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Dietary modification with high salt attenuates obesity and hyperlipidemia in high fat induced obese mice

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The prevalence of obesity is an alarming condition for mortality and morbidity leading to other lifestyle-related diseases worldwide. Finding out the new way to combat obesity is the most warrant. The aim of the present study was to investigate the effect of a modified diet with high-salt (4% NaCl) on fat deposition in high-fat diet induced obese mice. Forty healthy Swiss Albino mice (Sex: Female) were taken and divided equally into two groups named as a non-obese group and obese group. In the case of a non-obese group, mice were fed a normal diet, normal diet along with high-salt, high-fat diet, and high-fat diet along with high-salt for 6 weeks. On another hand, to induce obesity, mice were fed high-fat for 2weeks and then treated with high-fat diet along with high-salt, normal diet, normal diet along with high-salt again for 6weeks. The effects of these treatments on body weight, feed intake, Lee index, organs weight and levels of serum triglycerides (TGs), total cholesterol (TC), high density lipoprotein-cholesterol (HDL-C), low density lipoprotein-cholesterol (LDL-C), SGOT and SGPT, and atherogenic index of plasma (AIP) were analysed. In case of non-obese group, treatment with high-fat diet along with high-salt showed a significant decrease in body weight ($p<0.05$), organs weight (liver, heart, and abdominal fat) ($p<0.05$), serum TG, TC, LDL-C ($p<0.05$) levels, AIP ($p<0.05$) value and SGOT and SGPT levels ($p\leq0.05$) whereas significant elevation was noticed in HDL-C ($p<0.05$) level compared to the HFD group. Furthermore, in case of obese group treatment with high-fat diet along with high-salt and normal diet along with high-salt showed a significant declination in body weight ($p<0.05$), Lee index ($p<0.05$), organs weight (liver, heart, and abdominal fat) ($p<0.05$), serum TG, TC, LDL-C ($p<0.01$) levels, AIP ($p<0.01$), SGOT and SGPT levels ($p<0.05$) whereas significant elevation was noticed in HDL-C ($p<0.01$) level compared to the Obese control group. From the observations of the study performed, it could be predicted that high salt (4% NaCl) diet has an inhibitory action on fat absorption which may be effective to attenuate the obesity and obesity-related parameters.

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