemia. These are HMG Co-enzyme A inhibitors that cause lowering in intrinsic formation of cholesterol in the liver and hence down regulates the metabolic formation of LDL-C.²-⁵

The crucial need to get help of lipid lowering agents especially LDL-C, the major aim is to prevent the frequency of serious cardiovascular problems among individuals who probably have significant cardiovascular disorder in short term. Primary prevention trials with LDL-C lowering drugs enables its use. As described previously there are two trials for primary prevention, statin therapy appears as relatively effective and safer. However, LDL-C lowering drugs do not prone individuals to any major side effects if used for a low duration for primary prevention. (6-9)

Prospective epidemiological studies show that there is inverse correlation between the presence of CAD and LDL-cholesterol levels. CAD complications can be reduced, along with other risk factors, provided LDL cholesterol levels are <2.58 mmol/L. Thus, an LDL cholesterol <2.58 mmol/L can be referred to as ideal. If an individual has no atherosclerotic disease risk factors provided the even near optimal levels of L-cholesterol

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Printed: January 2019
concentrations, i.e., 2.58–3.33 mmol/L, the 10-year risk for CAD is still relatively less.\textsuperscript{10} When LDL cholesterol levels are optimal i.e. ≤2.58 mmol/L or near optimal (2.58–3.33 mmol/L), despite with a low risk for CAD, there is still a need for a cost benefit analysis as this kind of a clinical trials poses the health care system at risk in context of financial burden. Selecting the individuals for such clinical intervention depends on the adjustment of the therapy for the absolute risk.\textsuperscript{11,12}

Recently, clinical trials in those individuals having established CAD revealed that patients have a lower risk for stroke as well, especially with statins. The exact role whereby statin therapy lowers the risk of stroke with CAD patients remains answerable but most likely involve slowing of progression of plaque, stabilization of plaque, so has been reducing the incidence of coronary events.\textsuperscript{13}

However, stroke can be prevented significantly by using statin therapy in secondary prevention.\textsuperscript{14}

The objective of this study was to measure the effectiveness of Rosuvastatin 10mg with Atorvastatin 20mg therapy in reducing Low Density Lipoprotein Cholesterol (LDL-C) in patients with Hypercholesterolemia.

**MATERIALS AND METHODS**

This retrospective study was conducted at Jinnah Hospital, Lahore from March 2017 to December 2017. 252 individuals in each group, using efficacy of rosuvastatin 50% and of atorvastatin 39% with 95% confidence interval and 80% power of the test, calculated by WHO software for sample size determination. The sampling technique was of non-probability consecutive type. The patients with baseline fasting LDL-C level > 3.3mmol/L and prescribed either Rosuvastatin 10mg or Atorvastatin 20mg at baseline as primary intervention for treatment of hyperlipidemia were enrolled for the study. Those with history of ethanol abuse or cholecystectomy, chronic liver disease, other metabolic disorders were excluded from the study.

**Data collection procedure:**

This study was done after the research and ethical committees approval from the hospital. Patient data records from hospital(s) and medical centers were collected. Patients fulfilling all the inclusion and exclusion criteria were selected. Baseline homogeneity was ensured for the primary variable LDL-C and for the secondary variables like age, gender, diabetes (HbA1C≥5.5%), dietary intake of lipids, intake pattern of antioxidants/fruits and vegetables. Groups sorted on the bases of lipid lowering treatment prescribed (Rosuvastatin 10mg or Atorvastatin 20mg) were compared in terms of the aforementioned variables at baseline, to ensure homogeneity of groups.

Detailed history, clinical investigations and demographic information were gathered upon data collection form (Annexure) and later on tabulated using spreadsheet software; Microsoft Excel. Methods used for assay of LDL-C were confirmed from relevant lab(s) for both baseline and 6 months after treatment values. If the treatment has resulted in 30% lowering of the LDL-C value at 6th week of the treatment from the baseline value, it was considered to produce desired efficacy. For every patient, efficacy was calculated and labelled as “efficacious” or “non-eficacious”.

**Data Analysis procedure:** The data was analyzed by using statistical package for social sciences (SPSS) version 20 after data entry. Mean and standard deviation were calculated for continuous variables like age and fasting serum LDL-C levels. Other variables like gender, diabetes (HbA1C≥5.5%) and efficacy were expressed as frequencies and percentages. For comparisons among groups, Chi-Square test was used to compare the efficacy. P value of ≤ 0.05 was considered as significant. All the results are presented in the form of graphs and tables. Age and gender that are effect modifiers were controlled through stratification/post stratification.

**RESULTS**

252 were the number of individuals included in our study having 126 individuals in each of the group. Patients were observed for the reduction of levels of Low Density Lipoprotein Cholesterol for the effectiveness of either Rosuvastatin or Atorvastatin with Hypercholesterolemia and the outcome was analyzed:

Age distribution among two groups was analyzed as in Rosuvastatin Group 25(20%) patients having age range 41-50 years, 70(55%) patients having age range 51-60 years, 31(24%) patients having age range 61-70 years. Mean age was 65 years with SD ± 33.0. While in Atorvastatin Group 34(33%) patients having age range 41-50 years, 42(41%) patients having age range 51-60 years, 50(26%) patients having age range 61-70 years. Mean age was 63 years with SD ± 20.5. (Table-1).

Gender distribution among two groups was analyzed as in Rosuvastatin Group 64(51%) patients were male while 62(49%) patients were female where as in Atorvastatin Group 68(54%) patients were male and 58(46%) patients were female. (Table-2).

Baseline fasting serum LDL-C Level among two groups was analyzed as in Rosuvastatin group 24(19%) patients had baseline serum LDL-C Level ranged from 3.36-4.11 mmol/L, 82(65%) patients had baseline serum LDL-C Level ranged from 4.12-4.88 mmol/L, 20(16%) patients had baseline serum LDL-C Level ranged from ≥ 4.89 mmol/L. Mean baseline serum LDL-C Level was 4.88 mmol/L with SD ± 0.06. While in Atorvastatin Group 26(21%) patients had baseline serum LDL-C Level ranged from 3.36-4.11 mmol/L,
77(61%) patients had baseline serum LDL-C Level ranged from 4.12-4.88 mmol/L, 23(18%) patients had baseline serum LDL-C Level ranged from 2.58 mmol/L. Mean baseline serum LDL-C Level was 4.78 mmol/L with SD ± 0.07. (Table-3).

