Original Article

Diabetes & Hepatitis

Incidence of Gestation Diabetes and Viral Hepatitis in Pregnant Women

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ABSTRACT

Objective: To study the incidence of gestational diabetes and viral hepatitis in pregnant womenpresnting in Islam Central Hospital Sialkot

Study Design: Cross sectional study based on patients attending Islam Central Hospital, Sialkot

Place and Duration of study: This study was carried out at Islam CentralHospital, Sialkot from 1st January 2012 to 30 November 2013.

Material & methods: Two hundred pregnant women were selected randomly attending Islam CentralHospital, Sialkot. The data was collected on proforma. The written informed consent was obtained on the consent form and permission was taken from the hospital committees. Blood samples were taken for diagnoses of hepatitis and second sample was taken for fasting blood glucose and then 75gm glucose in one glass of water was given to the patients. After 2 hours, another plasma glucose test was taken. Gestational diabetes was diagnosed on the basis of fasting plasma glucose level>126mg/dl, 2 hours post prandial plasma glucose level >199.8mg/dl and hepatitis was diagnosed by its kits.

Results: The age variation of pregnant women included in this study was as follows. 20 patients (10%) were of age 16-20 years, 102(51%) of age 21-30 years, 54(27%) of age 31-40 years and 24(12%) of age 41-50 years. 70 patients(35%) included in this study had undergone major surgery e.g., caesarean section while 130(65%) had not undergone any major surgery. 54(27%) pregnant women had history of blood transfusion and 146(73%) pregnant women had no history of blood transfusion. 158(79%) of the pregnant women had undergone minor procedure e.g., tooth extraction or ear piercing and 42(21%) had not undergone any minor procedure. 30(15%) of the pregnant women had history of miscarriage conducted by Dai and 170(85%) had no history of dai handling. The incidence of overweight/obesity was 138 (69%) in case of pregnant women and 62(31%) had no evidence of being overweight/obese. The incidence of gestational diabetes was 34(17%) in pregnant women and 166(83%) had no history of gestational diabetes. The incidence of viral hepatitis was 18 (9%) in pregnant women and 182 (91%) had no evidence of viral hepatitis. In this study, out of 9 cases, 3 cases (33.33%) were suffering from hepatitis A, 2 cases (22.22%) from hepatitis B and 4 cases (44.44%) were sufferingfrom hepatitis C.

Conclusion: As the hygienic conditions in our country are very poor and dietary habits include eating food containing high carbohydrates and fatty contents so the incidence of metabolic diseases is increasing. The sedentary life style is also becoming common in pregnant women in our country therefore the incidence of gestational diabetes and hepatitis is increasing day by day in pregnant women irrespective of age, occupation, socioeconomic status, residential area and gravidity status.

Key Words: Gestational Diabetes Mellitus, Hepatitis, Pregnant Women

INTRODUCTION

Gestational diabetes mellitus is defined by American Diabetes Association as any degree of glucose intolerance with onset or first recognition during pregnancy[1].

Obesity is a common disorder which has become prevalent in whole world over the past 10 years[2]. Body Mass Index (BMI) is the most widely accepted measure of obesity in adults[3]. BMI of more than 30kg/m^2 is considered as obesity[4]. It is well recognized that maternal obesity is associated with an increased risk of maternal, peripartum and neonatal complications[5]. Obesity increases the risk of gestational Diabetes, pre-eclampsia, macrosomia and caesarean delivery[6].

The association of obesity, insulin resistance, glucose intolerance, hypertension and characteristic dyslipidemia is called metabolic syndrome. All of the features of metabolic syndrome are closely related to elevated BMI[7].

Overweight is a risk factor for impairment of carbohydrate tolerance in non-pregnant state and during pregnancy. Fasting and postabsorptive plasma insulin concentrations are higher in obese pregnant women than in non-obese pregnant women. Weight excess clearly increases the risk of overt impairment of carbohydrate tolerance in pregnant women. Even in moderately over weight subjects (BMI 25-30) or weight 120-150% of ideal body weight the incidence of gestational diabetes is 1.8 to 6.5 times greater than that in normal weight subject[8]. Gestational diabetes is found in 17% of women with obesity, in a study conducted in obesity unit, Hudding University Hospital, Sweden[9]. Findings of Ghu et al also indicate that high maternal

weight is associated with a substantially high risk of gestational diabetes mellitus[10].

