

# The need to revise O'Sullivan and Mahan's criteria for Gestational Diabetes Mellitus

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## ABSTRACT

Diagnosis of Gestational Diabetes Mellitus (GDM) is made following a 100 gm glucose load based on criteria laid down by O'Sullivan and Mahan. While laying down these criteria, more importance was attached to the subsequent emergence of diabetes mellitus in the mother rather than the outcome of the index pregnancy. However, we find that subject who do not come under the classical definition of GDM, nevertheless exhibit a similar foetal loss. Hence, we recommended that the existing cut-off values be lowered in order to enable the OGTT to be more sensitive in Predicting foetal outcome.

## INTRODUCTION

The diagnosis of Gestational Diabetes Mellitus (GDM) is made following a 100gm glucose load based on the criteria of O'Sullivan and Mahan, adopted by the NDDG. In addition some members of the working group of NDDG felt the need to include a separate category of Impaired Gestational Glucose Tolerance (IGGT) based on the 2-hour value after 100 gm glucose load. It has been clearly established that GDM is associated with increased neonatal morbidity and mortality (1). Foetal loss has been associated with the so called minor forms of abnormal glucose tolerance. Such subjects have glycemic excursions higher than that of the normal subjects. In view of the above observations we felt the need to seek revision of the existing criteria for the diagnosis of GDM.

## MATERIAL AND METHODS

The study population consisted of pregnant subjects at various periods of gestation attending the antenatal clinic. After excluding GDM by the existing criteria, 808 subjects were recruited for the study. OGTT with 100gm glucose load was performed and the blood glucose determined at 0, 1, 2, and 3 hours during the OGTT (Table 1).

**Table 1**  
**Criteria for Diagnosis of Gestational Diabetes Mellitus**

Time interval after 100gm oral glucose load	Blood Glucose (mg%)
Fasting	90
1 hour	165
2 hour	145
3 hour	125

**Table 2**  
**OGTT values (mg%) following 100 gm Glucose (n=808)**

	0 hour	1 hour	2 hour	3 hour
Mean	68.49	99.11	90.39	80.61
SD	8.42	23.66	21.33	16.47
Mean+2 SD	85	145	135	115

## RESULTS

The blood glucose values obtained and the corrected value of the mean and 2 SD values are given in Table 2.

## DISCUSSION

Increased perinatal mortality is an established risk among subjects with GDM (2). The criteria of O'Sullivan and Mahan were laid after subjecting pregnant subjects to OGTT, with a view to predict the future development of diabetes mellitus in the mother. In other words when the diagnostic cut off levels were arrived at, the end point that was given importance was the subsequent development of diabetes mellitus in the mother rather than the outcome of the index pregnancy.

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Amongst subjects with abnormal glucose tolerance the association of foetal loss was as much in minor forms of abnormal glucose tolerance as IGTT and IABG (Isolated Abnormality of blood glucose) as in GDM. In other words, among pregnant subjects who do not have GDM as per the existing criteria but who nevertheless have some form of abnormal glucose tolerance the association of foetal loss was similar to GDM (3). This raises the question whether GDM is under diagnosed in our population and we feel the necessity of revising the existing criteria.

In the present study the mean and 2 SD values among pregnant subjects at various periods of gestation are lower than the cut-off values of O'Sullivan and Mahan. Under the circumstances it is tempting to speculate whether the so called minor forms of abnormal glucose tolerance are in fact only GDM, in view of the deleterious effects of the minor forms of abnormal glucose tolerance on the pregnancy outcome similar to GDM. As already pointed out the criteria were initially suggested for a different end point, the development of the diabetes mellitus in the

mother. In view of the above observations and the documentation of lower cut off values during pregnancy in our subjects, we recommend that the existing cut off values have to be lowered in order to enable the OGTT to be more sensitive in predicting foetal outcome. It is suggested that similar studies undertaken by many centres would probably enable the adoption of a consensus regarding the cut off values for our population.

#### **REFERENCES:**

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