Fasting Serum LDL-C Level after 6 weeks among two groups was analyzed as in Rosuvastatin group 92(73%) patients had serum LDL-C Level ranged from < 2.58 mmol/L, 19(15%) patients had serum LDL-C Level ranged from 2.59-3.33 mmol/L, 11(9%) patients had serum LDL-C Level ranged from 3.34-4.11 mmol/L, 4(3%) patients had serum LDL-C Level ranged from ≥ 4.12 mmol/L. Mean serum LDL-C Level was 2.58 ± 0.02 mmol/L. While in Atorvastatin Group 88(70%) patients had serum LDL-C Level ranged from < 2.58 mmol/L, 21(16%) patients had serum LDL-C Level ranged from 2.59-3.33 mmol/L, 12(10%) patients had serum LDL-C Level ranged from 3.34-4.11 mmol/L, 5(4%) patients had serum LDL-C Level ranged from ≥ 4.12 mmol/L. Mean serum LDL-C Level was 2.71 ± 0.04 mmol/L. (as shown in Table-4).

### Table No.1: Age distribution in treatment groups

<table>
<thead>
<tr>
<th>Age</th>
<th>Frequency and percentages</th>
<th>Rosuvastatin 10 mg/day (Group A)</th>
<th>Atorvastatin 20mg/day. (Group B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>41-50 Years(1)</td>
<td>25(20%)</td>
<td>34(33%)</td>
<td></td>
</tr>
<tr>
<td>51-60 Years(2)</td>
<td>70(55%)</td>
<td>42(41%)</td>
<td></td>
</tr>
<tr>
<td>61-70 Years(3)</td>
<td>31(24%)</td>
<td>50(26%)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>126(100%)</td>
<td>126(100%)</td>
<td></td>
</tr>
<tr>
<td>Mean±SD</td>
<td>65 ± 33.0</td>
<td>63 ± 20.5</td>
<td></td>
</tr>
</tbody>
</table>

### Table No.2: Gender distribution in treatment groups

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency and percentages</th>
<th>Rosuvastatin 10 mg/day (Group A)</th>
<th>Atorvastatin 20mg/day. (Group B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>64(51%)</td>
<td>68(54%)</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>62(49%)</td>
<td>58(46%)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>126(100%)</td>
<td>126(100%)</td>
<td></td>
</tr>
</tbody>
</table>

### Table No.3: Baseline LDL-C Levels in treatment groups

<table>
<thead>
<tr>
<th>Baseline LDL level (mmol/L)</th>
<th>Frequency and percentages</th>
<th>Rosuvastatin 10 mg/day (Group A)</th>
<th>Atorvastatin 20mg/day. (Group B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.36-4.11</td>
<td>24(19%)</td>
<td>26(21%)</td>
<td></td>
</tr>
<tr>
<td>4.12-4.88</td>
<td>82(65%)</td>
<td>77(61%)</td>
<td></td>
</tr>
<tr>
<td>≥ 4.89</td>
<td>20(16%)</td>
<td>23(18%)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>126(100%)</td>
<td>126(100%)</td>
<td></td>
</tr>
<tr>
<td>Mean±SD</td>
<td>4.88 ± 0.06</td>
<td>4.78 ± 0.07</td>
<td></td>
</tr>
</tbody>
</table>

Efficacy of Rosuvastatin vs Atorvastatin was analyzed by calculating 30% of the baseline level of the LDL-C for each patient and evaluating that reduction of LDL-C after 6 weeks treatment was less than or equal to or more than the determined value. A less than or equal to the determined reduction was efficacious. Rosuvastatin was effective in 103(82%) however in 23(18%) of the individuals it was effective while Atorvastatin was effective in 89(71%) patients and it was non-superior in 37(29%) patients. (as shown in Table-5).

To compare the efficacy of the two groups Chi Square test applied and the p value obtained was 0.000 for the whole data as well as upon stratification according to gender (Table-6), which was statistically significant, hence there is a statistically significant difference between the low-density lipid lowering efficacy of Rosuvastin 10 mg and Atorvastin 20 mg.

### Table No.4: LDL Levels after 6 weeks in both treatment groups

<table>
<thead>
<tr>
<th>LDL level after 6 weeks (mmol/L)</th>
<th>Frequency and percentages</th>
<th>Rosuvastatin 10 mg/day (Group A)</th>
<th>Atorvastatin 20mg/day. (Group B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 2.58</td>
<td>92(73%)</td>
<td>88(70%)</td>
<td></td>
</tr>
<tr>
<td>2.59-3.33</td>
<td>19(15%)</td>
<td>21(16%)</td>
<td></td>
</tr>
<tr>
<td>3.34-4.11</td>
<td>11(9%)</td>
<td>12(10%)</td>
<td></td>
</tr>
<tr>
<td>≥ 4.12</td>
<td>4(3%)</td>
<td>5(4%)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>126(100%)</td>
<td>126(100%)</td>
<td></td>
</tr>
<tr>
<td>Mean ± SD</td>
<td>2.58 ± 0.02</td>
<td>2.71 ± 0.04</td>
<td></td>
</tr>
</tbody>
</table>

### Table No.5: Efficacy in both treatment groups

<table>
<thead>
<tr>
<th>Efficacy</th>
<th>Frequency and percentages</th>
<th>Rosuvastatin 10 mg/day (Group A)</th>
<th>Atorvastatin 20mg/day. (Group B)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effective</td>
<td>103(82%)</td>
<td>89(71%)</td>
<td>192</td>
<td></td>
</tr>
<tr>
<td>Not effective</td>
<td>23(18%)</td>
<td>37(29%)</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>126(100%)</td>
<td>126(100%)</td>
<td>252(100%)</td>
<td></td>
</tr>
</tbody>
</table>

Chi square test was applied in which P value was 0.000. (Annexure)

