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The prevalence of gestational diabetes among antenatal attendees in a tertiary hospital in south –south Nigeria

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Abstract
Objective: To determine the prevalence of, and assess methods of identifying women with gestational diabetes mellitus among antenatal clinic attendees at a University Teaching Hospital.
Materials and Methods: A cross-sectional descriptive study of one hundred and eighty two women receiving antenatal care at the University of Uyo Teaching Hospital. Socio-demographic and clinical data were collected using interviewer administered questionnaires. The WHO diagnostic criteria were used to identify pregnant women with Gestational Diabetes Mellitus. Data was analysed using SPSS 20 Statistical software for windows.
Results: The prevalence of gestational diabetes was 3.3%. The predictors of Gestational diabetes mellitus were weight, a history of foetal macrosomia, maternal weight greater than 74.20kg and fasting dipstick glucosuria greater than or equal to 8.3mmol/l. The Sensitivity Of Fasting plasma glucose in diagnosis of GDM was 33.33%, Specificity of 99.43%.
Conclusion: Pregnant women who weigh more than 74.20kg between 24 to 28 weeks gestation, those with fasting dipstick glucosuria ≥ 8.3mmol/l or have a history of foetal macrosomia in previous deliveries should be tested with an OGTT using the WHO criteria.

Keywords: *Gestational Diabetes, antenatal attendees, Uyo.*

Introduction

Gestational diabetes mellitus (GDM) as defined by the American Diabetes Association (ADA) and the World Health Organization (WHO) is any degree of glucose intolerance with onset or first recognition during pregnancy [1, 2]. GDM is a growing health concern in many parts of the world; some studies have shown that GDM occurs in 2.2%–8.8% of pregnancies [3], depending on the ethnic mix of the population studied and the criteria used for diagnosis. Its incidence is increasing, in parallel with the increase in type 2 diabetes mellitus [2]. In sub-Saharan Africa, the prevalence of GDM is variable, with a range of 0% to 13.9% in some areas [4, 5, 6]. Women with GDM make up 61.0% of the total number of women with diabetes mellitus in pregnancy [6].

Though any pregnant woman can develop GDM, predisposing factors associated with this syndrome include obesity, family history of diabetes mellitus in a first degree relative, a history of previous delivery of a macrosomic baby and an unexplained still birth in an earlier pregnancy [5].

Gestational diabetes mellitus is usually asymptomatic. However, it has complications that can be minimized by prompt diagnosis and early intervention, making screening essential in pregnancy. Detection and diagnosis of hyperglycemia during pregnancy provide an opportunity to help pregnant women establish and maintain a healthy lifestyle and habits that will reduce maternal and foetal complications by facilitating normoglycaemia throughout pregnancy and beyond [6].

There is now no doubt that hyperglycaemia, at levels less than those that occur in overt diabetes, is associated with adverse pregnancy outcomes, such as large-for-gestational age infants, neonatal hyperinsulinism, neonatal hypoglycaemia and pre- eclampsia [7]. Others include shoulder dystocia, preterm delivery, stillbirth, congenital malformations, risks of operative delivery, and brachial plexus injury [17]. Additional adverse neonatal outcomes include respiratory distress syndrome, hyperbilirubinemia, hypoglycemia, hypocalcemia and hypomagnesemia [17]. There is an also an increased lifetime risk of developing diabetes mellitus and obesity [17].

Evidence now shows that a standard approach to GDM with diagnosis between 24–28 weeks, dietary advice, self-monitoring of blood glucose and insulin therapy as needed reduces these adverse perinatal complications [8]. Thus, failure to identify a woman with GDM denies her the opportunity to have treatment for potentially preventable complications that may result in foetal morbidity and/or mortality and the increased likelihood developing type 2 diabetes later in life.

