

## RESCREENING FOR GESTATIONAL DIABETES IN THIRD TRIMESTER

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### SUMMARY

The study was to quantitate the effect of advancing pregnancy on the 50 gm oral 1 hour glucose screening test for gestational diabetes.

60 Indian women attending Antenatal Clinic of Kasturba Hospital, Manipal, were subjected to the 50 gm oral glucose screening test at 28 weeks and 34 weeks of gestation. Those women with positive oral glucose screening test, as defined by serum glucose of 140 mg/dl or greater at 1 hour, had a follow up 100 gm oral 3 hour glucose tolerance test (GTT).

Glucose Screening test was positive in 8 women (13.33%) at 28 weeks of gestation, of which 2 women (3.33%) were found to have abnormal GTT. After excluding these 2 women with gestational diabetes, the glucose screening test was positive in 11 women (18.96%) at 34 weeks of gestation of which 7 women (12.06%) were of abnormal GTT.

Study shows that insulin resistance increases as the pregnancy advances. Hence it was opined that 50 gm oral 1 hour glucose screening test has to be repeated in the third trimester.

### INTRODUCTION

Gestational diabetes mellitus is the most common metabolic complication that affects

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the pregnant women. The increased perinatal morbidity associated with gestational diabetes makes identification of this condition an important part of prenatal care. The performance of full glucose tolerance test (GTT) on the entire pregnant population

is impractical. The most widely accepted screening test in the 50 gm oral glucose load screening test proposed by O'Sullivan et al (1973). This procedure has also been recommended by the American Diabetes Association (1980) the National Diabetes Data Group (1979) for routine testing of all prenatal patients. Although the pregnancy causes an increasingly diabetogenic state, there are no standard criteria when in pregnancy to screen a patient for diabetes, and there is limited quantitative information on the serial changes that advancing pregnancy has on glucose tolerance.

#### **AIMS**

The purpose of this prospective study was

1. to quantitate the effect of advancing pregnancy on the glucose screening test for gestational diabetes.
2. to determine whether patients tested early in pregnancy would benefit from rescreening later in gestation.

#### **MATERIAL AND METHODS**

Sixty Indian women attending antenatal clinic of Kasturba Hospital, Manipal, were studied. Known insulin-dependent diabetics were excluded, as were patients with late entry (after 28 weeks) in to prenatal care. Also excluded were patients on oral tocolytics because of the hyperglycemic effects of this drug on carbohydrate metabolism.

A 50 gm oral glucose load was given, without regard to previous dietary intake, and a serum glucose determination was performed one hour later. This test was done at 28 weeks and repeated at 34 weeks. Thirty-four weeks was arbitrarily chosen

as a time distant enough from the 28 week test to detect a change if one existed, and logistically far enough from the estimated date of confinement so that a 3-hour GTT could be scheduled before delivery and appropriate treatment can be given. Patients with a positive test, as defined by a serum glucose of 140 mg/dl or greater at one hour at the second International workshop conference on gestational diabetes (1985), had a follow-up of 3-hour GTT. The 1 hour screening test was not repeated if GTT was positive earlier at 28 weeks. Those with negative GTT at 28 weeks had repeat glucose screening test at 34 weeks. A positive GTT was defined as any two values of plasma glucose equal to or greater than the following : fasting 105 mg/dl, 1-hour 190 mg/dl, 2 hour 165 mg/dl, and 3-hour 145 mg/dl. These criteria follow recommendations of O'Sullivan et al (1973) made for plasma values. All glucose determinations were made by the hexokinase method.

Table I showed that insulin resistance increases as the pregnancy advances. 8 out of 60 patients (13.33%) had abnormal glucose screening tests at 28 weeks, of which 2 women (3.33%) were found to have abnormal GTT. After excluding these 2 women with gestational diabetes, the rest 58 patients had repeat glucose screening test at 34 weeks of gestation. 11 out of these 58 patients (18.96%) who had normal glucose screening test at 28 weeks had abnormal glucose screening at 34 weeks of gestation, of which 7 women (12.06%) were of abnormal GTT. Out of total 9 gestational diabetics 7 patients were treated with diet restriction and 2 patients were treated with insulin. All 7 patients have delivered (2 patients

Table I

Gestaional age in wks	Number of patients	Glucose Positive	Screening Test		GTT	
			Negative	Positive (Abnormal)	Negative (Normal)	
28 wks	60	8 (13.33%)	52 (86.67%)	2 (3.33%)	6 (10.0%)	
34 wks	58	11 (11.96%)	47 (81.04%)	7 (12.06%)	4 (6.9%)	

did not come for follow up). Three infants were large for gestational age, two infants were severe IUGR, one was noted to be hypoglycemic and another had hyperbilirubinaemia in the neonatal period.

### DISCUSSION

Clinicians cannot rely only on high risk factors such as advanced age, obesity and previous delivery of a macrosomic infant while screening for gestational diabetes. It has become a standard obstetric practice to screen all patients biochemically for diabetes. The 50 gm oral glucose load screening test described by O'Sullivan et al (1973) is one of the most widely used tests.

In the current study, initial screening test at 28 weeks of gestation was abnormal in 13.33%, of these 3.33% had gestational diabetes. An additional 12.06% patients were diagnosed to have gestational diabetes at 34 weeks of gestation by GTT. Study by Jovanovic & Peterson (1985) showed 28.8% patients with abnormal glucose screening tests when screened between 27 and 31 weeks and of these

6.9% had abnormal GTT. When the study group was rescreened at 33-36 weeks an additional 27.42% patients had abnormal glucose screening tests and 1.02% patients had the abnormal GTT. Granat et al (1979) studied a group of patients with respect to various high risk factors for gestational diabetes and noted that a repeat abnormal glucose screening test in third trimester did result in a higher yield of gestational diabetes. William J Watson (1989) in his study noted that 8% of the patients with a negative glucose screening test at 28 weeks had a positive test at 34 weeks of gestation.

Total incidence of positive glucose screening test in our study is 32.29% in contrast to 25.1% in a study by William J Watson (1989). It is well known that the perinatal mortality and morbidity in patients with gestational diabetes are increased and can be reduced by identification and treatment of the disorder. Screening for gestational diabetes only at second trimester would miss many of gestational diabetics. Hence it is opined that glucose screening test has to be repeated in the third trimester.

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