### Table No.6: Stratification with respect to gender

<table>
<thead>
<tr>
<th>Gender</th>
<th>Groups</th>
<th>Efficacy</th>
<th>Not effective</th>
<th>Total</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Rosuvastin 10 mg/day (Group A)</td>
<td>52</td>
<td>12</td>
<td>64</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>Atorvastin 20mg/day. (Group B)</td>
<td>48</td>
<td>20</td>
<td>68</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>Rosuvastin 10 mg/day (Group A)</td>
<td>49</td>
<td>13</td>
<td>62</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>Atorvastin 20mg/day. (Group B)</td>
<td>40</td>
<td>18</td>
<td>58</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>89</td>
<td>31</td>
<td>120</td>
<td></td>
</tr>
</tbody>
</table>
DISCUSSION

This study was conducted at Jinnah Hospital, Lahore and the aim of this study was to compare the effectiveness of Rosuvastatin 10mg in comparison with Atorvastatin 20mg therapy in lowering Low Density Lipoprotein Cholesterol (LDL-C) in individuals having raised blood cholesterol levels.

In this study Rosuvastatin 10 mg/day given to 126 individuals having baseline LDL-C levels with a mean of 4.88 ± 0.06mmol/L. After treatment those patients who had their mean LDL-C Levels of 2.58 ± 0.02mmol/L with mean reduction in LDL-C levels of 2.3mmol/L. Out of 126 patients 103 i.e. 82%, acquired the target LDL-C Levels. Whereas Atorvastatin (20mg/day) was given to 126 patients having baseline LDL-C levels with mean of 4.78 ± 0.07mmol/L. After treatment those patients had mean LDL-C Levels of 2.71 ± 0.04 mmol/L with mean reduction in LDL-C levels of 2.07mmol/L. Out of 126 patients 89 i.e. 71%, achieved the target LDL-C Levels. On application of the chi square test the p-value of the outcome between the two groups was 0.00, which is less than alpha value (0.05) thus statistically significant. Results were also significant when stratification done based on gender (Table-6). The one tailed fischer exact test also gave a significant p-value (0.000) as shown in Annexure. Hence it was concluded that the efficacy of Rosuvastatin 10mg was better than atorvastatin 20 mg in patient having hypercholesterolemia. The result of the study was similar to comparative studies doneto measure the effectiveness of Rosuvastatin and atorvastatin in lowering lipids, done internationally. Side effect profile of both drugs was similar and both drugs were well tolerated with no major side effects observed in any of the treatment group. My results are consistent with many previous investigations carried out.

The study conducted by B. H. R. Wolfenbuttel et al., compared the efficacy of the rosuvastatin with atorvastatin in subjects having type 2 diabetes over 24 weeks. A multicenter randomized, study in parallel group conducted in Netherlands upon 263 patients. The study observed apolipoprotein B (apoB) and apoB/apolipoprotein A1 (apoA1) ratio in the subjects. However, there were changes in other lipid parameters in secondary outcomes. Baseline LDL-C in both groups was comparable i.e. 4.23 ± 0.98 mmol/L and 4.43 ±0.99 mmol/L in Rosuvastatin and atorvastatin groups. Greater number of patients had a marked lowering level of LDL-C in rosuvastatin group (82%) in comparison with atorvastatin group (74%) according to The American Diabetes Association (ADA) criteria. Significantly greater reductions in apoB/apoA1 ratio seen in Rosuvastatin cases in comparison with atorvastatin treated cases in this study.15

Another study by Keith C. Ferdinand et al. matched my study in terms of duration of treatment and dosage. It studied African-Americans adult patients for the lipid-lowering ability of statin therapy in hypercholesterolemia for 6 weeks treatment. End points were marked lowering in low-density lipoprotein cholesterol, total cholesterol, non-high-density lipoprotein cholesterol, and apolipoprotein B concentrations, as well as lipoprotein and apolipoprotein ratios. The results did not only show significant reduction of LDL-C; rosuvastatin was also found to increase HDL-C more than atorvastatin. Overall African-Americans lipid profile of hypercholesterolemic patients was better improved by treatment with rosuvastatin with the same dose of atorvastatin.16

Allevidences as mentioned above are aligned with the results found in the carried study and thus it could be recommended that rosuvastatin could be used as first line therapy in treatment of hypercholesterolemia. Another study by Calza et al. investigated the use of various statins including the ones I studied, in Highly active antiretroviral therapy (HAART) therapy. HAART including protease inhibitors (PIs) have been independently associated with an abnormal lipid profile. The study concluded that although all used statins showed a significant efficacy and a good tolerability in the treatment of diet-resistant hyperlipidaemia, but rosuvastatin was more effective in reducing total and LDL cholesterol levels.17

Another study by J Wouter Jukema et al., investigated LDL-C/HDL-C ratio. This study compared the effects of rosuvastatin and atorvastatin on the LDL-C/HDL-C ratio in patients while treatment with either rosuvastatin or atorvastatin. In this study patients with established cardiovascular disease and HDL-C < 1.0 mmol/L were included. After randomization, each group was treated with rosuvastatin 10 mg or atorvastatin 20 mg for 6 weeks the doses were increased afterwards to rosuvastatin 40mg and atorvastatin 80mg during 18 week treatment. This escalating dose study too, resulted with similar results i.e. Rosuvastatin 10, 20 and 40 mg to be significantly more effective than atorvastatin 20, 40 and 80 mg, respectively, in improving the LDL-C/HDL-C ratio.18

CONCLUSION

It was concluded that individuals having hypercholesterolemia, Rosuvastatin 10 mg was better as compared to those taking atorvastatin 20 mg in lowering LDL-C, leading to LDL-C to a desirable limits. Both treatments were well tolerated.

Author’s Contribution:
Concept & Design of Study: Shahid Iqbal
Drafting: Fatima Iqbal, Abida Pervaiz
Data Analysis: Hafiz Muhammad Tahir,
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January, 2019

Neelofar Yousaf, Farhan Rasheed
Revisiting Critically: Shahid Iqbal, Fatima Iqbal, Abida Pervaiz
Final Approval of version: Shahid Iqbal

Conflict of Interest: The study has no conflict of interest to declare by any author.

