Original Article

Knowledge and Practices of Burn Injury Cases Amongst Specialized and Non-Specialized Paramedical Staff of Two Tertiary Care Hospitals in Karachi

Tafazzul H. Zaidi and Kiran Mehtab

ABSTRACT

Objectives: (1) To assess frequency of burns injury in general population. (2) To assess the knowledge & practices of paramedical staff on burns cases. (3) To compare the knowledge & management of burn cases among paramedical staff at Jinnah Post Graduate Medical Center And Burns Ward Civil Hospital Karachi

Study Design: Cross sectional study

Place and Duration of Study: This study was conducted at two Tertiary Government Hospital that is Jinnah Post Graduate Medical Center and Burns Ward at Civil Hospital Karachi from February 2016 to October 2016.

Materials and Methods: A cross sectional study was conducted on a sample size of 284 paramedics. The sample was taken through Non-probability purposive sampling from the above-named two tertiary government hospital. An informed verbal consent was taken from the paramedics. A pilot study was conducted to assess the validity of questionnaire. A structured questionnaire was distributed which was filled. Data was analyzed using SPSS version 21 with 95% confidence interval, margin of error was taken as 5% and P-value 0.05 was considered significant.

Results: A study was done to check the knowledge and practice about burn injury between the paramedics of JPMC and Burns ward CHK. 81% data was collected from while 19 % from Burns ward CHK. When asked about the use of water after 30 min of burn injury, 70.40% (p = 0.001) paramedics of Burn ward said it isn't beneficial while majority 55.20% JPMC paramedics said it is beneficial. Similarly 81.50% (p = 0.001) Burns ward CHK paramedics said icing helps burn injury compared to 57.80% of JPMC. Majority of Burns ward CHK paramedics 81.50% (p = 0.000) were familiar with the use of silver sulfadiazine cream in deep thickness burn compared to 46.10% JPMC paramedics. Regarding resuscitation in a complicated situation 88.90% (p = 0.005) Burns ward CHK paramedics acquainted compared to 70.40% JPMC paramedics. 79.60% (p = 0.005) Burns ward CHK paramedics said that they undergo with the removal of previous cream before applying new dressing compared to 59.10% JPMC paramedics while regarding the use of analgesic 90.70% (p = 0.002) Burns ward CHK paramedics give it compared to 70.40% JPMC paramedics. As far as extra nutrition for a burn patient, 88.90% (p = 0.003) Burns ward CHK were aware compared to 68.70% JPMC paramedics. When asked about development of bedsores in a burn patient 70.40% (p = 0.001) Burns ward CHK paramedics perceived compared to 45.20% JPMC paramedics.

Conclusion: The study concluded, though all the paramedics are given the training of management of burns cases, Civil hospital paramedics are more competitive and have better knowledge and practices than JPMC paramedics.

Key Wrods: Burns, Injury, Paramedics, Knowledge, Management

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INTRODUCTION

Among all injuries Burn injuries are common. The global frequency of fire-related wounds in 2004 was assessed to be 1.1 per 100,000 populations, with the peak rate in Southeast Asia and the bottommost in the Americas.

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Effective first aid by cooling a burn with cold water offers pain relief, and confines the severity of injury.[1-3] In Bangladesh, Colombia, Egypt and Pakistan, 17% of children with burns have a temporary disability and 18% have a permanent disability. In Norway, costs for hospital burn management in 2007 exceeded €10.5 million. The 2009 National Burn Repository reports the most common cause of burns as direct fire/flame (43%) followed by scalds (30%). Burns sustained at home accounted for 65.5% of all burn injuries in the United States that year, and had a mortality rate of 4% overall. Fire and burn deaths are combined because deaths from burns in fires cannot always be distinguished from deaths from smoke poisoning.

Recent experimental studies have found that water at 12–18°C offers the optimal temperature to cool a burn

wound [4-5] and that 20 minutes is the optimal duration.[6-7] Cooling for 5 or 10 minutes failed to show significant improvement in burn depth.[8] Cool running water has been revealed to be more effective than wet towels or water spray,[9] and ice has been shown to be either fruitless or associated with amplified tissue destruction.[9] Despite this evidence, there remains wide deviation in recommendations available to the public. Bandaging retains air off the burn, moderates pain and guards blistered skin. Don't disrupt blisters, broken blisters are more susceptible to infection.[10] Medical and nursing staff who had participated in EMSB training performed better in the following subjects: mentioning hypothermia as a focus of attention (70% versus 53%, p=0.085), correct use of hand size (70% versus 36%, p=0.001) and use of the correct hand percentage in the estimation of total body surface area (TBSA, 82% versus 57%, p=0.015), suspicion of no airway obstruction in an outdoor trauma (93% versus 63%, p = 0.002) and referral of functional area burns to a burn center (22% versus 8%, p = 0.04).[11] In addition, educational level was an important factor favorably affecting 'cooling therapy'.[12]

The study aimed to explore the present-day training and management of burn first aid midst the paramedic staff of two public Tertiary hospitals of Karachi among which one contains a special burns ward and the other doesn't to the extent to which evidence-based recommendations have been disseminated and then to compare them.

