

## New criteria for gestational diabetes in Tehran, Iran

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### Abstract

**Background:** gestational diabetes mellitus (GDM) is common problem during pregnancy. Diagnostic criteria of this problem are based on foreign population. Because of differences in racial, cultural, and nutritional characteristics, we need to determine these criteria are suitable for Iranian population.

**Objective:** To determine whether different diagnostic criteria of gestational diabetes mellitus (GDM) are suitable for Iranian population.

**Materials and Methods:** Prospective study was performed on 917 pregnant women. 1804 subjects referred for 50 g glucose challenge test (GCT) between 24th and 28th weeks of gestation. 617 women with abnormal GCT (blood glucose  $\geq 130$  mg/dl) underwent 100-g 2-h oral glucose tolerance test (OGTT). The results were classified by three diagnostic criteria: new "Iranian" diagnostic criteria based on the results from the 100-g 2-h OGTT performed in healthy participating women; the Carpenter and Coustan (CC) criteria; and the National Diabetes Data Group (NDDG) criteria. Obstetric and neonatal outcomes were recorded.

**Results:** With 5% as the statistical cutoff value for the 100-g 2-h OGTT, the new diagnostic criteria were 92, 109, 122, and 121 mg/dL at 0, 30, 60, and 120 min. The K value was 0.946 for the new criteria vs. the CC criteria and 0.927 for the new criteria vs. the NDDG criteria ( $p < 0.001$ ). In women with GDM, the incidence rates of adverse outcomes by the new and CC criteria were similar, but higher than NDDG criteria ( $p < 0.02$ ).

**Conclusion:** Carpenter and Coustan criteria are applicable to Iranian pregnant women for diagnosis of GDM.

**Key words:** Carpenter and Coustan criteria, Gestational diabetes mellitus, Iranian pregnant women, NDDG criteria, New diagnostic criteria.

### Introduction

Gestational diabetes mellitus (GDM), defined as diabetes first discovered or with onset during pregnancy, particularly in the second trimester, is associated with increased risk of several adverse infant and maternal outcomes (1, 2). Clinical recognition of GDM is important because it may lead to appropriate perinatal management. Results from a randomized controlled trial show that treatment of GDM by means of dietary advice, blood glucose monitoring, and insulin therapy, if required, reduces the rate of serious perinatal complications (3, 4) and promote postpartum diabetes-prevention strategies (5-9).

The criteria for abnormal glucose tolerance in pregnancy are based on oral glucose tolerance test (OGTT) (10-12). Because of differences in racial, cultural, and nutritional characteristics, we designed this study to determine whether foreign different diagnostic

criteria for the diagnosis of gestational diabetes mellitus (GDM) are suitable for Iranian pregnant women and introduce the new Iranian criteria for diagnosis of gestational diabetes.

### Materials and methods

Prospective study for diagnosing of GDM was performed on 917 pregnant women. This study was approved by the Ethical Committees of Shahed University Tehran, Iran. The participants were drawn from two prenatal clinics in Tehran, after obtaining informed consent for the scientific use of the data. Women who had glucose intolerance before pregnancy or had history of GDM in previous pregnancies with per persistent abnormal or undetermined glucose tolerance were not included in the study.

At first, the 1804 pregnant women were referred for a 50 g oral glucose challenge test (GCT), for screening of GDM, between 24th