



A COMPARATIVE STUDY OF DIPSI AND IADPSG CRITERIA FOR DIAGNOSIS OF GDM.

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Abstract: Gestational Diabetes is defined as any degree of glucose intolerance first recognized during pregnancy. The presence of GDM in pregnancy complicates the course of pregnancy and is associated with adverse fetomaternal outcome. A large number of pregnant women are affected by GDM in pregnancy. Different countries employ different diagnostic criteria to diagnose GDM depending on the resource setting of the country. As the number of pregnancies being affected with diabetes is increasing, the purpose of this study is to compare the screening criteria DIPSI with universally accepted IADPSG criteria in diagnosing GDM.

Index Terms – Gestational Diabetes, GDM, DIPSI, IADPSG.

INTRODUCTION

Gestational Diabetes occurs due to abnormality in carbohydrate metabolism. Various environmental and hereditary factors are involved in the pathophysiology of this ailment. Gestational diabetes mellitus (GDM) is defined as any degree of glucose intolerance with onset or first recognition during pregnancy¹. As per WHO (World Health Organization), the number of people who were suffering from Diabetes has increased from 108 million in 1980 to 422 million in 2014. Between 2000 and 2016, there was a 5% increase in premature mortality from diabetes. ²The prevalence of GDM varies, widely based on the diagnostic criteria used and the ethnic group studied. The prevalence of diabetes is 18% globally.³ It affects both the mother and the fetus. The extent of risk depends on the diagnostic criteria used to identify GDM. It varies in different parts of the country ranging from 3.8 percent to 21%. General diagnostic criteria in our country for determination of gestational diabetes involve Diabetes in Pregnancy Study Group India (DIPSI) and International Association of Diabetes and Pregnancy Study Groups (IADPSG) criteria. At present there is no gold standard to diagnose GDM and there is no perfect test as each test poses different advantage and disadvantage. Different countries employ different diagnostic criteria to diagnose GDM depending on the resource setting of the country. As the number of pregnancies being affected with diabetes is increasing, the purpose of this study is to compare the screening criteria DIPSI with universally accepted IADPSG criteria in diagnosing GDM.

MATERIALS AND METHODS:

A cross sectional study was been conducted comprising of randomly selected 100 antenatal women with singleton pregnancy attending antenatal OPD of guahati medical college and hospital within the gestational period of 20-32 weeks to compare the sensitivity and specificity of diagnostic criteria of DIPSI with IADSPG. They were informed about the study and consent was taken. Detailed history regarding name, age, area of residence and socioeconomic status was taken. Obstetric history, past medical and surgical history and family history was taken. Drug history was also taken. Pre pregnant weight and height was taken. BMI was calculated. All the hundred women in my study (both booked and Unbooked) were asked to do a Random blood sugar test and HbA1c in first trimester and those having values more than 200mg/dL and 6.5% respectively were excluded from the study (Overt Diabetes).(Booked case: women who have completed 3 antenatal check-up in an institution is said to be booked under that institution)

The pregnant ladies fulfilling the inclusion and exclusion criteria eligibility were asked to consume 75g of oral anhydrous glucose (G75 packet) in 300 ml of water in 5 minutes irrespective of the last meal consumed by them. Then they were sent to laboratory to deposit blood samples for DIPSI test. They were asked to come after 3-4 days and were asked to come in a fasting state of 8 hours. They were again asked to consume 75g of oral anhydrous glucose. They deposited 3 blood samples. One that was in fasting state and the remaining two in 1 hour after consumption or 75g oral glucose and another after 2 hours. These three samples constituted the IADSPG test samples. If the patient happens to vomit out the glucose within 30 minutes of consumption, the test was discarded and postponed for the next day for either of the criteria. If she vomits after 30 minutes, the test was continued. The blood sample was collected from venous blood and measured by glucose oxidase peroxidase method. If plasma glucose level was ≥ 140 mg/dl, after 2-hours of 75 g glucose intake at non fasting state, it was diagnosed as GDM according to DIPSI criteria. After an overnight fast of at least 8-hours, if fasting levels of plasma glucose was ≥ 92 mg/dl and after 1-hour and 2-hours of 75 g glucose load, plasma glucose level ≥ 180 mg/dl and ≥ 153 mg/dl respectively, the pregnant lady was diagnosed GDM according to IADSPG criteria.