MATERIALS AND METHODS

A cross sectional study was conducted on a sample size of 284 paramedics. The sample was taken through Non-probability purposive sampling from two tertiary government hospital that is Jinnah Post Graduate Medical Center and Burns Ward of Civil Hospital Karachi, within a period of 6 months from February 2016 to October 2016. An informed verbal consent was taken from the paramedics. A pilot study was conducted to assess the validity of questionnaire. A structured questionnaire was distributed which was filled. Data was analyzed using SPSS version 21 with 95% confidence interval, margin of error was taken as 5% and P-value 0.05 was considered significant.

RESULTS

A survey was conducted to assess the knowledge and practice about burn injury between the paramedics of JPMC and Burns ward of CHK. 81% data was collected from JPMC while 19 % from Burns ward of CHK. When asked about the use of water after 30 minutes of burn injury, 70.40% (p = 0.001) paramedics at Burn ward said it isn't beneficial while majority 55.20% JPMC paramedics said it is beneficial. Similarly 81.50% (p = 0.001) Burns ward of CHK paramedics said icing helps burn injury compared to 57.80% of JPMC. Majority of Burns ward at CHK paramedics 81.50% (p = 0.000) were familiar with the use of silver sulfadiazine cream in deep thickness burn compared to 46.10% JPMC paramedics. Regarding resuscitation in a complicated situation 88.90% (p = 0.005) Burns ward of CHK paramedics acquainted compared to 70.40% JPMC paramedics. 79.60% (p = 0.005) Burns ward of CHK paramedics said that they undergo with the removal of previous cream before applying new dressing compared to 59.10% JPMC paramedics while regarding the use of analgesic 90.70% (p = 0.002) Burns ward at CHK paramedics give it compared to 70.40% JPMC paramedics. As far as extra nutrition for a burn patient, 88.90% (p = 0.003) Burns ward at CHK were aware compared to 68.70% JPMC paramedics. When asked about development of bedsores in a burn patient 70.40% (p = 0.001) Burns ward CHK paramedics perceived compared to 45.20% JPMC paramedics.

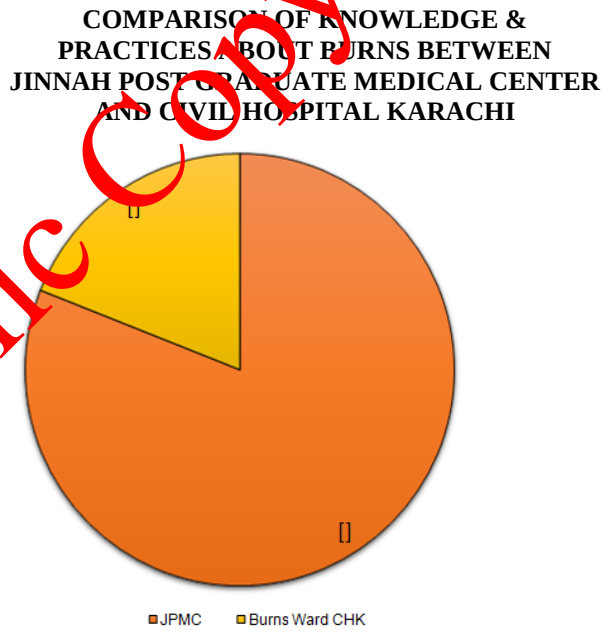

Figure No.1: Comparison of Knowledge & Practices between JPMC & BURNS WARD CHK

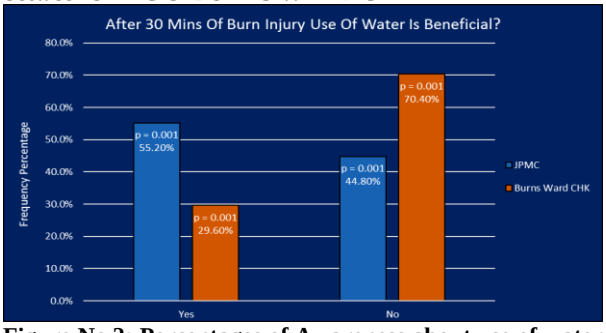

Figure No.2: Percentages of Awareness about use of water after 30 minutes of injury