There are three main available screening techniques for gestational diabetes: risk factors (selective) screening, two-stage screening by the glucose challenge test (GCT) and oral glucose tolerance test (OGTT), and the universal OGTT (with or without fasting) [8]. The National Institute for Health and clinical excellence (NICE) guideline recommends screening for gestational diabetes using risk factors in a healthy population [10]. The American college of Obstetricians and Gynecologists Committee on Obstetric practice on its part recommended that "all pregnant women should be screened for GDM, whether by patient history, clinical risk factors, or a 50-grams 1-hour loading test to determine blood glucose levels" [9]. The WHO however, recommended two stage screening during pregnancy [10]; viz all pregnant women should be screened for diabetes during the first antenatal visit by testing for Glycosuria. A positive test is an indication for further assessment by a 75 grams oral glucose tolerance test. Between 24-28 weeks of gestation, women at high risk of developing GDM or impaired glucose tolerance (IGT) should be screened by means of an oral glucose tolerance test, using a 75 grams glucose load.

The WHO also stated that these recommendations may be modified in different countries according to local circumstances and resources [12]. They are also subject to change as more knowledge is gained on the importance of the various risk factors in determining the predisposition to GDM [12].

This study was therefore carried out to determine the prevalence of, and assess methods of identifying women with gestational diabetes mellitus among antenatal clinic attendees at the University of Uyo Teaching Hospital. The study in addition will also determine the predictive value of known risk factors for gestational diabetes mellitus in the diagnosis of gestational diabetes mellitus.

Materials and Methods

This was a cross sectional descriptive study involving one hundred and eighty-two women receiving antenatal care at the University Of Uyo Teaching Hospital. The University of Uyo Teaching Hospital is a tertiary hospital which was established in 1996 as a state specialist hospital, and was granted the status of a Teaching Hospital in February 2007 by the Federal Government of Nigeria. All pregnant women who presented for antenatal care between the gestational ages of 24 to 28 weeks were assessed for eligibility to participate in this study. The gestational age of each pregnant woman was calculated from the reported last menstrual period (L.M.P), or an early ultrasound scan whenever the L.M.P was unknown or uncertain. Systematic sampling technique was used to obtain the clients for this study. On a daily basis, excluding Wednesday, the antenatal case notes of all women who met the inclusion criteria were numbered serially from 1 to N using the number on the tally of the clients as they present in the antenatal clinic to select the order of the pregnannt women. From this number "N", "10" women were sampled. The value of N/10 was rounded off to a whole number equal to k. To obtain 10 women, a random number was chosen between 1 to k and the corresponding cllient chosen as the first for that day. Then every kth pregnant woman after that was chosen until 10 women were recruited for that day from N number of women who were eligible to participate in the study. This was done on each antenatal clinic day until the required sample size was obtained.

The participants were counseled about the purpose of the study and assured of confidentiality of information obtained following which consent was obtained from each of them. The consenting pregnant women were instructed to fast over night for between 8 to 12 hours and present at the side laboratory in the antenatal clinic the next day for the tests.

Demographic and historical information about participants in the study were collected using a standardized interviewer's administered questionnaires which were administered by resident doctors (Trained Research Assistants) in the antenatal clinic. The questions covered their socio-demographic background, and the presence of risk factors known to be associated with gestational diabetes mellitus. Blood pressure, weight and height were measured prior to blood sample collection. The women then proceeded to the side laboratory where blood samples were collected.

Clean catch urine samples were collected for urinalysis after the fasting and after the two hours post prandial blood glucose test using clean containers and tested for glucose with Medi-Test Combi 2 dipsticks (MACHEREY-NAGEL GmbH & Co. Germany).

A standard oral glucose tolerance test protocol was used. After 8-12 hours overnight fast, venous blood samples were collected for fasting plasma glucose and urine for glucose testing. To provide the equivalent of 75g glucose, Lucozade Original (Energy) produced by Glaxo Smithkline was used. This contains 73kcal/100mls. A volume of 394ml was equivalent to 75g oral anhydrous glucose [11, 12].

They were then instructed to sit in the waiting hall for 2 hours, after which another blood sample was obtained in glucose assay.

