

*Research Article***Study of Gestational Diabetes Mellitus and Associated Risk Factors in Pregnant Women in Minia City****Fatma Elzahraa S. Bukhary, Neven M. Nour Elden, Ghada M. Elsagher and Moatez A. Abdelaleem Ali**

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Abstract

Introduction: It is a group of metabolic diseases characterized by hyperglycemia resulting from defects in insulin secretion, insulin action, or both. The chronic hyperglycemia of diabetes is associated with long-term damage, dysfunction, and failure of different organs, especially the eyes, kidneys, nerves, heart, and blood vessels. **Subject and Methods:** This study was carried out during June 2015 to November 2017 in antenatal care clinic (ANC) in Obstetric and gynecology hospital, Minia university hospital, El-Minia Egypt. All pregnant women with estimated gestational age between 24th and 28th weeks attending ANC clinic during the study period were included in the study. **Results:** This study was carried out at obstetrics and gynecology department at Minia university hospital during June 2015 to November 2017, all pregnant women attending antenatal care clinic (ANC) at 24 to 28 weeks of gestation were included, 779 consecutive women were studied, 79 cases excluded because they were suffering from chronic illness. 71.1% (498) were from rural area, 28.9% (202) from urban areas. Their ages ranged from (18-42) at a mean of 26.5, 5.5. GDM was diagnosed in 74 cases (10.3%) based on DIPSI criteria. 12 cases did not come to do 2-h-75gm OGTT in the next day, GDM was diagnosed in 52 cases and 10 cases were considered negative according to ADA criteria, 36 women had all three values abnormal on OGTT and 9 women had two abnormal values. A single abnormal value was observed in 7(13.46%) women, in whom fasting plasma glucose was the most common abnormal value seen in 5 women. The positive predictive value of DIPSI in comparison to ADA criteria is about 83%.

Keywords: metabolic diseases, Gestational Diabetes Mellitus**Introduction**

Gestational diabetes mellitus (GDM) is defined as any degree of glucose intolerance with onset or first recognition during pregnancy⁽¹⁾

The prevalence of GDM has increased dramatically in the last decades in the whole world especially in urban area due to sedentary life and life style, it's considered the most common metabolic complications of pregnancy and are associated with maternal complications e.g (preeclampsia, pre-term delivery, polyhydramnios, labour dystocia, vaginal delivery, caesarean delivery, post-partum hemorrhage, infective morbidity and diabetic retinopathy)⁽²⁾ Fetal complications which could occur are mostly related to macrosomia and pathophysiological effects of fetal hyperglycemia and hyperinsulinism (pre-mature birth, polycythemia and hyper-bilirubinemia,

neonatal respiratory distress, birth injuries, hypoglycemia, hypocalcaemia, hypertrophic cardiomyopathy and congenital malformations)⁽³⁾

The prevalence of GDM varies worldwide due to difference education, food habits, place (urban or rural), type of test and diagnostic criteria. For example it's about 2.5% in Canada⁽⁴⁾ in Germany it's about 13.2% (Melchior et al., 2017), in USA the incidence was 9.2% (DeSisto 2014), in Australia it's about 7.2%

In Saudi Arabia the incidence was found very high about 35%, in India it's about 7.1% in some regions like Haryana and it's about 3.8% in some other regions like Kashmiri In Africa there was a study in six African countries (Tanzania, Morocco, Nigeria, South Africa,

Ethiopia and Mozambique) representing about 11% of the total population in Africa and the incidence was ranging from 0% in Tanzania to 13.9% in Nigeria In Egypt the incidence was reported to be 8% in rural family centre in menoufia governorate⁽⁵⁾

Aim of the work

Assessment of the frequency of GDM in MINIA city. Identify the risk factors for GDM in MINIA city.

Subject and Methods

This study was carried out during June 2015 to November 2017 in antenatal care clinic (ANC) in Obstetric and gynecology hospital, Minia university hospital, El-Minia Egypt. All pregnant women with estimated gestational age between 24th and 28th weeks attending ANC clinic during the study period were included in the study.

All women were informed about the nature of study and those who consented were included in the study. The study protocol was approved by the institutional ethics committee.