REFERENCES

Diagnostic Role of Renal Ultrasonography in Children with Urinary Tract Infection
Malik Mudasir Hassan1, Sadia Riaz1, Muhammad Rashid Rasul2 and Aaqib Javed3

ABSTRACT

Objective: This study was designed to evaluate renal Ultrasonography in children having simple urinary tract infections.

Study Design: Retrospective study

Place and Duration of Study: This study was conducted at the Department of Radiology, Bahawal Victoria Hospital, Bahawalpur from August, 2017 to April 2018.

Materials and Methods: In our study 350 patients were included. All the cases with positive urine cultures were included in our study. Positive urine cultures were defined as 100,000 CFU/mL in midstream samples or urine bags or 10,000 CFU/mL in suprapubic samples. Sex, age, ultrasound performance, VCUG, and DMSA scan results were recorded. SPSS 21 was used for data interpretation, percentages, frequencies were calculated and table was formed.

Results: The initial diagnosis of urinary tract infection was performed in 350 patients (male=165, female=185), and 220 urine cultures were positive. Out Of 220 patients with urinary tract infections, 159 (78%) were females and 59 (22) were males (P 0.001). The age distribution is shown in . Children less than 5 years old, hydronephrosis were the most common. The thickening of the bladder wall in older children was the most common abnormal finding Abnormal renal ultrasound was significantly associated with VUR (Table 3). The sensitivity, specificity, positive predictive value and negative predictive value of RUS for VUR were 42%, 79%, 38% and 82%, respectively. Hydronephrosis was a more common ultrasound result in VUR cases. There was no significant correlation between abnormalities in renal ultrasound images and VUR (P = 0.43).

Conclusion: Most UTI patients have normal renal ultrasonography. Hydronephrosis is the most common abnormality in VUR cases.

Key Words: Sonography, Urinary tract infection, vesico urethral reflux, VUR

INTRODUCTION

Urinary tract infections are common in young children, and the overall morbidity prevalence in children with UTI is 0.7%1. In daily practice, it is recommended that the kidneys ultrasonographically abnormal in the upper urinary tract. Non-invasive, Low radiation makes it an ideal tool for initial assessment2. However, recent publications have questioned the importance of routine renal ultrasonography (RUS) in the treatment of children with uncomplicated urinary tract infections (UTI) 3,4.

1. Department of Radiology, BVH Bahawalpur.
2. Department of Radiology, Gazi Medical College DG Khan.
3. Department of Pediatric Medicine, Children Hospital, Lahore.


MATERIALS AND METHODS

In our study 150 patients were included. This study was conducted in Bahawal Victoria Hospital, Bahawalpur. The study period was August, 2017 to April 2018. All the cases with positive urine cultures were included in our study. Positive urine cultures were defined as 100,000 CFU/mL in midstream samples or urine bags or 10,000 CFU/mL in suprapubic samples. Sex, age, ultrasound performance, VCUG, and DMSA scan results were recorded. SPSS 21 was used for data interpretation, percentages, frequencies were calculated and table was formed.

RESULTS

The initial diagnosis of urinary tract infection was performed in 350 patients (male=165, female=185), and 220 urine cultures were positive. Out Of 220 patients with urinary tract infections, 159 (78%) were females and 59 (22) were males (P 0.001). The age distribution is shown in Table 1. Children less than 5 years old, hydronephrosis was the most common Abnormal results. The thickening of the bladder wall in older
children was the most common abnormal finding (Table 2).
Abnormal renal ultrasound was significantly associated with VUR (Table 3). The sensitivity, specificity, positive predictive value and negative predictive value of RUS for VUR were 42%, 79%, 38% and 82%, respectively. Hydronephrosis was a more common ultrasound result in VUR cases. There was no significant correlation between abnormalities in renal ultrasound images and VUR (P = 0.43).

34 (57%) of the men had normal renal ultrasonography and 25 (43%) had abnormal ultrasound findings. In girls, 125 cases (79%) had normal ultrasound, and 34 cases (21%) were abnormal. Abnormal results were more common in men than women (P = 0.001). Hydronephrosis was the most common abnormality in ultrasound examinations for men and women (Table 4). There was no significant difference in ultrasound findings between patients with and without circumcision.

Of the circumcised boys, 34 (68%) had E. coli in the urinary system and 61 (70.9%) had E. coli-negative (P = 0.797). A vesicourethral reflux occurred in 5 (26.3%) circumcised boys and 17 (30.9%) uncircumcised boys (P = 0.706). In 625 urine cultures, E. coli (83.3%) was the most common pathogen, followed by Klebsiella pneumoniae (9%); Proteus (2.8%); Enterobacteriaceae (1.5%); and coagulase-negative staphylococci (1.2%).

Table 1: Age distribution among children admitted with urinary tract infection

<table>
<thead>
<tr>
<th>Age</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 1 yr</td>
<td>20</td>
<td>9%</td>
</tr>
<tr>
<td>1-2 yr</td>
<td>95</td>
<td>43%</td>
</tr>
<tr>
<td>2-5 yr</td>
<td>55</td>
<td>25%</td>
</tr>
<tr>
<td>5-10 yr</td>
<td>35</td>
<td>17%</td>
</tr>
<tr>
<td>&gt; 10 yr</td>
<td>15</td>
<td>6%</td>
</tr>
</tbody>
</table>

Table 2: Ultrasound findings among children < 5 yr and children > 5 yr

<table>
<thead>
<tr>
<th>Age</th>
<th>Hydronephrosis (%)</th>
<th>Hydronephrosis (%)</th>
<th>Stone (%)</th>
<th>Bladder Wall thickness (%)</th>
<th>Ectopic Kidney (%)</th>
<th>Increased Parenchymal echogenisity (%)</th>
<th>Other (%)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 5 yr</td>
<td>9</td>
<td>48</td>
<td>7</td>
<td>10</td>
<td>7</td>
<td>7</td>
<td>11</td>
<td>100</td>
</tr>
<tr>
<td>&gt; 5 yr</td>
<td>3</td>
<td>7</td>
<td>0</td>
<td>23</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>40</td>
</tr>
</tbody>
</table>