Glucose and Glucose Tolerance Diagnostic Criteria

The reference range for fasting plasma glucose in University Of Uyo Teaching Hospital is 3.0mmol/l to 5.5mmols/l. The diagnosis of GDM was based on the WHO criteria [11]. A diagnosis of GDM was made if Fasting Plasma Glucose (FPG) was ≥ 7mmol/l and/or 2 h post 75 glucose value was ≥7.8mmol/l. For blood glucose levels > 5.5mols/l to <7.0mmol/l, these pregnant women were classified as having impaired fasting glucose.

The inclusion criteria included **c**onsenting pregnant women whose gestational ages were between 24 and 28 weeks gestation and were receiving antenatal care at the antenatal clinic of the University of Uyo Teaching Hospital. Those who were excluded included Known pregnant diabetics, pregnant women whose gestational ages were less than 24weeks or greater than 28 weeks, those whose estimated date of delivery (EDD) were unknown, pregnant women who were not able to complete the OGTT due to vomiting, refusal to continue the test, eating food during the test or other reasons, pregnant women who were ill and pregnant women who took salbutamol or other medications that may influence glucose tolerance.

Data Analysis

Data collected were analysed with SPSS 20 Statitical software for windows. The data were summarized into tables, charts and graphs. Numerical data were presented as means (± S.D) if

normally distributed. Categorical data were presented as frequencies (percentages). Univarate and multivarate logistics regression models were used to determine the independent predictors of the main outcome (GDM). A p-value less than 0.05 was deemed statistically significant. The difference between the mean of the numerical variables of women who had GDM and those who did not were assessed using the t test. A p-value less than 0.05 was deemed statistically significant.

The sensitivity and specificity of urinalysis (dipstick glycosuria) were assessed using a two by two table. The sensitivity, specificity, positive predictive value and negative predictive value of fasting plasma glucose in the diagnosis of GDM was also assessed. A Receiver Operator Characteristic (ROC) was used to assess the utility of other fasting plasma glucose cut –off values in the diagnosis of GDM. A p-value less than 0.05 was deemed statistically significant. A Receiver Operator Characteristic curve was also used to assess the utility of weight in the diagnosis of GDM. A p-value less than 0.05 was deemed statistically significant.

Ethical Consideration

Formal approval was obtained from the Research, Ethical Committee of the University of Uyo Teaching Hospital, Uyo. Participation of pregnant women in this study was voluntary. An informed consent was obtained in writing before recruiting each subject in the study. To ensure confidentiality, all the pregnant women recruited for this study were only identified by their initials and hospital numbers on their questionnaires, laboratory forms and specimen bottles.

The participants retained the absolute right and freedom to decline to participate or withdraw from the study at any time with no consequence or discrimination.

For those whose plasma glucose levels were diagnostic of gestational diabetes, the patient was notified and counseled about the implications of the test result. The Obstetric units Managing them were then notified and the pregnant woman handed over to them so that management for GDM would start immediately. They were also counseled on the need to do an oral glucose tolerance test six weeks post-partum in order to reclassify them as either diabetic or non diabetic.

The sample size was determined by the following formula:

$n = (Z^2 \times PQ)\ (1/d)$ [2]

Where

n = the desired sample size

The confidence interval for this study would be 95%

The Z score for 95% confidence interval is 1.96.

P is the proportion of pregnant women with gestational diabetes mellitus which would be 13% [4].

Q is complementary proportion equivalent to one (1) minus P i.e. 1-0.13 equal to 0.87.

D is the degree of accuracy desired, which is 5% (0.05).

Thus

$n = (1.96^2 \times 0.13 \times 0.87) / (0.05 \times 0.05)$

n =174

Assuming a non-response rate "m" of 10% (pregnant women recruited, but who did not present for OGTT), the number of pregnant women that would be recruited for this study would be (n/1-m).

= (174/1-0.1)

= 193 pregnant women between 24-28 weeks gestation

One hundred and eighty two women (182) participated in this study.

Results

A total of one hundred and eighty two women were recruited for this study out of which six had GDM resulting in a prevalence of 3.30%. The socio-demographic characteristics of the patients are shown in table I. The vast majority of them were married (98.35%) and Christians (98.90%). They were predominantly of the ibibio tribe (63.19%).

