Periconceptional diet and the risk of gestational diabetes in south Indian women: findings from the BAngalore Nutrition Gestational diabetes LiFEstyle Study (BANGLES)

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Abstract

Background Gestational diabetes can predispose two generations—a mother and her child—to a higher risk of obesity and type 2 diabetes. Culture-specific strategies to prevent gestational diabetes are required. BANGLES investigated the associations between women's periconceptional diet and gestational diabetes risk.

Methods BANGLES was a prospective observational study (n=785), in which women of various socioeconomic status were recruited at 5-16 weeks' gestation in Bangalore, India. Periconceptional diet was recalled at recruitment, using a validated 224-item food frequency questionnaire, that was reduced to 21 food groups for the food group–gestational diabetes analysis, and 68 food groups for the principal component analysis for a diet pattern–gestational diabetes analysis. Diet–gestational diabetes associations were examined using multivariate logistic regression, adjusting for a priori confounders determined from the literature. Gestational diabetes was assessed by a 75 g oral glucose tolerance test at 24–28 weeks' gestation, applying 2013 WHO criteria.

Findings Women who consumed whole-grain cereals (adjusted odds ratio [OR] 0·58, 95% CI 0·34–0·97, p=0·03); had moderate egg consumption (>1–3 times per week) compared with less than once per week (adjusted OR 0·54, 95% CI 0·34–0·86, p=0·01); and a higher weekly intake of pulses and legumes (adjusted OR 0·81, 95% CI 0·66–0·98, p=0·03), nuts and seeds (adjusted OR 0·77, 95% CI 0·63–0·94, p=0·01), and fried and fast food (adjusted OR 0·72, 95% CI 0·59–0·89, p=0·002) had a lower gestational diabetes. None of these associations was significant after correction for multiple testing. A high-diversity, urban diet pattern characterised by diverse home-cooked and processed foods and associated with older, affluent, educated, urban women was associated with a lower risk (adjusted OR 0·80, 95% CI 0·64–0·99, p=0·04). BMI was the strongest risk factor for gestational diabetes and possibly mediated the diet pattern–gestational diabetes associations.

Interpretation The same food groups that were associated with a lower gestational diabetes risk were components of the high-diversity, urban diet pattern. One healthy diet pattern might not be relevant to India. Findings support global recommendations to encourage women to attain a healthy pre-pregnancy BMI, increase diet diversity to prevent gestational diabetes, and have policies to increase food affordability.

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