Table 3: Vesicourethral reflux among cases with normal or abnormal sonography

<table>
<thead>
<tr>
<th>Renal Ultrasound</th>
<th>Reflux (+)</th>
<th>Reflux (-)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>42 (20%)</td>
<td>168 (80%)</td>
<td>210</td>
</tr>
<tr>
<td>Abnormal</td>
<td>51 (36%)</td>
<td>89 (64%)</td>
<td>140</td>
</tr>
<tr>
<td>Hydronephrosis</td>
<td>6</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>Hydroureter</td>
<td>23</td>
<td>32</td>
<td>55</td>
</tr>
<tr>
<td>Stone</td>
<td>3</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Bladder Wall thickness</td>
<td>7</td>
<td>16</td>
<td>23</td>
</tr>
<tr>
<td>Ectopic Kidney</td>
<td>3</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>Increased Parenchymal echogenisity</td>
<td>4</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Other</td>
<td>9</td>
<td>4</td>
<td>13</td>
</tr>
</tbody>
</table>

Table 4: Distribution of ultrasound findings among males and females

<table>
<thead>
<tr>
<th>Ultra Sound Finding</th>
<th>Male (%)</th>
<th>Female (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydronephrosis</td>
<td>24 (44%)</td>
<td>29 (34%)</td>
</tr>
<tr>
<td>Bladder Wall thickness</td>
<td>13 (23%)</td>
<td>19 (23%)</td>
</tr>
<tr>
<td>Hydroureter</td>
<td>8 (15%)</td>
<td>6 (7%)</td>
</tr>
<tr>
<td>Increased Parenchymal echogenisity</td>
<td>5 (9%)</td>
<td>11 (13%)</td>
</tr>
<tr>
<td>Ectopic Kidney</td>
<td>2 (4%)</td>
<td>9 (10%)</td>
</tr>
<tr>
<td>Renal Stone</td>
<td>5 (9%)</td>
<td>4 (5%)</td>
</tr>
<tr>
<td>Other</td>
<td>7 (8%)</td>
<td>85</td>
</tr>
</tbody>
</table>

DISCUSSION

In this study, the most common infection age was less than 12 months. This finding was similar to the study by Wagenlehner et al. Our results were contradictory with Yuksek et al study. In our study, 77.92% of were females. In a study by Zamir et al., 75.3% were females from all cases. In the Hebermann et al study, there were 89.32% females. In our study, 75.3% were females from all cases. Our results were similar to these studies and are slightly different because of the age of the cases.

The main pathogenic factors in this study were Escherichia coli, Klebsiella pneumoniae and Proteus. Our findings are similar to that of Zamir et al study.

A study conducted in Saudi Arabia total 130 , 92 (69.7%) had normal sonography and 38 (30.3%) had normal renal ultrasound. In their study, 38 patients had abnormal renal ultrasound and 50% VUR VCUG. In our study, 92 cases of abnormal ultrasound, 38% had VUR is in VCUG. The results of the two studies are slightly different, but our study has more samples (625 cases) comparing Alshamsan et study and 130 cases. In a prospective study by Hebermann et al of 309 children were 1-24 month old by, 88% (272,309) of the renal ultrasound findings were normal. 41 abnormalities
were found in 37 cases. Most of the malformations were pelvic dilation (13 cases), pelvocaliectasis (12 cases), ureteral dilatation (9 cases), hydronephrosis (2 cases). In Montini et al's study, there were 300 children with the first fever and 13% (38) cases, with renal ultrasound abnormalities.

In a study in Finland, 399 ultrasounds of kidneys, 31 boys and 40 girls had abnormal USG findings. In Zamir et al., 255 cases of renal ultrasound studies, 85.8% of cases had normal USG. In 219 cases of normal ultrasound examination, 38 cases had abnormal VCUG.

DiPietro et al. studied 70 children with age less than 5 years using VCUG and RUS. Five patients had abnormal renal ultrasonography and 65 patients had normal renal ultrasonography.

In a study by Smellie and Rigden 58 children with UTI, VUR was found in VCUG in 62% of cases, but only 8 cases had abnormal RUS. Their conclusion is that RUS is an unreliable method for detecting VUR. In our study, hydronephrosis was the most common finding in VUR cases. Alshamsan et al. reported similar results. In the study of Montini et al, the authors concluded that ultrasound has the least benefit in the acute phase of the disease.

In studies from Saudi Arabia, ultrasonography did not have much value in treating children with the first fever UTI. Hoberman et al. believe that renal ultrasound is of little value in the treatment of children with urinary tract infections. As most studies mention, in most cases of UTI, renal ultrasound findings were normal.

CONCLUSION

Most of the UTI patients have normal ultrasonography findings. Ultrasound has little therapeutic value for children with uncomplicated urinary tract infections. Hydronephrosis is the most common abnormality in the cases with VUR. Another study is recommended to determine the role of renal ultrasound in the management of urinary tract infection.

Author's Contribution:
Concept & Design of Study: Malik Mudasir Hassan
Drafting: Sadia Riaz
Data Analysis: Muhammad Rashid, Aaqib Javed
Revisiting Critically: Malik Mudasir Hassan, Sadia Riaz
Final Approval of Version: Malik Mudasir Hassan

Conflict of Interest: The study has no conflict of interest to declare by any author.

REFERENCES
Mono-Polartrans Urethral Resection of Prostate; A Third World Gold Standard

Shahnawaz¹, M. Babar Baig¹, Mahmood Ahmad², Muhammad Umer Baloch³, Khalil Mobin³ and Bilal Suria⁴

ABSTRACT

Objective: To show the safety profile of Monopolar Trans Urethral resection of Prostate weighing more than 80 grams

Study Design: Cross sectional study

Place and Duration of Study: This study was conducted at the Department of Urology, Shaheed Mohtarma Benazir Bhutto Medical College and Lyari General Hospital from January 2013 to July 2017.

Materials and Methods: Seventy two patients were selected through non probability purposive sampling. Inclusion criteria consisted of patients having 81gm to 161 gm Prostate; having failed trial without catheter and could not bear symptoms and cost. High risk patients were excluded. Monopolar Trans urethral resection of Prostate was performed by a single surgeon using standard technique.