Table II shows the distribution of historical risk factors among the patients with GDM. About 50% of the patients with GDM had a history of DM in a first degree relative and previous delivery of a macrosomic baby.

Table three shows the number of women diagnosed as having GDM using only fasting blood glucose. Only half of those with GDM (1.65%) were diagnosed as having GDM while 8 women (4.4%) had impaired glucose tolerance.

The logistic regression for predictors of GDM is shown in table four.Weight and a history of fetal macrosomia were independent predictors of Gestational Diabetes Mellitus ($p<0.05$).

Table five shows the T test for mean of numerical variables of patients with and without GDM. The mean weight, age, systolic blood pressure, diastolic blood pressure, fasting plasma glucose and two hours (post 75g glucose load) plasma glucose values of pregnant women with GDM were larger than that of the pregnant women without GDM. However, only the difference of the mean weight ($p<0.01$) and mean plasma glucose two hours after a 75g glucose load ($p= 0.02$) were statistically significant. ($P < 0.05$).

The association between glycosuria following fasting urinalysis and GDM is shown in table six.The Sensitivity for glucosuria following urinalysis was 33.33%, Specificity 98.30%, Positive Predictive Value of 40.00% and a Negative Predictive Value = 97.74%. The odds of having GDM with fasting glucosuria greater than or equal to 8.3mmol/l (150mg/dl) was 28.83 and this was statistically significant, ($P < 0.05$).

Table seven shows the association between glucosuria, two hours post 75g oral glucose load and GDM. The Sensitivity of Glucosuria two hours after a 75g oral glucose load for the diagnosis of G.D.M was 33.33%, Specificity 83.52%, Positive predictive value 6.45% and Negative predictive value was 97.35%. The odds of having GDM with glucosuria greater than 8.3mmol/l two hours after a 75g oral glucose load was 2.53 and this was not statistically significant, ($P > 0.05$).

Table eight shows the association of fasting blood glucose with a diagnosis of GDM. Sensitivity Of fasting blood glucose in the diagnosis of GDM was 33.33%, specificity 99.43%, positive predictive value was 66.67% and negative predictive value 97.76%.

Figure 1 shows the receiver operator curve for fasting blood glucose.

The area under the ROC curve for this model was 0.72 suggesting that fasting plasma glucose is a fair test for the diagnosis of Gestational Diabetes mellitus.

The trade off between sensitivity and specificity for fasting plasma glucose resulted in the following: Sensitivity Of 66.70%, Specificity Of 78.40%, corresponding to a Fasting Blood Glucose Of 4.25mmol/L.

Figure two shows the receiver operator curve for weight**.** The area under the curve was 0.87 showing the weights of pregnant women taken between 24th and 28th weeks is a good predictor of GDM. The tradeoff in the values, sensitivity and specificity were 100% and 55.70%, respectively corresponding to a weight of 74.20kg. All pregnant women who had GDM in this study actually weighed 76kg or more.

Table 1: Sociodemographic Characteristics

Sociodemographic Variable	Number	Percentage
Occupation		
Civil Servants	28	15.38
Others	26	14.29
Professionals	6	3.30
Students	18	9.89
Teachers	25	13.74
Trader	43	23.63
Unemployed	36	19.78
Religion		
Christians	180	98.90
Moslems	2	1.10
Marital Status		
Married	179	98.35
Single	3	1.65
Tribe		
Annang	22	12.09
Hausa	2	1.10
Ibibio	115	63.19
Igbo	23	12.64
Oron	9	4.95
Others	9	4.95
Yoruba	2	1.10

Table 2: Distribution of Historical Risk Factors among Women with Gdm

History of type 2 diabetes mellitus		
in any first degree relative	Frequency	Percent (%)
No	3	50.00 %
Yes	3	50.00 %
TOTAL	6	100.00 %
History of Gestational diabetes mellitus	Frequency	Percent
Yes	0	0
No	6	100.00 %
TOTAL	6	100.00 %
History of two or more spontaneous miscarriages	Frequency	Percent
Yes	0	0
No	6	100.00 %
TOTAL	6	100.00 %
History of fetal macrosomia	Frequency	Percent
Yes	3	50.00 %
No	3	50.00 %
TOTAL	6	100.00 %
History of unexplained still birth	Frequency	Percent
Yes	0	0 %
No	6	100.00 %
TOTAL	6	100.00 %

