THE COMPARISON OF FLAXSEED OIL AND ANIMAL OMEGA-3 ON LIPIDS AND LIPOPROTEINS OF BLOOD SERUM IN HYPERLIPIDEMIC RAT

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Introduction: Hyperlipidemia includes hypercholesterolemia, elevated levels of triglyceride (TG) and low density lipoprotein (LDL), and low level of high density lipoprotein (HDL). Hyperlipidemia treatment prevents cardiovascular disease. Intake of Omega3 decreases the cholesterol, TG, LDL and increase HDL level. On the other hand, Flaxseed (Linum usitatissimum) contains high levels of Omega-3 fatty acids. The aim of present study is to compare the anti-hyperlipidemic effects of Flaxseeds oil and animal omega-3 oral administration in the hyperlipidemic rats.

Methods: The adult Wistar male rats were used in this study. They were separated in four different groups. Sham group was fed with standard rats pallets. Three others groups received daily high fat food orally for three weeks. Then, two groups of them were additionally fed with omega-3 or flaxseed oil for the 3 consecutive weeks respectively, but the control group received high fat only. Blood samples were collected from their tail at the first day of the experiment, at the end of 3 weeks high fat supplementation and at the end of treatment with omega-3 or flax seed oil.

Results: The results showed that administration of high fat diet increase cholesterol, TG and LDL in flaxseed, control and omega groups. There is no significant difference between theses three groups. In addition, the high fat diet decreases the level of HDL. Then, Omega-3 or flaxseed oil supplementation decreased the cholesterol, TG and LDL and increased HDL level in compare with the control group. There was no significant difference in the measured parameters between flaxseed and omega3 treated groups.

Conclusion: Omega-3 and flaxseed oil decrease the cholesterol, TG and LDL. Also, they increase the HDL level. There is no significant difference in the lipid profile between omega-3 and flaxseed oils. It can be concluded that flaxseed oil is effective as omega-3 on treatment of hyperlipidemia.