Results: Mean age of the patients was 65 years with SD 7, minimum 50 and maximum 90 years. Twenty six patients were diabetic and hypertensive. Mean size of the prostate was 93 gm with minimum 81 and maximum 161. Consistency of the prostate was found hard in three and tenderness in five of the prostates. Three (4%)of the patients had malignancy of prostate. Escherichia Coli was the most common pathogen.

Conclusion: M-TURP is economical and is a locally easily available procedure with good safety profile and durable results.

Key Words: M-TURP, BPH, B-TURP

INTRODUCTION

Benign Prostatic Hyperplasia (BPH), which is a disease of the old age (mostly after 60 years) leads to Urinary Tract obstruction and infection¹. Alpha Antagonists alone or with 5-Alpha Reductase inhibitors are used to treat BPH in the initial phase of the disease. Upon failure, patients are moved to surgical intervention². Monopolar Trans-Urethral Resection of Prostate (M-TURP) is one endoscopic surgical treatment option. By using diathermy (electric current), prostatic tissue is resected as chips as well as coagulate bleeding vessels up to the prostatic capsule³. The rationale of this study was to show that M-TURP is a viable option even in Large prostate size (>80gm)

with acceptable and durable results along with reasonable safety profile. This technique, in spite of other newer and recently described modalities e.g. Bipolar TURP or laser, is Gold Standarad where familiarity and expertise with M-TURP are extensive.

MATERIALS AND METHODS

This cross-sectional study was conducted in the Department of Urology, Shaheed Mohtarma Benazir Bhutto Medical College and Lyari general Hospital from January 2013 to July 2017. Sampling technique was non-probability purposive and the sample size being 72. Approval from the Ethical Review Committee was taken. The study was started after taking verbal permission from patients, and their confidentiality was maintained. Complete history was taken and examination was performed. International Prostate Symptom Score (IPSS) was not assessed and Uro-flometry (UFM) was not done as patients were mostly catheterized with failed multiple trials without catheter (TWOC) on Alpha blockers and combination therapy. Cardiac and Anesthesia finesses were taken. Inclusion criteria consisted of patients from 81 gm to 161 gm prostate, having failed TWOC, were catheterized, could not bear symptoms and cost and with negative culture. Patients with high risk were excluded. M-TURP was performed using standard technique by a single surgeon with more than 10 years experience. Post operatively, Hemoglobin (Hb), Total

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Printed: January 2019
Leucocyte Count (TLC), Electrolytes and Creatinine (Cr) were checked. Histopathology of prostate of all patients was got done to exclude malignancy. Foley’s catheter was removed when bladder irrigation had been stopped for 12 hours.

Verbal questioning assessed effectiveness of the procedure and performed filled subsequently by the researchers. Patient’s satisfaction was assessed in terms of their ability to void, control urination, frequency, urgency and urge incontinence. Most of the patients were discharged on third or fourth postoperative day.

On follow-up, patients were reviewed four to six weeks after catheter removal to evaluate treatment response and adverse events. If patients have symptomatic relief and are without adverse events, no further reassessment was conducted similar to recommendation in European Urology 2018 guidelines4.

Data were entered into SPSS-17(password protected). Mean, SD, minimum and maximum was calculated for continuous variable like age. Residence of the patients was exhibited through bar graph. Multiple response analysis was done for co-morbidities and Prostatic features. Categorical variable like urine culture type and indwelling Foley’s catheter were exhibited in number and percentages. Missing data in continuous variables was handled by mean of the series.

RESULTS

Mean age of the patients was 65 years with SD seven, minimum 50 and maximum 90. Most of the patients were residents of Lyari and Baluchistan (each 18%; 32%). Twenty six patients had significant co-morbidities. Of those 30% (n-8) were Diabetic and 70%(n-18) were Hypertensive. In situ catheter was present in 28 (38%) with mean duration of 20 days. Mean size of the prostate was 93 gm with minimum 81 and maximum 161. Consistency of prostate was found hard in 3 (6%); and tenderness in five of the patients. Three (4%)of the patients had malignancy of prostate. Creatinine was raised in four (5.5%) of the cases. Preoperative urine culture was positive in 39 (80%) of the cases. Escherichia Coli was the most common organism 14(25%).

DISCUSSION

Since its inception in 1909, Trans-urethral resection of prostate(TURP) has under gone several modifications and evolutions5. Initially it had a high complication rate, most dreaded of which were bleeding and TURP syndrome6. Also a difficult learning curve with poor vision, it was uncomfortable for the surgeon to perform as it strained the back and neck due to nature of the telescope. With time, as a result of improvement in video monitor and camera technology, it became easier to perform, teach and learn; hence expertise grew. Multiple studies defined rules to increase its safety and M-TURP became labeled as a GOLD STANDARD7.

One rule defined was that it is not the first choice in more than 80 gm prostate size as it increases chances of TURP syndrome and bleeding intra-operatively as well as post-operatively. To counter this limitation, laser technology as well as Bipolar diathermy (instead of the Monopolar diathermy being used traditionally) called Bipolar Trans-Urethral resection of prostate (B-TURP) were introduced. Both found success in resecting more than 80gm Prostate safely but at an added cost especially in lasers use8. In spite of the evolution of above technologies, M-TURP remains the most common surgical modality for treating BPH9.

The European Urology guide lines 2017 (EUA-GL 2017) give Open Prostatectomy or Endoscopic Enucleation10 recommendation in >80gm prostate size along with laser resection as 2nd line and TURP as a very last option10.

Many studies have found conflicting results at best showing equivalence of both procedures and at worst showing a slightly increased risk of bleeding for Monopolar TURP and a slightly increased risk for stricture formation in Bipolar TURP11. Three recent trials comparing B-TURP to M-TURP, found no significant difference between the techniques12. Two trials found that M-TURP had a shorter operating time13. A review of B-TURP by Issa showed outcomes of both M-TURP and B-TURP had similar efficacy with regard to AUASS, QoL score, peak urinary flow rate and residual urine14. A meta-analysis evaluating outcomes at 12 months found that bipolar devices demonstrated no significant difference in American Urology Association Symptom score (AUASS) or prostate volume reductions compared with M-TURP15.