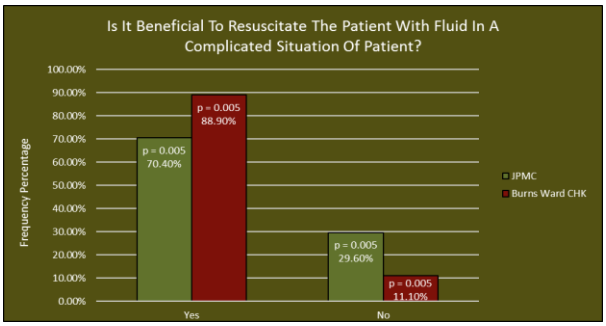

Figure No.3: Percentages of Resuscitating patient in a complicated situation

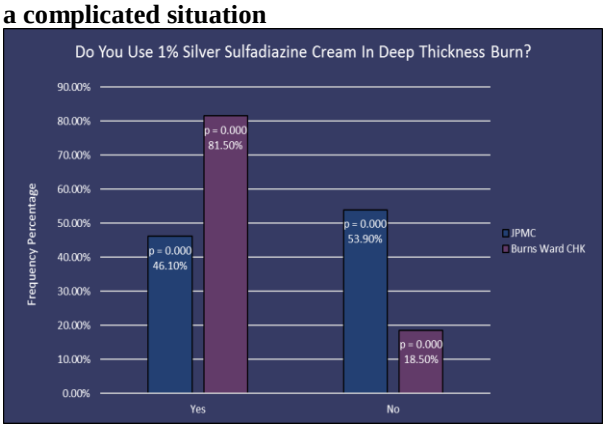

Figure No.4: Percentages of Application of silver sulfadiazine cream in deep thickness burn

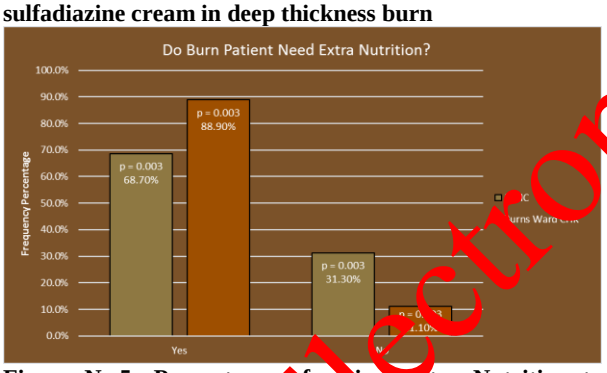

Figure No.5: Percentages of giving Extra Nutrition to Burn Patient

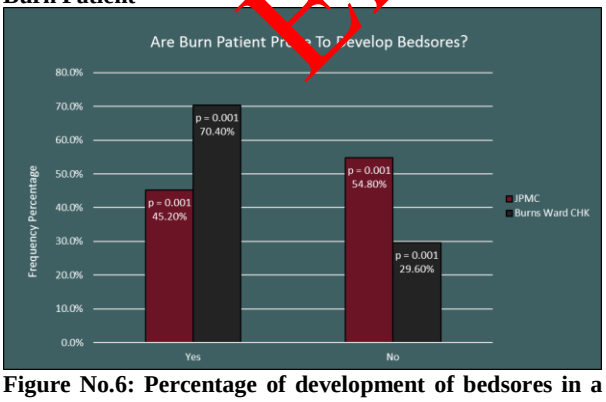

Figure No.6: Percentage of development of bedsores in a burn patient

DISCUSSION

A study has been conducted to compare and assess awareness, knowledge and practices regarding burns first aid in paramedics of two public sector tertiary care hospitals one having a separate burns unit and other having not. Paramedics in Burns ward CHK are found to have more knowledge regarding burns than paramedic of Jinnah Post Graduate Medical Centre (JPMC) which lacked trained staff to provide special care to burns victims.