Table 3: Showing Number of Women Diagnosed As Having Gestational Diabetes Mellitus Using Fasting Blood Glucose Only

Gdm (Using Fbs)	Frequency	Percent
Diabetic Impaired Fasting Glucose	3	1.65
Normal	8	4.40
Total	179	93.96
	182	100.00

Table 4: Logistic Regression for Predictors of Gestational Diabetes Mellitus

Predictors	Univariate Models Or (95%Ci) P – Value	Multivariate Models Or (95%Ci) P – Value
Age (Years)	1.022 (0.855-1.224) 0.804	0.813 (0.590-1.120) 0.205
Systolic Blood Pressure	1.041 (0.980-1.106) 0.190	1.073 (0.955-1.205) 0.236
Diastolic Blood Pressure	1.062 (0.979-1.153) 0.145	0.954 (0.826-1.102) 0.524
Weight	1.123 (1.042-1.209) 0.002*	1.135 (1.020-1.263) 0.020*
Macrosomia	10.733 (0.017-0.503) 0.005 *	0.090 (0.010-0.806) 0.031*
Family History of Diabetes Mellitus	6.652 (1.266-34.960) 0.025*	5.723 (0.649-50.475) 0.116

*p<0.05

Table 5: Table Showing T Test (Two Sample Test) For Mean of Numerical Variables of Those with and Without Gdm

Variable ± Sd (Numerical)	Gdm (N = 6)	Not Diabetic Value (N = 176)	Df P	T	The Whole Sample (N = 182)
Weight (Kg)	93.55 ± 12.96	74.06 ± 12.56 0.01	180 <	3.73	74.75 ± 13.01
Age (Yrs) 3.37 0.81	28.83 ±	28.37 ± 4.55 179 0.25			28.39 ± 4.51
Systolic Bp (Mmhg) ± 12.65 0.19	120.00	113.35 ± 12.12 1.32	180		113.57 ± 12.17
Diastolic Bp (Mmhg) 75.00 ± 10.49		68.81 ± 9.93 0.14	180		69.01 ± 9.98
Fpg (Mmol/L)	5.48 ± 2.33	3.77 ± 0.82 0.13	180 1.80	1.50	3.83 ± 0.95
2hppg(Mmol/L) 2.01 0.02	9.80 ±	4.98 ± 1.15 5.83	180		5.14 ± 1.49

Table 6: The Association between Glucosuria (≥ 8.3mol/L) Following Fasting Urinalysis and Gestational Diabetes Mellitus

Exposure (fasting glucosuria)	Outcome (Gestational Diabetes Mellitus)		Total
	Yes	No	
Yes	2	3	5
No	4	173	177
Total	6	176	182

Fischer's exact p – value. degree of freedom = 1
OR = 28.83, 95% CI (3.72 – 222.96) P < 0.05 (0.0087)

Table 7: Association Between Glucosuria (≥ 8.3mol/L) Two Hours Post 75g Oral Glucose Load And Gestational Diabetes Mellitus.

Exposure (Glucosuria 2 Hours Post Prandial)	Outcome (Gestational Diabetes)		Total
	Yes	No	
Yes	2	29	31
No	4	147	151
Total	6	176	182

Fischer's exact p – value degree of freedom = 1.
OR = 2.53, 95% CI (0.44 – 14.49) P > 0.05 (0.27)

Table 8: The Association of Fasting Blood Glucose with a Diagnosis of Gestational Diabetes Mellitus.