Researchers in the Department of Urology, Sindh Government Lyari general hospital (LGH), routinely perform M-TURP regardless of prostate size. The reasons are limited resources of the hospital and no concept of medical insurance. This Hospital caters low socioeconomic subset of population, local and from other areas mainly Baluchistan and interior Sindh. Admissions sometimes extend up-to a month as many people come from far flung areas where there is no availability of local tertiary care hospital. They cannot afford to rent rooms and so have to be admitted to optimize and be investigated sometimes till definitive procedure can be performed.

This study shows safety, efficacy and long term durability of M-TURP. It is acceptable to this sub set of patients and it should not be underestimated as a viable technique for large (>80gm) prostate resection. The American Urology Association (AUA) guidelines suggest that the choice of approach should be based on the patient’s characteristics like anatomy, surgeon’s experience and discussion of the potential benefits and risks of complications16. European Urology Association guide lines-2017 also state that the upper limit suggested for TURP is 80 mg as this limit depends on
the surgeon’s experience, resection speed and choice of resectoscope size. Rieken M. compared various surgical techniques. He found that the choice of the technique depends on prostate size, risk factors of the patient and expertise of the surgeon. One study by Srivastava also claims its effectiveness in the management of large prostate gland in men with Impaired Renal Function.

In this study mean age of the patients was 65 years with SD seven. The catered population was mainly from Lyari, Baluchistan and interior Sindh. Twenty six patients had significant co-morbidities. Of those 30% (n=8) were Diabetic and 70% (n=18) were Hypertensive. All patients presenting with severe Lower Urinary Tract Symptoms (LUTS) had failed medical treatment or were ignoring symptoms till those became unbearable with 28 (38.35%) already on prolonged catheterization on admission. This could be due to lack of awareness or difficult access to health facility as TURP is not available in all public sector hospitals. This finding is shared by a study conducted by Vijay et al. Digital Rectal Examination (DRE) along with Prostatic Specific Antigen (PSA) testing performed on all patients excluded Carcinoma Prostate (CAP). Mean size of the Gland on Trans-vesicle ultrasound found was 93 ranging from 81 to 161. This was nearly similar to those found in other studies. Four patients came with raised Creatinine (Cr). Following TURP, Cr of one patient became normal and three were labeled patients with Chronic Renal Failure (CRF). They were asymptomatic, dialysis free and maintained Cr. Two of them underwent Arteriovenous fistula (AVF) formation for future Hemodialysis, if needed and were followed up in Nephrology OPD.

Pre op Urine Cultures showed 39 (53.34%) patients to have a positive culture. Most common organism was E. coli. This was likely due to the prolonged catheter in situ and unhygienic condition along with neglect that the patients faced before coming to hospital. They were meticulously treated for at least seven days before surgery to optimize for procedure. Intra operatively no major complications were faced. In two patients (2.7%;153gm& 161gm) M-TURP was performed in two stages on two separate occasions within same admission one week apart as it became difficult to complete the procedure in single setting safely because of prostate size and resection time so we felt this was appropriate to be on safe side. This is a described technique in literature also called staged TURP (Hemiresection).

Post operatively patients were kept on traction of Foley’s catheter for 6 hours along with continuous irrigation through a 3-way Foley’s catheter which was stopped on 1st post op day as well as antibiotics and pain killers which were continued for the duration of admission. Foley’s catheter was removed on the third to fourth post operative day. All patients except one, voided successfully with nil to negligible post void residue on Trans-Abdominal Ultrasound performed day after catheter removal. All were discharged with advice for follow up after 2-3 weeks.

On follow up, patients were catheter free, satisfied with void on verbal questioning and had a nil to minimal Post void residue so were completely emptying their bladder. Uroflowmetry (UFM) was not performed on patients routinely. One patient, who failed post TURP trial, was re-catheterized and 2nd trial after two weeks was successful. Two patients (2.7%) went into clot retention and needed to undergo Cystoscopy for clot removal. A meta-analysis reported 51 of 880 patients undergoing M-TURP, had clot retention. One patient developed partial incontinence. It was due to sphincter damage as a result of difficult instrumentation. One patient presented with Bladder neck stenosis and needed Bladder Neck Incision (JNI) to relieve the condition. There was no bladder perforation or Ureteric orifice damage. Also there was no massive bleeding during or after the operation and so no blood transfusion was needed, unlike a meta-analysis that found 53 of 1226 patients undergoing M-TURP required blood transfusion. There was no incidence of TUR syndrome in patients. Similar to this, few other studies have also not reported TUR syndrome in patients undergoing M-TURP. No incidence of meatal stenosis or urethral Stricture on follow up was noted.

The effect of M-TURP on penile erection is controversial. Many patients had decreased or weakened this function preoperatively likely due to prolonged catheterization. Also the patients did not have specific complaints regarding erection. The Researchers believe this could be because none of the patients who underwent M-TURP had any severe cardiac co-morbidity or capsular perforation during procedure. Literature say there is significant risks when above two conditions are met.

The short comings and limitations of our study were its single center, single operator nature, non randomized limited number of patients and short limited follow up. This was mainly due to many patients becoming lost to follow up as they lived far away and financial limitation keeping them from returning for follow ups.

CONCLUSION

M-TURP has good safety profile with durable reproducible results provided enough familiarity and expertises with this procedure are present and safety rules are followed. Also it is still a more economical and easily available method compared to the other minimally invasive modalities for treatment of Enlarged prostate. Size of the prostate does not matter as much as experties and well controlled resection speed of a surgeon.

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the data

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Conflict of Interest: The study has no conflict of interest to declare by any author.

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Frequency of Hand Injuries at Bahawal Victoria Hospital Bahawalpur
Babar Bakht Chughtai, Asad Ali Bubak, Zulfiqar Ali and Zobia Zulfiqar

ABSTRACT

Objective: To determine frequency of hand injury and its major causes.

Study Design: Observational / Descriptive / Cross sectional study

Place and Duration of Study: This study was conducted at the Department of Orthopaedics, Bahawal Victoria Hospital from July 2018 to December 2018.

Materials and Methods: All cases with hand injuries were included in the study. Their cause, site and demographic data of the patient were recorded.

