Original Article

Appropriate neck/waist circumference cut-off points for gestational diabetes prediction in Iranian pregnant women: The baseline analysis of the Qazvin maternal and neonatal metabolic study (QMNMS), Iran

Author

AzamGhorbani[a]SimaHashemipour[a]ZahrasadatMohammadi[a]MohammadaliZohal[a]FatemehLalooha[a]

Metabolic Diseases Research Center, Research Institute for Prevention of Non-Communicable Disease, Qazvin University of Medical Sciences, Qazvin, Iran

Abstract

Background

Gestational diabetes is the most common complication during pregnancy and it is essential to identify the high-risk groups for gestational diabetes mellitus (GDM) in the first trimester. A large neck circumference (NC) in the first trimester is a measure of obesity.

Objective

The present study investigated whether pregnant women's first-trimester NC and waist circumference (WC) measurements present a predictive index for GDM diagnosis.

Materials and methods

This longitudinal cohort study was conducted on 676 pregnant women aged ≥20 years. Pregnant women at 12–14th (baseline) gestational weeks underwent

measurement of neck and other <u>anthropometric indices</u>. GDM was diagnosed with 75-g <u>oral glucose tolerance test</u> at 24–28th gestational week.

Results

GDM was developed in 110 (16.3%) pregnant women. The <u>logistic regression analysis</u> showed that baseline $NC > 33.5$ cm (OR: 2.037, 95% CI: 1.313–3.161; $P = 0.002$) and $WC > 90.5$ (OR: 2.299, 95% CI: 1.510–3.501; $p < 0.001$) were independent predictors of GDM. The area under the receiver operating characteristic (ROC) curve analysis of baseline NC and WC for GDM prediction respectively yielded 0.614 (95% CI: 0.558–0.670, $p < 0.001$) and 0.641 (CI: 0.583–0.698, $p < 0.001$). The optimal cut-off level of maternal baseline NC was >33.5 cm, with 68.5% sensitivity and 48.3% specificity, and for baseline WC it was >90.5.50 cm, with 57% sensitivity and 63.4% specificity.

Conclusion

Pregnant women with an $NC > 33.5$ cm and a $WC > 90.5$ cm at baseline (12–14th gestational weeks) had a higher chance of developing GDM. first-trimester NC and waist circumference (WC) measurements present a predictive index for GDM diagnosis.

- **Previous** article in issue
- **Next** article in issue

Keywords

Gestational diabetes mellitus
Cut-off points
Neck circumferences