ATHEROSCLEROSIS: CURCUMIN AGAINST HEATED PALM OIL DIET IN OVARIECTOMIZED RATS

Aziz NUA, Faizah O, Srijit D, Kamisah Y, Kamsiah J

1Department of Anatomy, Faculty of Medicine, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia
2Department of Pharmacology, Faculty of Medicine, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia

Background:
Heated palm oil has been shown to increase the level of homocysteine; a marker for atherosclerosis in low oestrogen state. Curcumin (Cn), an extract from Curcuma longa has been shown to have protective effects against homocysteine. The objective was to study the effects of curcumin on the aorta of ovariectomized rats fed with five-times heated palm oil.

Materials and Methods:
Eighteen ovariectomized Sprague-Dawley rats were divided into three groups. Each group was given rat chow diet mixed with 2% cholesterol. The first group (OVX+Cn) was given curcumin (50mg/kg) only. The second group (5HPO) were given five-times heated palm oil while the third group (5HPO+Cn) were given five-times heated palm oil with curcumin. After four months treatment, blood was taken prior to sacrifice and the aortic tissues were processed for electron microscopic studies.

Results:
The homocysteine level for 5HPO and 5HPO+Cn groups showed significant difference as compared to the OVX+Cn. The electron microscopic study showed lipid accumulation on the intimal layer for each group. There were presence of mononuclear cells attached on the intimal layer of 5HPO and 5HPO+Cn groups. The internal basal lamina of OVX+Cn was still intact compared to both groups 5HPO and 5HPO+Cn. The endothelial cells present were more numerous in OVX+Cn compared to the 5HPO group.

Conclusion:
In conclusion, curcumin with dose 50mg/kg had little effects against five-time heated palm oil with high cholesterol diet in oestrogen deficient ovariectomized rats.

Keywords:
Palm oil, curcumin, homocysteine, aorta