There is a strong correlation between obesity and gestational diabetes mellitus; therefore, it is pertinent to identify women at risk of developing gestational diabetes in relation with elevated BMI as gestational diabetes mellitus increases the risk of hypertensive disorders, chromosomal defects, macrosomia, caesarean delivery and high risk of developing type 2 diabetes mellitus.

The aim of the study was to determine the incidence of gestational diabetes and hepatitis in pregnant women to help in early diagnosis of gestational diabetes, hepatitis and its management to prevent maternal and fetal complications. Viral hepatitis is an inflammation of the liver due to viral infection[11]. Major causes include specific hepatitis viruses, alcohol and drugs while less common causes include other viral infections and leptospirosis. Hepatitis A&hepatitis E virus are primarily transmitted via the fecal oral route and are most commonly acquired via ingestion of contaminated food. Hepatitis B & Hepatitis C are transmitted by blood transfusion, reused syringe, non-sterilized surgical instruments etc[12].

Viral hepatitis may result in fulminant hepatitis and death in only a small proportion of patients. However, it is a significant cause of morbidity and socio-economic losses in many parts of the world[14]. Because a good deal of patients have infections may be asymptomic or may go unreported, the CDC estimated that the actual number of new hepatitis infections in 2007 was about 25,000[15,16].

MATERIALS AND METHODS

Two hundred pregnant women were selected randomly attending Islam Central Hospital, Sialkot. The data was collected on proforma. The written informed consent was taken on the consent form and permission was taken from the hospital committee. Blood sample was taken for diagnoses of hepatitis and second sample was taken for fasting blood glucose and then 75gm glucose in one glass water was given to the patients. After 2 hours, another plasma glucose test was obtained. Gestational diabetes was diagnosed on the basis of fasting plasma glucose level>126mg/dl, 2 hours post prandial plasma glucose level>199.8mg/dl and hepatitis was diagnosed by its kits.

RESULTS

The age variation of pregnant women included in this study was 20(10%) cases of age 16-20 years, 102(51%) of age 21-30 years, 54(27%) of age 31-40 years and 24(12%) of age 41-50 years (Table 1). The 70(35%) of pregnant women included in this study had undergone major surgery e.g., cesarean section and 130(65%) had not undergone any major surgery (Table 2). 54(27%) pregnant women had taken blood transfusion and 146(73%) pregnant women had not taken blood transfusion (Table 3). 158(79%) of the pregnant women had undergone minor procedure e.g., tooth extraction or ear piercing and 42(21%) had not undergone any minor procedure (Table 4). 30(15%) of the pregnant women had miscarriage conducted by Dai and 170(85%) had not conducted any miscarriage conducted by Dai (Table 5). The incidence of overweight/obesity was 138(69%) as in case of pregnant women and 62(31%) without overweight/obesity (Table 6). The incidence of gestational diabetes was 34(17%) in pregnant women and 166(83%) had no gestational diabetes (Table 7). The incidence of viral hepatitis was 18(9%) in pregnant women attending the hospitals of our study and 182(91%) were without any viral hepatitis (Table 8). In this study out of total 9 cases, 3 cases (33.33%) were of hepatitis A, 2 cases (22.22%) were of hepatitis B and 4 cases (44.44%) were of hepatitis C were found (Table 9)

Table No.1: Age distributions of pregnant women (200)

Age in years	N	%age
16-20	20	10
21-30	102	51
31-40	54	27
41-50	24	12

Table No.2: Previous surgery cases distributions of pregnant women (n=200)

Previous surgery	n	%age
Yes	70	35
No	130	65

Table No.3: Blood transfusion cases distributions of pregnant women (n=200)

Previous blood transfusion	N	%age
Yes	54	27
No	146	73

Table No.4: Previous minor procedures Distribution in pregnant women (n=200)

Minor procedure	N	%age
Yes	158	79
No	42	21

Table No.5: Previous miscarriage conducted by Dai, Distribution in pregnant women (200)

Mis carriage conducted by Dai	n	%age
Yes	30	15
No	170	85

Table No.6: Incidence of overweight/obesity in pregnant women (n=200)

Overweight/obesity	n	%age
Yes	62	31
No	138	69

Table 7: Incidence of viral hepatitis in pregnant women (n=200)

