Monday, July 13, 1981

Poster Presentations

Atherosclerosis – I

11:00–12:30 h

Grand Ballroom Lobby Boards 243–245

0190

SOME OBSERVATIONS ON THE ALTERATION OF THE PLATELET MEMBRANE TRANSPORT SYSTEMS IN ATHEROSCLEROSIS. O.N. Ulutin, N. Emekli, G. Cizmeci and T.U. Yardimci. Div. of Haematology and Thrombosis Res.*Center Internal Clin. of Cerrahpasa Med. Fac. of Istanbul University, Instanbul, Turkey.

We have studied the membrane transport systems in the platelets from patients with atherosclerosis with hypercoagulability.

No qualitative and quantitative differences were observed in the transport of amino acids in normal platelets or platelets from atherosclerotic individuals. Normally glucose is transported with both an active transport mechanism and diffusion. The active transport of glucose is impaired in the platelets from atherosclerotic patients and this was associated with the loss of a binding protein active in the process. Normal active transport of galactose was unaffected in atherosclerosis. There was an increase, however, in the amount of transported galactose that got incorporated into the platelet glycoproteins in the latter condition. Normal active transport for arachidonic acid is not observed in platelets from atherosclerotic patients. Indobufen and aspirin did not affect membrane transport of glucose, galactose, and arachidonic acid. Platelet glycoprotein synthesis, however, was inhibited. In addition to the previously reported alteration in the distribution of membrane phospholipids the alterations in the transport functions of the platelet membrane associated with changes in certain carrier proteins provide further evidence for structural modifications of the platelet membranes in atherosclerosis.

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0191

EFFECT OF A FISH OIL ON BLOOD LIPIDS AND COAGULATION. R. Saynor and D. Verel Sheffield Cardiothoracic Unit, Northern General Hospital, Sheffield S5 7AU. U.K.

Considerable evidence has accumulated on the association between abnormal lipoprotein patterns and ischaemic heart disease. There is suggestive evidence that prolonged hyperlipidaemia may cause an increased tendency to thrombosis as a result of a number of factors. The Eskimo diet of marine animals is high in eicosapentaenoic acid (EPA) and it is possible that the low incidence of myocardial infarction in this race is due to diet. The high intake of EPA by Eskimos is probably the reason for their increased tendency to bleed.

The present study was designed to observe the effectiveness of a fish oil high in EPA as a lipid-lowering agent, and its effect on coagulation. Of the 18 subjects in the study 6 were volunteers with no evidence of heart disease- the remaining 12 were attending hospital with angina or post-myocardial infarction. One of this group had undergone a coronary artery by-pass graft operation.

Venous blood was taken after a 12-14 hour fast and the subjects instructed to take 10ml of fish oil twice daily with meals. No modification of their normal diet was attempted. A further blood sample was taken 6 weeks later and at 3 months in 5 subjects. Laboratory investigations included blood cholesterol, triglyceride, high density lipoprotein cholesterol (CHDL), bleeding time, platelet count and aggregation, antithrombin III, fibrinogen, thrombin time, partial thromboplastin time and prothrombin ratio.

At six weeks the cholesterol fell by an average of 6.3% and triglyceride 36.8% but CHDL was raised 12.4%. The 3 month levels (5 subjects) were cholesterol - 9.2%, triglyceride - 52.1% and CHDL + 16.9%. There were no significant changes observed in the coagulation parameters measured.

From the foregoing it would appear that supplementing the diet with fish oil has a desirable effect on blood lipids but at this dose does not influence coagulation.

0192

THE PREVENTIVE EFFECT OF THE POLYUNSATURATED FATS ON THROMBOSIS. L.D.O. Yotakis. Research Institute, Istanbul.

The fact of thrombosis, mainly the case of coronaritis, was examined in regard of a diet consisting of polyunsaturated fats by use of two dietary differing populations. The representative groups consisted respectively of (70) and (80) persons of the age-groups 45-55, selected by random process between males as generally females suffer a lower incidence of cardial thrombosis than men.

The first group concerned the universe of pure frugal meal, consisting of polyunsaturated fats, such as linon, linolen and arachidon acids having double bonds. The related population consisted of Gypsies and certain Coastal inhabitants the food of whom is obtained from vegetables, fishes and marine animals, containing the mentioned fats.

The second sample was selected between well-fed and gluttonous individuals, representing the population of frequent coronaritis and thrombotic myocardium infarctus.

42 attacks of thrombosis were observed among the 80 persons of the so-called well-fed sample; consequently the incidence-rate was 52 per cent. On the other hand the reciprocal rate concerning the frugal diet was equal to 3 per cent, as only 2 cases of attack were observed between Gypsies and the Coastal inhabitants. The rate of the two groups together was 29%. All other factors such as psychic stress, etc., being equal, the difference in thrombosis between the two populations 52 - 3 = 49 per cent is significant, as by means of the standard error of difference equal to 7 we observed that it is more than might occur by chance. The results of the investigations suggested that the polyunsaturated fats provoking and converting certain antiaggregating bodies and the vasoactive prostaglandins as well as a representative diet are efficient to the prevention of thrombosis.