

PLATELET FUNCTIONS IN RELATION TO DIETARY FATS IN TWO REGIONS OF FRANCE. S. Renaud, E. Dumont, F. Godsev and A. Supplisson. INSERM, U.63, LYON-BRON, FRANCE.

To evaluate whether dietary fats might affect platelet functions in man as observed in animals, platelet aggregation (to thrombin, ADP, collagen, epinephrine) and clotting activity of PRP, PPP and of washed platelets, were studied in a mobile-laboratory in 50 healthy male farmers (40-45 years) from the Var and the Moselle, in relation to lipemia, glycemia, anthropometric determinations, dietary fats and other nutriments, as well as platelet phospholipid fatty acid composition. The main difference in the diet of the two regions was the percentage of calories from saturated fats (19% in Moselle, 12% in Var). In the Moselle subjects, the platelet clotting activity of PRP and of washed platelets (but not of PPP) and the platelet aggregation to thrombin and ADP, but not to collagen and epinephrine, was highly significantly ( $p < 0.001$ ) increased as compared to those of the Var. In addition, the platelet clotting activity ( $p < 0.001$ ) and the platelet aggregation ( $p < 0.01$ ) were significantly correlated on an individual basis, with the diet content (calories) in long chain saturated fatty acids (palmitic/2 + stearic acids). The platelet clotting activity was also significantly ( $p < 0.001$ ) correlated with the fatty acid composition of certain platelet phospholipids (PS + PI) but not to plasma cholesterol which was identical in the two regions. Results of this pilot study in man appear to duplicate those in animals which indicate that it is the long chain saturated fatty acids in the dietary fats which increase the clotting and aggregating properties of platelets, in relation to thrombosis. The enhanced platelet functions in Moselle might also be related to the increased incidence of coronary heart disease in that region.

MARATHON RUN: EFFECTS ON BLOOD COAGULATION, FIBRINOLYSIS AND PLATELET AGGREGATION. T. Mandalaki, A. Dessypris, C. Louizou, C. Dimitriadou, C. Panayotopoulou. 2nd Blood Transfusion Centre, Athens, Greece and Endocrine Research Lab. Minerva Foundation, Helsinki, Finland.

Blood coagulation, fibrinolysis and platelet aggregation were assessed in Finnish amateur Marathon runners, aged 30 to 57 in 1975 and 1976. After the run the mean values of aPTT showed a very significant shortening, prothrombin time and fibrinogen were not altered, euglobulin lysis time were significantly shorter, F.D.P. increased highly significantly. Protamine sulphate precipitation test became strongly positive, whereas ethanol gelation test and cryofibrinogen remained negative. Identical changes of the above parameters were obtained both in 1975 and 1976. The mean values of platelet count showed a very significant rise in 1975 but not in 1976. A highly significant increase was noted for both the intensity and velocity of platelet aggregation induced by ADP and collagen in 1975. However in 1976 this increase was not observed in all runners. The difference in response could be attributed to the environmental temperature factor (1975:25°C-sunny, 1976:18°C-cloudy). Also in 1976 the running time of the group was shorter than in 1975. Data on cortisol levels are also given.

THE EFFECT OF LINOLENOYL SORBITOL ON PLATELET AGGREGATION. I. Nathan, A. Dviliansky and A. Livne. The Soroka Medical Center and Department of Biology, The Ben-Gurion University of the Negev, Beersheva, Israel.

The polyol ester of linolenic acid -Linolenoyl Sorbitol (L.S.), a synthetic lipid has marked affinity to membranes due to its hydrophobic long chain fatty acid and its hydrophilic region. Dual effect on washed human platelets was demonstrated by L.S. Preincubation for one minute of L.S. with washed human platelets at  $10^{-7}M$  to  $10^{-5}M$  potentiated aggregation induced by ADP. Preincubation of L.S. either at higher concentrations or for a prolonged time diminished platelet aggregation. Methyl ester of linolenic acid had no potentiation effect on platelet aggregation, but attenuated aggregation similarly to linolenic acid when used in the same concentration as L.S. Thrombin induced aggregation of human platelets was affected similarly by L.S. Increased release of  $^{14}C$  labeled serotonin occurred concomitantly. Prior preincubation of platelets with L.S.;  $10^{-6}M$  -  $10^{-5}M$  increased acetylcholine esterase activity. The increase in enzyme activity was not affected by prolonging incubation time. However, linolenic acid per se inhibited acetylcholine esterase activity. These results indicate that the effect of L.S. on platelet membrane acetylcholine esterase activity does not correlate with its effect on platelet aggregation.