FAMILIAL PRIMARY FIBRINOLYSIS. Z. Currimbhoy. North Shore University Hospital, Manhasset, New York, U.S.A.

This study reports on a unique family with primary fibrinolysis. A 31-year-old female had hematuria of one month's duration. She had a previous episode of hematuria lasting 3 weeks and a hysterectomy for menorrhagia. Her 10-year-old daughter bled from the gums at the age of 9 months for one week. All clotting factors (including Factors VIII, V and XIII) were normal, except Fibrinogen. The mother's Fibrinogen varied from 110 to 165 mg%, and the daughter's from 90 to 146 mg%. The diluted Thrombin Time and Reptilase times were normal. The most striking and constant defect was in the fibrinolytic system. These studies were performed over a 4 month period. Euglobulin clot lysis, done on the mother repeatedly and on the daughter twice, were abnormally short, varying from 60 to 100 minutes, with FSP >10 and <40 ug/ml or <10 ug/ml. Active lysis was present on fibrin plates. <2 macroglobulin, <1 antitrypsin and Antithrombin III were normal, as was plasminogen immunologically. Platelet count and functions were normal. The maternal grandmother bled profusely twice after two gynecological procedures and once needed a blood transfusion. She was then put on birth control pills. Work-up on the pill revealed a Fibrinogen of 217 mg%, but no clot formed when attempting to evaluate euglobulin lysis. Off the pill, Fibrinogen was 167 mg%, euglobulin clot lysis 30 mins., and there was a zone of lysis on the fibrin plate.

The congenital loss of an inhibitor to plasminogen activator could explain these results.

PLASMINOGEN ACTIVATOR RELEASE BY ORAL CONTRACEPTIVES AND EXERCISE. A.M. Hedlin. Department of Physiology, University of Toronto, Toronto, Ontario, Canada.

Oral contraceptives are capable of inducing an increase in blood fibrinolytic activity and our study was undertaken in an attempt to determine whether this is accomplished by stimulating the release of plasminogen activator.

For this study 25 women, twelve non-users and thirteen users of the oral contraceptive, Demulen, provided blood and urine samples. Samples were obtained following a one-half hour of rest (pre-exercise), and following a 5 minute interval of moderate exercise on a treadmill. Subjects were tested early in the menstrual cycle (when the oral contraceptive was withdrawn) and late in the cycle when Demulen had been used for about two weeks.

Plasma plasminogen activator levels were essentially the same for the two groups, early in the cycle, with exercise causing a doubling of the pre-exercise activator level. However, late in the cycle the contraceptive users had a much higher pre-exercise activator level than the non-users, and exercise caused a three-fold increase in this level.

Urine plasminogen activator levels were measured in samples obtained before and after exercise. The urine plasminogen activator levels, unlike the plasma plasminogen activator levels, showed no significant difference between non-users and users. An even more remarkable difference was that at both intervals in the cycle and in both groups the urine plasminogen activator level decreased, rather than increased, following exercise.

We conclude that the oral contraceptive Demulen does stimulate the release of plasma plasminogen activator but this does not interfere with release of this activator by exercise.

DEFECTIVE FIBRINOLYTIC ACTIVITY IN CORONARY HEART DISEASE. Isobel D. Walker, J.F. Davidson and I. Hutton. Department of Haematology and University Department of Cardiology, Glasgow Royal Infirmary, Glasgow, U.K.

The possibility of an association existing between defective fibrinolysis and the development of coronary heart disease (C.H.D.) has been examined.

Using resuspended plasma euglobulin precipitates on fibrin plates, fibrinolytic activity (F.A.) was studied in 36 male patients with angiographic evidence of C.H.D. and in 16 male controls with normal coronary angiograms. Spontaneous plasma F.A. and "fibrinolytic potential", as assessed by a 5 minute venous occlusion test, were measured in each subject at 0 hours (9 a.m.), at 5 hours (2 p.m.) and at 72 hours (9 a.m.). 13 of the 36 patients had defective fibrinolysis compared with the controls. In only 7 of these 13 patients was a defect obvious in the 9 a.m. basal measurements of spontaneous F.A. but all 13 had a defect of diurnal rhythm as evidenced by an absent or significant reduction in the diurnal increase in F.A. at 2 p.m. All 13 had a defect of "fibrinolytic potential" as shown by an absent or impaired response to the challenge of the 5 minute venous occlusion tests. A marked increase in F.A. at 2 p.m. and a normal "fibrinolytic potential" were found in all 16 controls.

By using a series of carefully timed resting and venous occlusion tests several aspects of F.A. can be studied and defects in diurnal rhythm and "fibrinolytic potential" demonstrated in 36% of patients with C.H.D.