Fasting Plasma Glucose	Gestational Diabetes		
	Yes	No	Total
Diabetic	2	1	3
Normal	4	175	179
Total	6	176	182

(Fasting blood glucose used for diagnosis > or = 7.00mmol/L)

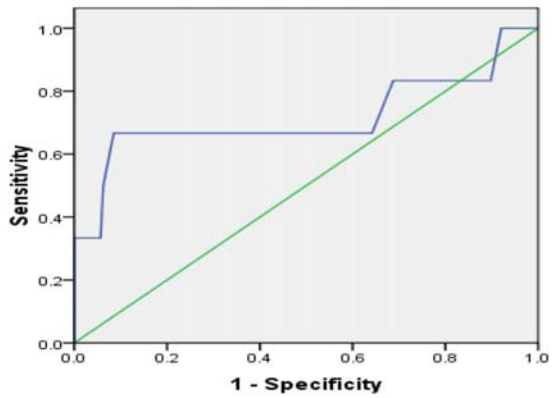

Fig 1: Reciever Operator Curve for Fasting Blood Glucose (Roc Curve) Area under the curve (AUC), 95% CI = 0.72 (0.42 – 1.00)

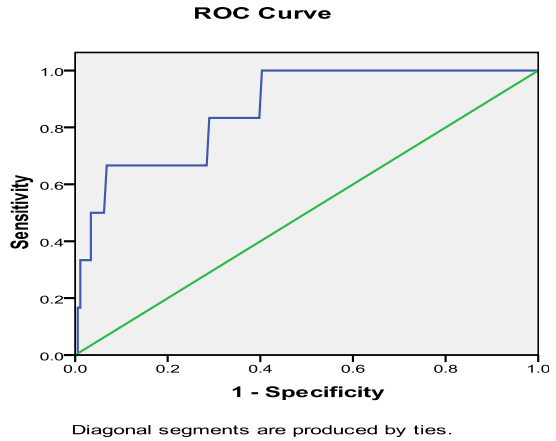

Fig 2: Receiver Operating Curve for Weight Area under the curve = 0.87 (CI 0.74 -0.99)

Discussion

A total of one hundred and eighty two women were recruited into this study. The vast majority of them were married and were Christians. The mean age of the pregnant women in this study was 28.39 ± 4.01 years.

The prevalence of gestational diabetes mellitus in this study using the WHO diagnostic criteria was 3.30%. This is lower than 13.9% that was obtained in Ibadan, south west Nigeria but higher than 1.7% that was obtained in a study Enugu, south eastern Nigeria [4, 5]. However, the prevalence of GDM in this study is within the range quoted for Sub-Saharan Africa [3]. Prevalence rates in different regions vary on account of the type of criteria used for diagnosis [23].

Age, systolic blood pressure, diastolic blood pressure, maternal weight, history of delivery of a baby weighing greater than or equal to 4.0kg and family history of diabetes mellitus in a first degree relative were subjected to univirate analysis. History of unexplained still births, two or more spontaneous miscarriages and a history of GDM were not subjected to regression analysis as no pregnant woman diagnosed with GDM had them.

Weight, history of macrosomia, and history of diabetes mellitus in a first degree relative predicted GDM in this study. However, following a multivariate analysis, only a weight and a history of macrosomia in a previous delivery still predicted GDM.

Age over 30 years is recognised as a risk factor for GDM [4, 35]. In this study, age did not predict GDM; the mean age for the pregnant women in this study was 28.39 ± 4.01 years. In addition, the mean age of those who had GDM was not statistically different from the mean age of those without GDM in this study.

The mean weight for those who had GDM (93.48 ± 12.88 kg) in this study was higher than the mean weight of those without GDM (74.07 ± 25.12kg) and this was statistically significant. A Receiver Operator Characteristic curve was used to assess the utility of weight in the diagnosis of GDM; the AUC for maternal weight was 0.87 (95%CI 0.74 -0.99) showing that weight is a good predictor of GDM. The tradeoff in the value of sensitivity and specificity for maternal weight as a predictor of GDM was 100% and 55.70% respectively, corresponding to a weight of 74.20kg.

