

THE PROBLEM OF ABNORMAL GLUCOSE TOLERANCE IN PREGNANT WOMEN WITH BAD OBSTETRIC HISTORY

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Introduction :

High birth rate with resultant population explosion is a major socio-economic problem in developing countries such as India. The main thrust of the Government here therefore, is towards restricting this high birth rate and advising a planned parenthood. Paradoxically, while high birth rate constitutes a major threat to the developing economy on the one hand, sterility and recurrent foetal wastage constitute an equally difficult medical problem on the other. The various cause(s) of such recurrent foetal wastage have not been fully worked out. It is well known that ABO and Rh incompatibility, maternal syphilis etc. do play a role in the foetal wastage. The Pederson's hyperglycaemia hyperinsulinism hypothesis with its later modification implying fuel-mediated teratogenicity raises the possibility of *abnormal glucose* metabolism as one of the causes for recurrent foetal wastage. This study, therefore, aims at determining the role of abnormal glucose tolerance (AGT) in the causation of foetal wastage and how special care can help improve the foetal outcome.

Glucose Intolerance in Pregnant Women with Bad Obstetric History

In order to ascertain the possible role of AGT in the causation of Bad Obstetric History (BOH), 301 consecutive pregnant women with bad obstetric history referred by the Antenatal Clinic to the Pregnancy Diabetes Service, and the combined clinic of the Department of Diabetology, Madras Medical College and Government General Hospital Madras, were subjected to an OGTT after O'Sullivan and Mahan apart from a thorough clinical, serological, bacteriological and haematological investigations to exclude other known causes of foetal wastage. Six of them were established diabetics (EDM) marching through their present pregnancies. Sixty one were found to have Gestational Diabetes Mellitus (GDM) applying O'Sullivan and Mahan's criteria. One hundred and fourteen had Impaired Gestational Glucose Tolerance as per the National Diabetes Data Group (NDDG) criteria, viz., a 2-hour OGTT value alone in the range of 100-144 mg%. Eight others had one of the four values on the 3-hour OGTT elevated. Thus, 189 out of the 301 pregnant women screened had some abnormality of glucose tolerance. Among the remaining 112 subjects with normal glucose tolerance, 20 had Renal Glycosuria (Table-1).

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Table 1

Glucose Tolerance in 301 Pregnant women with Bad Obstetric History
n=301

Types of Glucose Tolerance	Number	Percentage
Normal	92	30.57
Renal Crlycosuria	20	6.64
EDM	6	1.99
GDM	61	20.27
IGGT	114	37.87
Isolated BG abnormality	8	2.66

Thus, some form of AGT was present in 62.79% of pregnant women with BOH. Further, the ratio of GDM was nearly 10:1 while that of GDM to minor degree of glucose intolerance was 1:2.

The foetal loss in previous pregnancies in women with AGT varied between 71.23% and 75% depending upon the type of glucose intolerance during the present pregnancy (Table-2).

Table 2

Foetal loss in previous pregnancies in relation to the type of Glucose intolerance during present pregnancies

Type of Glucose Tolerance in present pregnancy	No. of pregnancies	No. of wasted pregnancies	Percentage of wasted pregnancies
GDM (61)	146	104	71.23 %
IGGT (I 14)	291	213	73.19 %
Isolated abnormality (8)	16	12	75.00%

It was found that all previous pregnancies had ended in abortions or perinatal deaths in 42.62% to 50% of the women studied, depending on the type of glucose intolerance (Table-3).

Table 3

Universal (100%) Foetal loss in previous pregnancies in pregnant women with abnormal glucose tolerance during present pregnancy

Type of abnormal of glucose Tolerance	No. of patients studied	No. of patients with 100% wastage of previous pregnancies	Percentage patients with 100% wastage of previous pregnancies
GDM	61	26	42.62
IGGT	114	53	46.49
Isolated BG abnormality	8	4	50.00

A definite history of GDM during previous pregnancies was present in 4 patients (1.41%) among those with AGT (Table-4).

Table 4

Incidence of History of GDM in previous pregnancies in pregnant women with Glucose Intolerance

Type of Glucose intolerance in present pregnancy	No. of patients	No. with GDM in previous pregnancies
GDM	61	1
IGGT	141	3
Isolated BG abnormality	8	0

This observation highlights two important aspects of carbohydrate metabolism abnormalities during pregnancy :

1. That Gestational Diabetes Mellitus can recur during a subsequent pregnancy.
2. That an improvement in glucose tolerance can occur in women with GDM on a subsequent pregnancy. Three women in this series had IGGT during the present pregnancy, though they had GDM during their previous pregnancies.

Thus AGT is commonly associated with bad obstetric history and it becomes necessary to screen for, and identify AGT in pregnant women in general and pregnant women with BOH in particular.

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