**Low glycaemic index diets improve glucose tolerance and body weight in women with previous history of gestational diabetes : a six months randomized trial**


## Abstract

Background: Gestational Diabetes Mellitus (GDM) increases risks for type 2 diabetes and weight management is recommended to reduce the risk. Conventional dietary recommendations (energy-restricted, low fat) have limited success in women with previous GDM. The effect of lowering Glycaemic Index (GI) in managing glycaemic variables and body weight in women post-GDM is unknown. Objective: To evaluate the effects of conventional dietary recommendations administered with and without additional low-GI education, in the management of glucose tolerance and body weight in Asian women with previous GDM. Method. Seventy seven Asian, non-diabetic women with previous GDM, between 20- 40y were randomised into Conventional healthy dietary recommendation (CHDR) and low GI (LGI) groups. CHDR received conventional dietary recommendations only (energy restricted, low in fat and refined sugars, high-fibre). LGI group received advice on lowering GI in addition. Fasting and 2-h post-load blood glucose after 75 g oral glucose tolerance test (2HPP) were measured at baseline and 6 months after intervention. Anthropometry and dietary intake were assessed at baseline, three and six months after intervention. The study is registered at the Malaysian National Medical Research Register (NMRR) with Research ID: 5183. Results: After 6 months, significant reductions in body weight, BMI and waist-to-hip ratio were observed only in LGI group ($P<0.05$). Mean BMI changes were significantly different between groups (LGI vs. CHDR: -0.6 vs. 0 kg/ m§ssup§2§esup§, P= 0.03). More subjects achieved weight loss ≥5% in LGI compared to CHDR group (33% vs. 8%, P=0.01). Changes in 2HPP were significantly different between groups (LGI vs. CHDR: median (IQR): -0.2(2.8) vs. +0.8 (2.0) mmol/L, P=0.025). Subjects with baseline fasting insulin≥2 μIU/ml had greater 2HPP reductions in LGI group compared to those in the CHDR group (-1.9±0.42 vs. +1.31±1.4 mmol/L, $P<0.001$). After 6 months, LGI group diets showed significantly lower GI (57±5 vs. 64±6, $P<0.001$), GL (122±33 vs. 142±35, P=0.04) and higher fibre content (17±4 vs.13±4 g, $P<0.001$). Caloric intakes were comparable between groups. Conclusion: In women post-GDM, lowering GI of healthy diets resulted in significant improvements in glucose tolerance and body weight reduction as compared to conventional low-fat diets with similar energy prescription.



**Keyword:** Carbohydrates; Diabetes prevention; Diet; Gestational diabetes mellitus; Glycaemic index; Glycaemic load; Randomized clinical trial; Type 2 diabetes