Evaluation of oxidative stress and glycaemic control status in response to soy in older women with metabolic syndrome

ABSTRACT

Background: Little evidence exists about the effects of soy on glycemic control and oxidative stress in elderly women with metabolic syndrome (MetS). The aim of this study was to ascertain the effects of soy on fasting blood glucose (FBG), insulin, homeostasis model of assessment insulin resistance (HOMA-IR), malondialdehyde (MDA) and total antioxidant capacity (TAC) on these individuals. Methods: A 12-week randomized clinical trial was conducted on 75 women between 60-70 years of age with MetS in rural health clinics around Babol, Iran in 2009. The participants were randomly assigned to one of the three groups of soy-nut, Textured Soy Protein (TSP) or control. Measurements were obtained before and after intervention. Results: The soy-nut improved FBG, insulin, HOMA-IR, MDA and TAC significantly after intervention ($p<0.05$); whereas, TSP established a significant decrease in serum insulin and MDA and increase in TAC compared to the control group ($p<0.05$). Comparing changes in means showed significant differences among all glucose control parameters, MDA and TAC in the treatment groups to the control group ($p<0.001$). The comparison of the treatments in the two groups showed that the mean changes in FBG, insulin and HOMA-IR levels in soy-nut group was significantly higher than TSP group ($p<0.001$). Conclusion: Both kinds of soy improved the oxidative stress and glycemic control status, but the soy-nut contributed more effectively than TSP. Therefore, it can be claimed that a moderate daily intake of soy may be a safe, cheap and practical way for the simultaneous improvement of oxidative stress and insulin resistance in elderly women with MetS.

Keyword: Soy; Metabolic syndrome; Oxadative stress; Insulin Resistance; Women