

The therapeutic potential of resistant starch in modulation of insulin resistance, endotoxemia, oxidative stress and antioxidant biomarkers in women with type 2 diabetes: a randomized controlled clinical trial

ABSTRACT

Aims: This trial aims to determine the effects of resistant starch (RS) subtype 2 (RS2) on glycemic status, metabolic endotoxemia and markers of oxidative stress. **Methods:** A randomized, controlled, parallel-group clinical trial group of 56 females with type 2 diabetes mellitus (T2DM) was divided to 2 groups. The intervention group (n = 28) and control group (n = 28) received 10 g/day RS2 or placebo for 8 weeks, respectively. Fasting blood samples were taken to determine glycemic status, endotoxin, high sensitivity C-reactive protein (hs-CRP), malondialdehyde (MDA), total antioxidant capacity (TAC), antioxidant enzymes concentrations as well as uric acid at baseline and after the intervention. **Results:** After 8 weeks, RS2 caused a significant decrease in the levels of MDA (-34.10%), glycosylated hemoglobin (-9.40%), insulin (-29.36%), homeostasis model of insulin resistance (-32.85%) and endotoxin (-25.00%), a significant increase in TAC (18.10%) and glutathione peroxidase (11.60%) as compared with control. No significant changes were observed in fasting plasma glucose, quantitative insulin sensitivity check index, hs-CRP, superoxide dismutase, catalase and uric acid in the RS2 group as compared with the control group. **Conclusion:** Supplementation with RS2 may be improved glycemic status, endotoxemia and markers of oxidative stress in patients with T2DM.

Keyword: Antioxidant; Endotoxemia; Insulin; Malondialdehyde; Resistant starch; Type 2 diabetes