Results: 94 patients were included in the study. Male to female ratio was 2.3:1. Mean age of the patient was 29 years. Their ages ranged from 8-60 years. 68.1% of the patients suffered from machine injury. Others suffered due to roadside accidents. An equal ration of injury was recorded from home and workplace. 88.3% suffered injury to the right hand.

Conclusion: Machine injury was one of the leading causes of hand injury seen with a male predominance equally seen at home and at workplace.

Key Words: hand injury, machine, roadside accident

INTRODUCTION

Man is dependent on hands for work to every day needs. Their injuries make him liable to disability if left untreated. In this era of industrialization and reliance on machines, hand injuries are on the increase worldwide, accounting for 10–15 percent of admissions in emergency departments in the developed countries.1,2 According to Trybus et al hands are the most frequently injured parts of the body.3 The injuries of hand and wrist are considered a major social and public health problem both due to the physical and mental impact, as well as to high costs of initial treatment of its sequel.4,5 According to the National Eletronic Injury Surveillance System (NEISS), lacerations and fractures of the fingers and hands are the anatomical sites most affected in the work accidents attended in the American emergency services.6 Injuries of hand include injuries affecting hand and wrist. Hand fractures, tendon injuries, nerve injuries and hand joint injuries were included in the study.

The primary aim of this observational cross sectional study was to identify the most frequent cause of hand injury and its frequency presenting at Bahawal Victoria Hospital Bahawalpur. Secondary aims were to determine age, gender, laterality and site where injury was inflicted. So a better result based interventions could be introduced to reduce its occurrence.

MATERIALS AND METHODS

This study was conducted in the Department of Orthopaedics Bahawal Victoria Hospital from July 2018 to December 2018. All the hand injuries including wrist joint referred to the Orthopaedics Department for management from the Accident and Emergency department after intial management were included in this study. All the minor cuts and wounds were excluded from this study. Injuries of forearm were also excluded from this study. Frequency of injury, its cause, age and gender of the patient, and the site where the injury was inflicted were recorded. Data was entered and analyzed using SPSS version 20.0.

RESULTS

94 patients with hand injuries were included in this study. 69.1 % (n=65) of these patients were male and 30.9%(n=29) were female. Ages of the patient ranged from 8 years to 60 years with a mean age of 29 years. Most of the patients were in their third decade of their life. 68.1% of the patients suffered from machine injury. Machines inflicted hand injury were Fodder cutter machine (Tokka), Sawmill, Mince maker, wheat...
thresher, sugarcane machine and some other minor machineries. 22.3% suffered hand injuries in road traffic accidents. 6.4% suffered due to burns and 3.2% due to other minor reasons like glass and shrapnel handling. An almost equal number of patients suffered injuries at their workplace 39.4% and at home 38.3%. A greater proportion of women suffered at home injuries. 88.3% suffered injury to right hand and the rest (11.7%) to left hand.

Table No.1: Cause

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<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
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<td>68.1</td>
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<td>22.3</td>
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<td>3.2</td>
<td>3.2</td>
<td>93.6</td>
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<tr>
<td>Total</td>
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<td>100.0</td>
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Table No.2: Site of Injury

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<tr>
<td>Total</td>
<td>94</td>
<td>100.0</td>
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</table>

DISCUSSION

Hand is an intricately designed structure that sets man apart from rest of the animal kingdom. Man relies on hands to earn to and to fulfill basic human needs. Therefore, it is prone to injury more than other parts of the body. Any damage in its structure or function will severely compromise quality of life. Unfortunately, these injuries are exceedingly common and account for approximately one fifth of all emergency department presentations. 20, 21
The average age found in our study is 29 years. It is in line with the other studies that observed ages less than 30.3,7,8,9 Sahin et al. reported 28 years.23 At this age one is inexperienced in their work and hence prone to injury. The young adult age group is the most active age group and it forms the backbone of economy. Therefore, hand injury disrupts normal human life and upheavs economy of the area.

Our study showed a male predominance with a ratio 2.3:1. A similar finding was observed by Ihekire et al.5 However, most studies showed a male predominance with a ratio 4:1.3,9,11 This can be easily explained by the fact that in our rural areas women work equally with men in farms and at home.

The report of hand injuries by Beaton and colleagues showed results similar to ours, where right-hand injuries were more common than left-hand injuries.12 We observed that 88.3% of the cases had right-hand injuries. This concurs with the proportion of the right-handed people in the general population. We observed that one of the main reasons for hand injury was machine. It is pertinent to observe that in many studies undertaken in industrialized nations, machine injury is the most common cause of hand injury.3, 9 Since the introduction of machine this is an inevitable finding. Injuries due to machines were probably due to a lack of training before using these machines or/and lack of protective wear which may contribute to the occurrence and severity of hand injuries.22 This is in contrast to study conducted by Ihekire and his colleagues who found motor collision injury as the major source of hand injury.10 The next major cause of hand injury we observed was road traffic accident. High energy collisions lead to hand injury. This can be easily explained by excessive usage of vehicle and increased urbanization. Makobore et al. found that most injuries occurring on the road and at work were caused by road traffic crashes and machines respectively.22 Another major cause of hand injury we observed was burn. Burn injury is a common form of trauma that often involves the upper extremity.13-16 Functional loss of the hands due to burn has been estimated to make up a 57% loss of function of an individual.17 We also observed cases of hand injury due to glass. Glass is the second most likely instrument, after the knife, to be involved in hand injuries.18

In our study almost equal cases were recorded at home and at workplace. This is in contrast to the finding of Saxena et al. and others who observed more cases at workplace than at home.3,9 A larger proportion of women suffered hand injuries at home. This is easily explained by our cultural norms where most women stays at home.

**CONCLUSION**

Hand injuries constitute a major proportion of trauma received in emergency and its main source is machine followed by road traffic accident. Its incidence is highest in third decade of life with male preponderance. Safety education, use of safety guards in machines and the enforcement of safety standards are essential to the prevention and avoidance of hand injury. Following traffic rules and better vehicles may reduce road traffic accidents. The complex treatment of the injured hand at specialist centers will allow shorter treatment duration, improved treatment results, and decreased indirect expenses.

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- Final Approval of version: Zobia Zulfiqar

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