Inclusion Criteria: All pregnant women attending antenatal OPD of Gauhati medical college and hospital during the period of study of gestation of 20-32 weeks

1. People willing to participate in the study and giving consent for it.

Exclusion Criteria:

1. Pregnant women who were known cases of pregestational diabetes mellitus, overt diabetes
2. Pregnant women with chronic illness
 - Autoimmune renal disorders
 - Pancreas abnormalities
 - Connective tissue disorders like SLE
3. Pregnant women on drugs like corticosteroids, hydrochlorothiazide and antipsychotic drugs.
4. Pregnant women with multiple pregnancy

RESULTS AND DISCUSSION:

Total number of positive cases by IADSPG was 11 and percentage was 11 and total number of negative cases by IADSPG cases was 89 and percentage was 89.

FIGURE: SHOWING PERCENTAGE WOMEN DIAGNOSED BY IADPSG CRITERIA

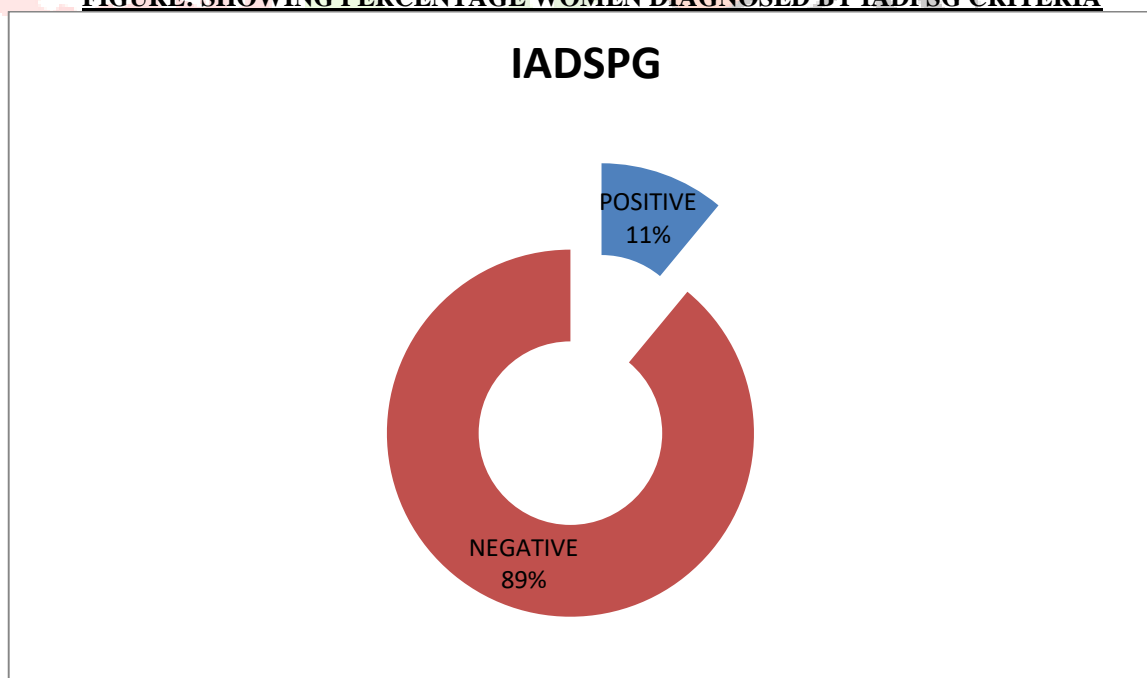
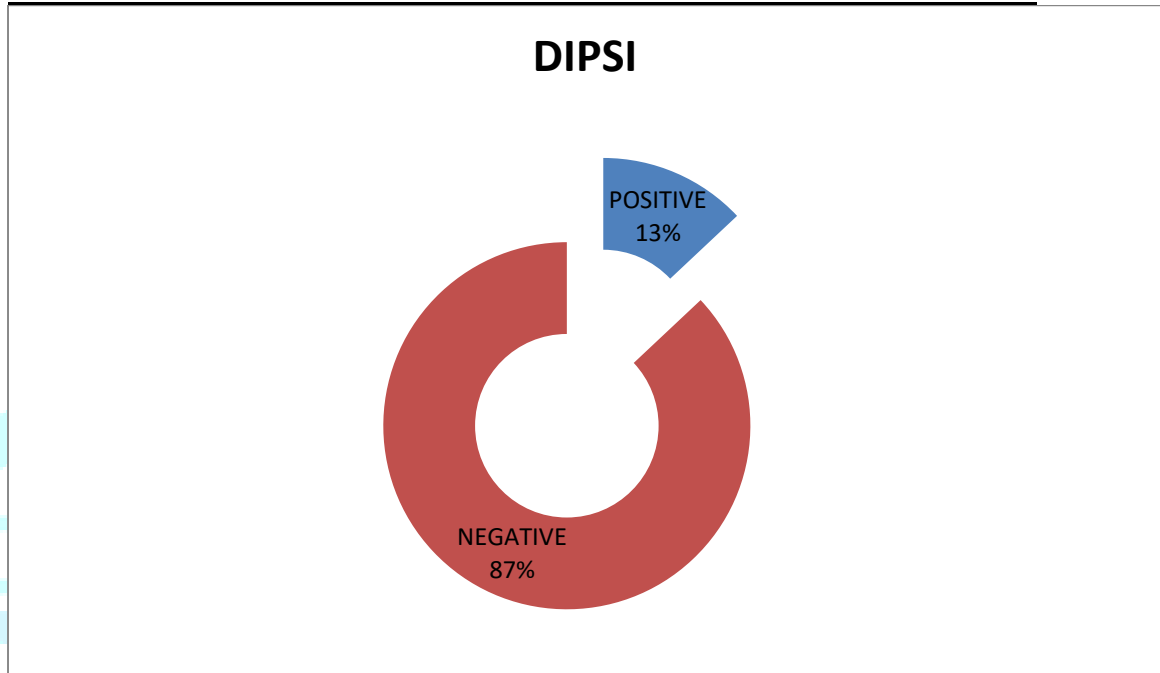