When using glucosuria for the diagnosis of GDM, fasting glucosuria greater than 8.3mmol/l had a sensitivity of 33.33%, Specificity of 98.30%, Positive Predictive Value of 40.00% and a Negative Predictive Value was 97.74%. The odds of having GDM in this study with fasting glucosuria greater than or equal to 8.3mmol/l (150mg/dl) was 28.83 and this was statistically significant. For glucosuria greater than 8.3mmol/l two hours after a 75g oral glucose load, the sensitivity was also 33.33%, the specificity 83.52%, Positive predictive value 6.45% and Negative predictive value was 97.35%. The odds of having GDM with glucosuria greater than 8.3mmol/l two hours after a 75g oral glucose load was 2.53 and this was not statistically significant. Fasting glucosuria greater than

8.3mmol/l (one plus or more) was associated with GDM in this study. The higher specificity of fasting glucosuria compared to glucosuria two hours after a 75g glucose load implies that routine dipstick urinalysis for glucose following an over night fast can be used to screen pregnant women at increased risk for gestational diabetes as was demonstrated by Gribble and his colleagues [47].

When fasting plasma glucose (FPG) was used for the diagnosis of GDM, it resulted in a prevalence of 1.65%, reducing the prevalence by half and missing about 50% of pregnant women who had GDM in this study. This is because fasting plasma glucose performs less well than O.G.T.T in the diagnosis of GDM [53]. Insulin resistance in women with GDM may initially be compensated for by increased insulin production, which implies that fasting glucose can be a normal and earliest abnormality only apparent after meals [53].

The Sensitivity and Specificity of FPG in this study was 33.33% and 99.43%, respectively, while the positive predictive and negative predictive values were 66.67% and 97.76% respectively. However, the sensitivity and specificity of fasting plasma glucose in screening for GDM is highly dependent on the diagnostic criteria used[41]. In the study by Agarwal *et al*., the Area under the curve (AUC), (95% CI) for fasting plasma glucose using the WHO criteria was 0.69 (0.67-0.71). The AUC (95% CI) for fasting plasma glucose in this study was 0.72 (0.42-1.00) suggesting that FPG is a fair test for the diagnosis of Gestational Diabetes mellitus. The trade off between sensitivity and specificity for FPG using the receiver operating curve (ROC) resulted in a Sensitivity of 66.70%, Specificity of 78.40%, corresponding to a FPG of 4.25mmol/L. This implies that decreasing the FPG value used for diagnosis of GDM from7. 0mmol/l to 4.2mmol/l will increase the sensitivity of from 33.33% to 66.70%, but this will lead to a decrease of the specificity of FPG from 99.43% to 78.40%. Fasting plasma glucose may be useful as a screening test for GDM on account of its high Specificity (99.43%); however, an additional test may be necessary to decrease the false negative test results.

The limitations of this study included the fact that without followup beyond the pueperium, it will not be possible to differentiate GDM from prior undiagnosed type 1or type 2 diabetes mellitus. In addition, the study was hospital based and may not reflect the true situation in the general population.

Conclusion

This study showed that the prevalence of Gestational Diabetes mellitus among antenatal clinic attendees at the University of Uyo Teaching Hospital, Uyo was 3.30%. Weight and a history of macrosomia were independent predictors of Gestational diabetes mellitus. Fasting dipstick urinalysis for glucosuria and fasting plasma glucose had the same sensitivity. Fasting plasma glucose had a higher specificity when compared to dipstick urinalysis, thus it may be more useful as a screening tests for GDM among antenatal clinic attendees at the University of Uyo Teaching Hospital.

History of macrosomia, weight greater than 74.20kg and dipstick glucosuria greater than 8.30mmol/l are useful screening test. They are inexpensive, easy to administer, and cause minimal discomfort; they would therefore help to identify pregnant women that should be subjected to a diagnostic Oral glucose tolerance test.

Recommendations

All pregnant women between 24 to 28 weeks who weigh 74.20kg or more or who have had a macrosomic baby in the past should be screened for gestational diabetes mellitus. Urinalysis and fasting plasma glucose should be used to screen for gestational diabetes while the 75g oral glucose tolerance test reserved for diagnosis. A study to determine the outcome of pregnancies following a diagnosis of gestational diabetes mellitus is recommended.

Conflict of interest: We declare we have no conflict of interest.

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