Poster Shift 1: Obesity

EFFECTS OF DIETARY INULIN OR CHITOSAN OLIGOSACCHARIDE ON SERUM LIPID LEVELS IN RATS FED HYPERCHOLESTEROLEMIC DIET

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Background and Aims

Inulin and chitosan oligosaccharide (COS) are prebiotics. Inulin is used for its effects on immune function, bioavailability of minerals, lipid metabolism and gastrointestinal tract health. Chitosan is a natural substance produced in the body from glucose and some biological effects including anti-microbial, immune modification mechanisms. The aim of the study was to investigate the effects of inulin or COS on serum total cholesterol, HDL-cholesterol, LDL-cholesterol and triglyceride levels in female rats fed hypercholesterolemic diet.

Methods

8-weeks-old female 32 Sprague-Dawley rats were separated into four equal groups. Group 1 was fed basal diet, group 2 was fed hypercholesterolemic diet (15% hydrogenated-oil and 1.5% cholesterol), group 3 was fed hypercholesterolemic diet with 1% inulin, and group 4 was fed hypercholesterolemic diet with 1% COS. The trial period was 30 days. Serum lipids were detected by auto-analyser.

Results

Serum total cholesterol level was significantly higher in group 2 than in other all groups, and was significantly higher in group 3 than in groups 1 and 4 on day 30. Serum HDL-cholesterol level was significantly lower in group 2 than in all other groups on day 30. Serum LDL-cholesterol and triglyceride levels were significantly higher in group 2 than in other all groups on day 30.

Conclusions

While hypercholesterolemic diet significantly increased all serum lipids, COS or inulin added to the hypercholesterolemic diet reduced them to the normal levels. So, COS or inulin may be utilized in the prevention and treatment of diseases associated with lifestyle such as cardiovascular disease, diabetes mellitus, metabolic syndrome and obesity.