Viral hepatitis	n	%age
Yes	18	9
No	182	91

Table No.8: Incidence of gestations diabetes in pregnant women (n=200)

Gestational diabetes	n	%age
Yes	34	17
No	166	83

Table No.9: Etiology of hepatitis in pregnant women (n=200)

Type of viral hepatitis	n	%age
A	6	33.33
B	4	22.22
C	8	44.44

DISCUSSION

Obesity is a global health problem that is increasing in prevalence. The WHO characterizes obesity as a pandemic issue with increased prevalence in females than males. Obesity during pregnancy is considered as a high risk state because it is associated with many complications[16]. Obesity has implications for all aspects of maternal/foetal health and outcome during pregnancy with short and long term effects[17].

Obesity is an established risk factor for gestational diabetes. It is not known whether this risk might be reduced through weight loss between pregnancies. We tried to determine whether weight loss during pregnancies reduced the risk of gestational diabetes among obese women[18]. In current study, gestational diabetes was developing in 17% of obese women.

In a study conducted by Gulzar et al, 32% of women lost weight between pregnancies, with a mean weight loss of 23lbs. Women who lost at least 10lbs between pregnancies had a decreased risk of gestational diabetes relative to women whose weight changes by less than 10lbs (relative risk=0.63; 95% confidence interval= 0.38-1.02) adjusted for age and weight gain was 22lbs. Women who gained at least 10lbs had an increased risk of gestational diabetes[19].

Based on meta-analysis of the literature, it is estimated that the risk of developing gestational diabetes mellitus (GDM) is about two, four and eight times higher among overweight, obese and severely obese women, respectively, compared with normal weight pregnant women. The public health implications for the U.S. are significant because of the high prevalence of GDM and the potential adverse consequences associated with obesity and GDM including higher risk of adverse infant outcomes, higher risk of diabetes for the mother later in life and higher risk of diabetes and overweight for the offspring[20].

Thorpe and Howard suggest that GDM risk increases substantially with increasing maternal BMI. The increasing prevalence of obesity and related conditions such as GDM and type 2 diabetesare already changing predictors of the cost of medical care in the future[21].

Foetalmacrosomia is a common adverse infant outcome related to GDM, especially if GMD is unrecognized and untreated[22, 23].

Maternal obesity is associated with an increased risk of diabetes both pre gestational diabetes and GDM[24]. Compared with normal weight women (BMI< 25kg/m2), a recent meta-analysis of 20 studies demonstrated that the OR of developing GDM was 2.14 (95%) Cl, 1.82-2.53), 3.56(95% Cl, 3.05-4.21) AND 8.56 (95% Cl, 5.07-16.04) among overweight (BMI 25-30kg/m2), obese (BMI>30kg/m2) and severely obese women (BMI>40kg/m2) respectively[25].

A recent study found that weight gain in the 5 years prior to becoming pregnant, even at a rate of 1.1 to 2.2kg per year, increases the risk of developing GDM and that this was especially true for women who were not initially overweight[26].

In addition to pre-pregnancy BMI, a number of other demographic factors affect the incidence of GDM. Hedderson and colleagues found that GDM was more likely in women who were older than 35 years of age and who were of Hispanic or Asian ethnicity[27].

Majority of the above mentioned studies support findings of present study. Worldwide viral hepatitis is responsible for an estimated 1.4 million infections annually with variable course of illness[28].

Several studies have reported that viral hepatitis is responsible for major outbreaks as well as sporadic cases of acute hepatitis in Pakistan and other developing countries[29]. In the present study 6(3%) cases were of HAV infection, 4(2%) cases were ofHBV and 8(4%)were of HCV.

Vaccination is recommended for persons at increased risk for the disease including
international travelers, non-injection and injection drug users and children living in communities with high rates of disease[32, 33].

CONCLUSION

As the hygienic conditions in our country are very poor and dietary habits include eating food containing high carbohydrates and fatty contents so the incidence of metabolic diseases is increasing. The sedentary life style is also becoming common in pregnant women in our country therefore the incidence of gestational diabetes and hepatitis is increasing day by day in pregnant women irrespective of age, occupation, socioeconomic status, residential area and gravidity status.

Suggestions

1. The diet containing high carbohydrates and fats should be avoided during pregnancy
2. The routine work in the home should be continued during pregnancy.
3. The hygienic conditions should be improved in the society.

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