TABLE SHOWING TOTAL NUMBER OF POSITIVE AND NEGATIVE CASES BY DIPSI CRITERIA

DIPSI GROUP	N	%
NEGATIVE	87	87.00%
POSITIVE	13	13.00%
Grand Total	100	100.00%

Total number of positive cases by DIPSI was 13 and percentage was 13 and total number of negative cases by DIPSI cases were 87 and percentage was 87.

FIGURE: SHOWING TOTAL PERCENTAGE OF NEGATIVE AND POSITIVE CASES**TABLE: SHOWING STATISTICAL PARAMETERS OF DIPSI WITH IADSPG CRITERIA**

Statistic	Value	95% CI
Sensitivity	46.15%	19.22% to 74.87%
Specificity	94.25%	87.10% to 98.11%
Positive Likelihood Ratio	8.03	2.86 to 22.58
Negative Likelihood Ratio	0.57	0.34 to 0.95
Disease prevalence (*)	13.00%	7.11% to 21.20%
Positive Predictive Value (*)	54.55%	29.91% to 77.14%
Negative Predictive Value (*)	92.13%	87.60% to 95.10%
Accuracy (*)	88.00%	79.98% to 93.64%

The sensitivity of IADSPG criteria with DIPSI criteria is 46.15%, specificity is 94.25%. The positive predictive value is 54.55% and the negative predictive value is 92.13%

Thus by comparing tables of DIPSI and IADSPG, the sensitivity of IADSPG is higher when compared to DIPSI criteria. Hence IADSPG criteria are better than DIPSI criteria in diagnosing GDM.

TABLE SHOWING TOTAL NUMBER OF CASES POSITIVE BY DIPSI AND IADPSG:

DIPSI	IADPSG		
	POSITIVE	NEGATIVE	
POSITIVE	6	5	11
NEGATIVE	7	82	89

CONCLUSION:

Pregnancy is a crucial period in the life of a pregnant woman. GDM complicates pregnancy and has a deleterious effect on the Feto-maternal outcomes in terms of morbidity and mortality. It is crucial to diagnose the condition as early as possible so that the problem can be curbed at the nip of development. However to diagnose it correctly in a resource limited country where Antenatal Check-ups are availed minimally by the majority of the population, it poses as a challenging task.

There are many diagnostic criteria for diagnosing GDM and it poses a double edged conundrum while determining which criterion is to be employed.

Despite 50 years of research, there is no agreement regarding best and optimal gestational diabetes screening. DIPSI which is widely used in our country was compared against universally accepted IADPSG criteria due to the following reasons:

There were lesser drop outs by the patient.

And the need for trained phlebotomist was not needed.

As the number venepuncture is single, it is cost effective for both the patient and the laboratory.

Women coming from far flung areas were not asked to be in fasting state and hence there was minimal disruption and disturbance of her routine activities.

However there was lower sensitivity when compared to IADPSG criteria and that equivocated to a large number of false negative cases of GDM which would account for higher incidence of fetal and maternal morbidity and mortality. DIPSI doesn't account for fasting hyperglycaemia which was seen to have a deleterious effect on fetal outcomes.

In my study, DIPSI had very low sensitivity when compared against IADPSG and is likely to have a large number of missed out cases of GDM. With 25.6 million births being recorded annually in India, it would be too large a number of incorrectly diagnosed cases of GDM to be ignored.

Larger multi-centric outcome studies are needed to corroborate and substantiate the credibility of DIPSI as a diagnostic criterion especially on South Asian women accounting for the varied anthropometric standards in comparison to Caucasian women.

Cost benefit analysis of both the criterion needs to be done.

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