It's important that burn victims should be given immediate and correct first aid as mortality rates in burns are as high as 5% globally and when considering Pakistan it reaches up to 29.7% and in addition to that many victims die in their homes or their way to burns specialized care units [13-16]. When paramedics of JPMC were asked that what they do when burn victims come to their setup, they said that they refer them to Burns ward of CHK where these burn patients are provided better care. Although immediate first aid treatment is recommended (predominantly for pain relief) but delays in receiving first aid after which positive effects can still be seen are controversial and reported to be 30 min [17,18] or in some literature the beneficial effect can still be seen after a delay of 3 hours [19]. The study we conducted revealed that majority (70.40%) of Burns ward of CHK paramedics didn't know that applying cool water to the burnt area after 30 min for at least 20 minutes except in chemical burn (in which water is applied till the chemical washes out) and electrical burn (in which water is not applied) would relieve pain and assist in re-epithelialization compared to untreated controls [20]. Whereas, majority (55.20%) of JPMC paramedics knew the correct answer which was interesting. When asked whether icing is beneficial in burns, (81.50%) paramedics at Burns Ward of CHK said 'YES' which is incorrect because applying ice or even ice cold water is damaging to burns [21] but surprisingly (42.20%) JPMC paramedics knew the right answer as compared to only (18.50%) of paramedics at Burns Ward of CHK. Nonetheless other questions gave somewhat expected answers. When it was asked whether they give analgesics specifically before changing dressing, (90.70%) of paramedics at Burns Ward of CHK gave the appropriate answer that is its necessary because burns injuries are very painful and its beneficial to give analgesia to subside pain before changing dressing [22] but only (70.40%) of JPMC paramedics were aware of the importance of analgesics in burn wounds. Similarly when asked about resuscitating burn patients in critical condition almost everybody (88.9%) at Burns Ward of CHK said it is vital to resuscitate the patients as shock and hypovolemia are major complications of burn injuries rising mortality [23] but in comparison to that lesser number of JPMC paramedics i.e. (70.40%) gave positive response. Moving forward 81.50% of Paramedics at Burns Ward of CHK said that for deep thickness burns Silver Sulphadiazine cream is used by them because it not only helps to prevent wound

infections but also treats them and kills bacteria. Hence by applying this complication of various infections can be prevented. [24,25] but sadly just 46.10% of JPMC paramedics were able to reply appropriately, which again gave us another clue that paramedics of burns care units not only have better knowledge but their practices are also superior than the hospitals where there are no particular burns unit. Similarly when it was asked if they remove previously applied cream when they change dressing, 79.60% Burns ward CHK gave opinion that it is paramount to remove previously applied cream. Infact it is recommended to assess the wound and change the dressing after every 24 hours (twice in 24 hours if possible) [26]while only 59.10% of JPMC paramedics replied that it is important to wash out previously applied ointments and creams. Burns patients are much liable to get dehydrated especially when burns surface area is large because the skin, which acts as a protective barrier to prevent loss of water from body surface, is extensively damaged and gets incapable to prevent water loss. Therefore these burn victims require extra nourishment[27] regarding this when Burn ward of CHK paramedics were asked whether burns patient require extra nourishment 88.90% gave a positive response contrary to 68.70% of JPMC paramedics.

Lastly, when coming to complications of burn injuries a question arose if bedsores could be one of the complications faced by burns victims, according to 70.40% Burns ward of CHK paramedics burn patients are more prone to develop bedsores because of their injuries and are prescribed bed rest and so it is crucial to frequently change their positions to reduce the development of bedsores. Typical protocols call for a patient to be turned every 2 hours [28]. According to Kosiak repositioning of patient needs to occur more frequently than routinely used 2 hours [29] but sadly, only 45.20% of JPMC paramedics knew its significance in burns patients.

Consequently, we came to know that paramedics of tertiary care hospital having burns unit have more advanced knowledge and can give better care to burns patient than the hospital with no burns unit, though the knowledge and practices of later regarding burns care was not limited as was expected. The reason behind this is that Burns Ward of CHK paramedics are frequently exposed to burn victims and are also trained accordingly and thus give better first aid care. On the other hand JPMC too has trained paramedical staff they do have knowledge about the first aid care but since are not exposed to burn victims as frequently their first aid knowledge and hence practices lacks behind the former ones. However both sectors should run training programs to train their paramedical staff to further enhance their burns first aid training and to provide good care to burn victims. Moreover programs and seminars should be conducted regarding prevention of burn injuries and what first aid measures should be taken at home to avoid complications and further distress.

CONCLUSION

The study concluded, though all the paramedics are given the training of management of burns cases, Civil hospital paramedics are more competitive and have better knowledge and practices than JPMC paramedics.

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

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