ORIGINAL ARTICLE

Effect of Canola Oil and High Lipid Diet on Plasma Fibrinogen Level: A 6 Week Study

NUZHAT NAVID

ABSTRACT

A study on albino rats was conducted to see the effects of canola oil & high lipid diet on fibrinogen level. 36 albino rats were selected and divided into three different groups with twelve rats in each group. Group A was given synthetic diet (control) and other two groups were given canola oil and canola oil + high lipid diet for 6 weeks. Blood samples were collected. PT was reduced in group having canola + high lipid diet when compared with that on pure canola oil. Group on canola + high lipid diet showed increased fibrinogen level when comparing with that on pure canola oil.
Keywords: Canola oil, PT, Fibrinogen level.

INTRODUCTION

Saturated fats and cholesterol in the diet caused rise in serum cholesterol level in human beings [1,2]. Canola oil contains 61% oleic acid and is second to olive oil in oleic acid contents. It contains high level of PUFA than palm or olive oil i.e., 21% linoleic acid and 11% linolenic acid and only 7% saturated fatty acids[3,4].Recent studies show that dietary alpha-linolenic acid (Omega-3 fatty acid found in canola oil) alters the fat composition of cell membranes.Patients can improve lipid levels and decrease the rate of cardiovascular accidents by adding specific food to their diets and removing saturated and polyunsaturated and adding monounsaturated fats and Omega-3 fatty acids[5].

METHODOLOGY

Thirty six albino rats with equal number of males and females were selected for the study. Two different experimental diets were prepared and were given to albino rats for a period of 6 weeks. Diet 1, 2 contained 2.9% canola oil and 2.9% canola + high lipid diet respectively. The rats were grouped A to C according to the diets.

Group A = Synthetic diet (Control).
Group B = 2.9% Canola Oil (diet 1).
Group C = 2.9% Canola oil + high cholesterol diet.

Blood samples were taken after giving ether anesthesia to the albino rats at 6th week by heart puncture. Student's 't'-test was used to analyze the results and data in this study.

RESULTS

Detail of results is given in table 1 and 2.

Correspondence to Dr. NuzhatNavid, Assistant Prof. Pathology Deptt. M Islam Teaching Hospital, Gujranwala

Table 1: Comparison of Prothrombin time

Groups	Mean± SD	Ranges
A	11.8 ± 0.87	11-13
B	14.6 ±1.31	12-17
C	13.9 ±10.16	12-16

Statistical analysis:A vs B ($p < 0.01$)**
AvsC ($p < 0.01$)** B vs C ($p< 0.05$)*

Table 2: Comparison of Plasma fibrinogen level

Groups	Mean± SD	Ranges
A	224.2 ± 76.1	160-375
B	220.6 ±58.2	155-350
C	312.5 ±44.4	250-400

Statistical analysis: A vs B ($p < 0.05$)*
AvsC ($p < 0.01$) ** B vs C ($p< 0.01$)**

DISCUSSION

The mean PT of experimental group B-C was prolonged significantly ($p<0.01$) as compared to control group. This rise in PT of animals on canola oil diet may be due to effect of omega-3 on coagulation system. Our observations are in accordance with the results of Turner (1990)[6]who also observed similar findings. The mean PT of group with atherogenic element was reduced significantly ($p<0.05$) than that of group on pure Canola. This finding can be due to inhibitory effect of atherogenic element on the coagulation system.

Then fibriogen levels of group on canola oil+atherogenic element were raised significantly ($p<0.01$) as compared to that of groups on pure canola oil. Such a rise in fibriogen level in groups on Canola+atherogenic element on fibrinolytic system.

The present study revealed that there was increase in PT while the levels of fibrinogen were reduced in experimental groups using canola as compared to those on canola+atherogenic element in

which there was decrease in PT while levels of fibrinogen were increased.

CONCLUSION

Dietary advice to patients with thrombotic tendency can be instituted towards the addition of monounstaturated fatty acids especially canola oil in exchange for saturated fats. This may help the clinicianto prevent the development of ischemic heart disease and other thromboembolic effects in individuals at increased risk by simple dietary interventions.

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