GUT MICROBIOTA SHIFT AND LOW FIBRE INTAKE IN POST GESTATIONAL DIABETES WOMEN

Background Women with previous history of gestational diabetes mellitus (GDM) have unhealthy dietary patterns and profound gut microbiota shift. They have seven-fold higher risk to develop type 2 diabetes mellitus (T2DM) in the future. We hypothesised that probiotics intervention will modulate gut microbiota and reverse glucose intolerance (GI) in post GDM women. The aim of the study was to investigate the dietary patterns and gut microbiota composition in post GDM women. Secondly, we aimed to determine the effects of probiotics on the baseline anthropometric and biochemical markers of post GDM women.

Methods Baseline clinical characteristics including glucose tolerance assessment, anthropometric measurement and a 3-day dietary record of 45 post GDM women were obtained. Post GDM women were grouped based on glucose tolerance [normal glucose tolerance (NGT) and glucose intolerance (GI)]. 36 participants were assigned for 12 weeks of either probiotics or placebo intervention. Anthropometric and biochemical markers of pre and post-treatment were evaluated. Faecal samples were sent for 16S sequencing pre and post-treatment.

Results 42.2% of 45 post GDM women have postpartum GI and significantly obese as compared with the NGT group (p<0.01). Mean daily fiber intakes of post GDM women was enriched with an abundance of Firmicutes, Verrucomicrobia, and Proteobacteria. Based on the genus level, relative abundance of Prevotella_9 genus in post GDM women with GI was 20.1% compared to only 2.1% in NGT group.

Conclusions Post GDM women with glucose intolerance were obese, consumed suboptimal fibre and have gut microbiota shift similar to the T2DM adult. Roles of probiotics in post GDM women needs further validation.