Prevalance and Risk Factors of Gestational Diabetes Mellitus: A Retrospective Study

C. Nandha Kumar[1], V.B. Manova[1], R. Maniyarasi[1], V. Paveena[1], K. Vanitha[2]

1B.Sc (Nursing) III Year Students, 2Guide, M.Sc(Nursing), Associate Professor, Department of Obstetrics and Gynecological Nursing, Chettinad College of Nursing, Chettinad Academy of Research and Education, Rajiv Gandhi Salai, Kelambakkam, Kanchipuram District, Tamil Nadu

Abstract

A retrospective study to assess the prevalence and risk factors of gestational diabetes mellitus among antenatal mothers in a selected Tertiary Care Hospital at Kelambakkam, Kanchipuram District, Tamil Nadu, India The objectives were to Assess the prevalence of Gestational Diabetes Mellitus within last two years (2016 to 2018) in a selected Tertiary Care Hospital at Kelambakkam, at Kanchipuram district, Tamil Nadu and to associate the risk factors of GDM with the selected demographic variables. The convenient sampling was used to select 35 medical records of antenatal mothers with gestational diabetes mellitus .The data regarding risk factors like History of GDM in previous pregnancy, Fasting blood glucose, Random blood glucose, Diagnosed at which trimester, Previous history of LSCS, previous history of abortion, duration in hospital,complications other than gestational diabetes mellitus were collected from the medical records. The result showed that 120 antenatal mothers were diagnosed with gestational diabetes mellitus within last 2 years. There is a significant association of demographic variables like parity with the risk factors of history of gestational diabetes mellitus in previous pregnancy ($\chi^2 = 7.882$, $P \leq 0.05$)

Keywords: *Prevalance, Risk factors,Gestational Diabetes Mellitus (GDM).*

Introduction

Gestational diabetes mellitus (GDM) is refers to "Carbohydrate intolerance leading to hyperglycaemia of variable severity with onset or 1st recognition throughout maternity". Maternal hyperglycemia may cause fetal hyperinsulinemia. Many maternal and fetal side effects are associated with this carbohydrate disorder, such as fetal macrosomia, perinatal mortality, cesarean delivery, and preeclampsia. Later in life, this affected community tends to suffer from more complications, such as type 2 diabetes mellitus and obesity, however. To avoid such health problems early diagnosis of GDM is important. (Crowther CA,Hiller JE 2005).[1]

Women were considered to belong in the high risk group if they have any one of the following risk factors: any previous history of GDM, macrosomia, congenital malformation, recurrent abortions and/or unexplained intrauterine death, any first degree relatives with diabetes, maternal obesity, intake of drugs that can affect carbohydrate metabolism such as steroids, maternal age >30 years, and obstetric risk factors such as polyhydramnios, macrosomic fetus, fetal abnormality or recurrent genital tract infections. Those without the above risk factors were considered to be low risk. Based on this local data, the ASGODIP (AFES study group on diabetes in pregnancy) concur with international recommendations that all pregnant women should be assessed for any risk factors during the first prenatal visit and should screen patients using a 50g oral challenge

Corresponding Author:
C. Nandha Kumar
B.Sc. (Nursing) III year student, Chettinad College of Nursing, Chettinad Academy of Research and Education, Rajiv Gandhi Salai, Kelambakkam, Kanchipuram District, Tamil Nadu, India-603103
e-mail: nandhakumar.9299@gmail.com
Phone No.: 7871690095, 7538869207

test (OGCT) for low risk patients and an OGTT for high risk patients.(Clapperton M, Jarvis J 2009).[2]

Need for the Study:

- International Diabetes Federation(IDF), Diabetes Atlas(2017) has shown that there were an estimated 204 million woman (20-79 years) living with diabetes. This number is projected to increase to 308 million by 2045.
- 1 in 3 woman with diabetes were of reproductive age.
- 21.3 million or 16.2% of live births had some form of hyperglycaemia in pregnancy. An estimated 85.1% were due to gestational diabetes.
- 1 in 7 births was affected by gestational diabetes.
- the vast majority of cases of hyperglycaemia in pregnancy were in low-and middle income countries, where access to maternal care is often limited.
- It is important for woman with diabetes in pregnancy or GDM to carefully control and monitor their blood glucose levels to reduce the risk of adverse pregnancy outcomes with the support of their healthcare provider (International Diabetes Federation) [3]

Recently, prevalence of GDM was found to be 18% in HAPO (hyperglycaemia and adverse pregnancy outcome) study. WHO estimated that prevalence of GDM in India was about 40.9 million in 2009 & is expected to rise to 69.9 million by 2025. Thus making it an important public health problem in India(D. Lakshmi, 2018)[4]

Statement of the Problem: Prevalence and Risk factor of Gestational Diabetes Mellitus in a selected Tertiary Care Hospital at Kelambakkam,Kanchipuram District, Tamil Nadu, India

Objectives of the Study:

- Assess the prevalence of Gestational Diabetes Mellitus with in last two years (2016 to 2018) in a selected hospital
- Associate the risk factors of GDM with the selected demographic variables

Operational Definitions:

Prevalence: Prevalence is the number of records of mothers diagnosed with Gestational Diabetes Mellitus with in last two year (2016-18) in a selected hospital

Risk Factors: Risk factors is one of the conditions that increase your risk of developing a disease. Risk factors are either modifiable, meaning you can take measures to change them, or non-modifiable, which means they cannot be changed

Risk factors as taken from the records of mothers diagnosed with Gestational Diabetes Mellitus from 2016-2018 like History of GDM in previous pregnancy, Fasting blood glucose, Random blood glucose, Diagnosed at which trimester, Previous history of LSCS, previous history of abortion, duration in hospital,complications were collected from the medical records

Gestational Diabetes Mellitus: Gestational diabetes mellitus is defined as Impaired Glucose Tolerance (IGT) with onset or first recognition during pregnancy, diagnosed by following criteria

Screening steps and cutoff values of the two-step test for GDM:

Testing	Dose	Timing of test	Cutoff value		Consequence
			mmol/L	mg/dl	
Pre-test(GCT)					
	50g	After 1 hour	≥7.5 and ≤11.1	≥135 and ≤200	Prompt application of the diagnostic test
Diagnostic test(OGTT)					
		Directly fasting	≥5.1	≥92	Upon reaching or exceeding one of the 3 cuttoff values: GDM diagnosis
	75g	After 1 hour	≥10.0	≥180	
		After 2 hour	≥8.5	≥153	

Material And Method

Research Approach: Quantitative descriptive research approach was used this study

Research Design: The retrospective design used for this study

Research Setting: The study was conducted in Medical Record Department, Chettinad Hospital and Research Institute, Kanchipuram District, Tamil Nadu, India.

Population: Records of all antenatal mothers

Sample: The sample in the present study was records of antenatal mothers with Gestational Diabetes mellitus who have admitted in antenatal ward, CHRI.

Sample Size: The medical records of mothers with Gestational Diabetes Mellitus within last two year (2016-2018)

Sampling Criteria:

Inclusion Criteria: The medical records of mothers with Gestational Diabetes Mellitus with in last two year (2016-2018)

Selection and Development of Study Instrument: In the present study the study instrument was medical records

Data Collection Procedure:

- After obtaining ethical committee clearance and written permission from the Dean and Medical Superintendent, the main study was conducted in Medical record department, Chettinad Hospital and Research Institute.
- The case sheet was be selected through convenient sampling technique, the necessary data regarding Risk factors like History of GDM in previous pregnancy, Fasting blood glucose, Random blood glucose, Diagnosed at which trimester, Previous history of LSCS, previous history of abortion, duration in hospital,complications were collected from the medical records belonging to a particular race, and short stature of mother was collected.
- The duration of data collection was one week

Data Analysis:

The data was analyzed by using descriptive and inferential statistics as follows

- Mean
- Mean difference
- Chi-square

Ethical Considerations:

- UG committee permission was obtained
- IHEC clearance was obtained
- Permission obtained from Dean, Medical Superintendent, HOD, Medical Records Department was obtained.

Findings: Prevalence of Gestational Diabetes Mellitus within last two years (2016 to 2018) in a selected hospital

The finding of the present study revealed that:

- 120 antenatal mothers were diagnosed with gestationaldiabetesmellitus with in last 2 years
- majority 48.6% of samples were belongs to the age group 26-30 years
- 51.4% of samples were residence at urban
- 97.1% samples were nonvegetarian
- 77.1% were multigravid
- 97.1% had no previous history of diabetes.

2. Associate demographic variables with the risk factors of Gestational Diabetes Mellitus.

Demographic variables like parity had significant association with the history of GDM in previous pregnancy (χ^2) = 7.882($p>0.05$) and Other demographic variables are age, residence, dietary pattern, previous history of diabetes were not associated with the risk factors of gestational diabetes mellitus

Conclusion

The study result showed that there was no significant association between all risk factors except parity χ^2 = 7.882 ($p \leq 0.05$) with the selected demographic variables.

Conflict and Interest: Nil

Source of Funding: Self funding .

Ethical Clearance: Obtained clearance from Institutional Human Ethical Committee on 04.02.2019.

References

1. Crowther CA, Hiller JE, Moss JR,et al. For ACHOIS Trial Group Effect of treatment of Gestational Diabetes Mellitus on pregnancy Outcomes. 2005; 352(24)
2. Clapperton M, Jarvis J, Mungrue K:. Gestational Diabetes Mellitus an Important Contribute to Metabolic Disorder in Trinidad and Tobago?. Obstetrics and Gynecology 2009; 28
3. International Diabetes Federation, International Diabetes Federation (IDF), Diabetes Atlas
4. Lakshmi D, John William Felix,Devi R . . Obstetrics and Gynecology International 2018.