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CURATIVE EFFECT OF SARDINE FISH OIL ON LIPIDEMIC HARMFUL IN MALE ALBINO RATS

Sherif H. Ahmed, Sayed A. Sayed, and Bardis M. Morsi

Biochemi. Dept.Fac. Agric. Cairo Univ. Giga , Egypt

ABSTRACT

The present investigation was undertaken to study the biological effects of fish oil (FO) of sardine feeding on protecting experimental animals of hypercholesterolemia and the biological effects on curating as well as lowering hypercholesterolemia in sick experimental animals, They induced diseas es such as coronary heart diseases (CHD), cardiovascular diseases (CVD) and atherosclerosis which are the most common heart diseases. Fish oil was extracted from sardine fish and analysed to know its fatty acids' content. This extracted oil was used for the present study. Total of 72 male albino rats weighing from 138 to 150g were used in the present work. Rats divided into two main groups for two experiments as follows: First experiment: studying the protective effects of fish oil on animals fed on hypercholesterolemia-induced diets (HCD) containing 0, 3, 7 and 10% fish oil. Second experiment: studying the curative effect of fish oil to decrease the hypercholesterolemia in hypercholesterolemic animals (fed on hypercholesterolemic-diets for 15 days before the second experiment). The feeding experiments continued for three weeks on basal diets containing Lipostat drug as well as other treatment with 0, 3, 7, 10% fish oil. At the end of experiments, the animals were decapitated, then plasma was prepared, livers and brains were excised, rinsed and kept frozen at -20C. Total lipids, triglycerides, total cholesterol, LDL-c, vLDL-c, HDL-c, AST and ALT were investigated in plasma. In addition to total lipids, triglycerides, total cholesterol, AST, ALT (in liver), and malondialdehyde in liver and brain were measured. The results of the first experiment showed that fish oil prevented the increase of hypercholesterolemia. In which 3% FO diet kept triglycerides while 10% FO diet kept vLDL-cholesterol at about normal level; while the 10% and 7% FO diets were able to prevent the increase in plasma total lipids and total cholesterol. 10% FO diet prevented the decrease of plasma LDL-cholesterol, while the 3% kept them at normal state. On the other hand, hepatic triglycerides still in the normal level at 3% concentrations of fish oil diet. While hepatic total lipids and total cholesterol were still more than that in normal rats. Also, it can be said that 3%, 7% and 10% fish oil diets kept MDA (brain and liver) less than that in HCD. Hepatic transaminases activity was still in the normal level; while plasma transaminases activity markedly increased. Also, it could be shown that the results of the second experiment, fish oil at different concentrations diet as well as Lipostat drug, decreased plasma total lipids, triglycerides, total cholesterol, vLDL-cholesterol and increased LDL-cholesterol and risk of coronary heart disease compared with hypercholesterolemic rats fed on basal diet only; but the effects of fish oil were more better than the effect of Lipostat drug. On the other hand, fish oil significantly decreased hepatic total lipids, triglycerides,

total cholesterol, while no alteration was recorded by Lipostat drug. Also, it can be shown that fish oil at different concentrations return hepatic and plasma transaminases activity to the normal state, while no effect of Lipostat drug on these transaminases activity.
Key words: fish oil, hypercholesterolemia, Lipostat ,sardine