Exclusion criteria

- Women who were known diabetics,
- Women were suffering from any chronic illnesses
- Drugs which might affect pregnancy e.g. steroids

All pregnant women participated in the study were subjected to: Full history taking through: A perform containing general information including: 1. Demographic characteristics
2. Educational level.

Results

Analysis This study was carried out at obstetrics and gynecology department in Minia university hospital during June 2015 to November 2017. All pregnant women attending antenatal care clinic (ANC) at 24 to 28 weeks of gestation were included, 779 consecutive women were studied, 79 cases were excluded because they were suffering from chronic illness. 71.1%(498) were from rural area, 28.9%(202) from urban areas.

Their ages ranged from (18-42) with a mean of 26.5 ± 5.5 . GDM was diagnosed in 74 cases (10.3%) based on DIPSI criteria. 12 cases did not come to do 2-h-75 gm OGTT in the next day, GDM was diagnosed in 52 cases and 10 cases were considered negative according to IADPSG criteria, 36 women had all three values abnormal on OGIT and 9 women had two abnormal values. A single abnormal value was observed in 7 (13.46%) women, in whom fasting plasma glucose was the most common abnormal value seen in 5 women. The positive predictive value of DIPSI in comparison to ADA criteria was about 83%.

Past Obstetric History of the participants

History	Descriptive statistics (n=700)
Macroscopic baby	
No	696(99.4%)
Yes	4(0.6%)
Twins	
No	690(98.6%)
Yes	10(1.4%)
Abortions or still-birth	
No	588(84%)
Yes	112(16%)
Pre-term labor	
No	664(94.9%)
Yes	36(5.1%)
Gestational HTN	
No	668(95.4%)
Yes	32(4.6%)
PCO	
No	698(99.7%)
Yes	2(0.3%)
Family history of diabetes	
No	624(89.1%)
Yes	76(10.9%)
Neonatal death	
No	683(97.6%)
Yes	17(2.4%)

HTN hypertension, GDM gestational diabetes mellitus, PCO poly cystic ovaries

Discussion

Diabetes mellitus is one of the major non communicable diseases in Egypt; its prevalence is rapidly growing due to the rapid socio-demographic changes. The international diabetes Federation has identified Egypt as the ninth leading country in the world for the number of patients with diabetes⁽⁶⁾. Its prevalence reach up to 15.9%

In addition, it is more than likely to bring along with it a considerable increase in GDM. Similarly.

Actually very few studies was conducted about the prevalence of GDM in Egypt, therefore we conducted the present study to assess the prevalence of GDM in El Minia city⁽⁷⁾.

Prompt identification of pregnant women with GDM is a critical need, as an early appropriate treatment can reduce both mild and severe pregnancy-related complications. Nevertheless, there is no universal uniformity on issues

concerning screening time, diagnostic test and the appropriate glycemc cut-offs that should be used to define GDM⁽⁸⁾.

Until 2010 the most widely employed criteria for GDM included those of the World Health Organization (WHO) and the American Diabetes Association (ADA). Due to near similarity of sociocultural status between Egypt and India and as a simple, feasible, acceptable and a single step procedure, recommended 75 g OGTT irrespective of the last meal taken a method of screening in our study (DIPSI)⁽⁹⁾.

English Summary

GDM is a major health problem which need co-operation between world health organizations to overcome it's complications and to make definitive criteria for diagnosis of the disease.

The current study was carried out in Minia university hospital for obstetrics and gynecology in ANC in the period from June 2015 to November 2017 to determine the

prevalence of GDM and its risk factors in Minia city. The current study included 700 pregnant women at 24th to 28th weeks of gestation and aged between 18-42.

Full history was taken about demographic characteristics, educational level, occupation, parity, family history of diabetes, history of macro-somia, history of still birth and unexplained neonatal death.

The current study showed that there is some risk factors for GDM e.g. (Age, Gravidity, BMI, residence, occupation, educational level, family history of diabetes, PCO and gestational hypertension). Clinical examination was done to pregnant women in the form of assessing blood pressure, pulse, weight in Kgm, height in meters and assessment of BMI was done.

All pregnant women were subjected to 2h plasma glucose level after ingestion of 75-gm glucose irrespective to meal (fasting or non fasting) according to DIPSI criteria pregnant women whose plasma glucose level were equal or above 140 mg/dl were subjected to OGTT.

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