Poster Board P4-124

0910 IN VITRO EFFECTS OF DIHOMO-γ-LINOLENIC ACID (DHLA) ON NORMAL AND DIABETIC PLATELET FUNCTION. M. Zuzel*, P.B.A. Kernoff, A.L. Willis, R.C. Paton, & G.P. McNicol, University Department of Medicine, Leeds.

DHLA causes a general inhibition of platelet reactions in standard in vitro tests of platelet function. Significantly more DHLA is required for the 50% inhibition (ID_{50}) of diabetic when compared to normal platelet reactions (Kernoff et al. Thrombosis & Haemostasis 38, 194, 1977). To investigate the cause of this difference we have studied kinetics of ADP-induced primary platelet aggregation, its inhibition by DHLA, and the formation of malondialdehyde (MDA) in the presence of DHLA in platelet-rich plasma of six healthy subjects and six diabetic patients with advanced microangiopathy. The results showed a significantly lower Km (ADP) for platelet aggregation in the diabetic group compared to normal. The K_I (DHLA) of the competitive component of inhibition of platelet aggregation (prostaglandin production-mediated) was not significantly different in the two groups. Also, amounts of MDA formed in diabetic and normal PRP in the presence of DHLA were not significantly different. We conclude that the apparent low susceptibility of diabetic platelets to inhibition by DHLA might be a result of a primary hyper-reactivity of these platelets due to a cause other than an abnormality of the platelet PG production pathway.

P4-125 0911 HAEMOSTASIS IN DIABETES AND ITS RELATIONSHIP WITH DIABETIC COMPLICATIONS

J.H. Fuller*, T.W. Meade, H. Keen, R. Chakrabarti, R.J. Jarrett, W.R.S. North, T. Omer and Y. Stirling, Unit for Metabolic Medicine, Guy's Hospital and MRC-DHSS Epidemiology and Medical Care Unit, Harrow, England.

To study the possible role of an "increased thrombotic tendency" in the vascular complications of diabetes, a wide range of tests of haemostatic function has been carried out in 91 male and 63 female diabetics aged 35-54, and the results compared with the findings in 686 men and 393 women of the same age in the Northwick Park Heart Study. Mean levels of factors VII and X, fibrinogen and platelet adhesiveness were higher in diabetics than non-diabetics; antithrombin III levels were also higher in the diabetics, possibly as a protective response to other changes favouring the onset of vascular disease. Fibrinolytic activity, particularly in those not dependent on insulin, and whole blood platelet count were lower in the diabetics. Within the group of diabetics, mean factor VII and antithrombin III levels were higher in those with retinopathy than in those without, and factor VII and fibrinogen levels and platelet adhesiveness were higher in those with proteinuria than in those without. These findings are, in general compatible with the idea of an "increased thrombotic tendency" as playing a part in the pathogenesis of the vascular complications of diabetes.

P4-126 0912 PLATELET FUNCTION STUDIES IN DIABETICS WITH PERIPHERAL NEUROPATHY

J.H.B. Scarpello*, L.C. Best, B.H. Marcola, M.B. McGuire, F.E. Preston, R.G.G. Russell and J.D. Ward, Departments of Medicine, Haematology and Human Metabolism & Clinical Biochemistry, Hallamshire Hospital, Sheffield, England.

A variety of platelet function tests have been performed in a series of 15 diabetics (8 male, 7 female). All had clinical evidence of peripheral neuropathy and some also had diabetic retinopathy. The following were measured a) Platelet survival as determined using ^{51}Cr-labelled platelets; b) Plasma β-thromboglobulin; c) Platelet aggregate ratio; d) Malonyldialdehyde (MDA) production following the addition of thrombin or arachidonic acid to platelet-rich plasma.

The tests showed widespread evidence of altered platelet function. Six patients had a reduced platelet survival time (<72 hrs), four had a reduced platelet aggregate ratio, and six had increased β-thromboglobulin levels. Seven showed abnormally high production of MDA in response to thrombin.

No correlation was found between any of the tests in individual patients.

These studies confirm that there is a widespread alteration in platelet function in diabetics with complications, but suggest that no single test may be used as an acceptable screening procedure.