

PLATELET SECRETION DEFECTS IN PATIENTS WITH MINIMAL BRAIN DYSFUNCTION. A.K. Rao, K. Koike, H. Holmsen and P. Mueller. Thrombosis Research Center, Temple University Hospital, Philadelphia, PA and Princeton Medical Center, Princeton, NJ.

Twelve MBD patients (P) with mucocutaneous bleeding diathesis (ages: 10-58 years, 11 females) had normal bleeding time, platelet count, activated PTT, PT and F-VIII activity. The mean threshold concentrations of ADP, epinephrine, collagen and ristocetin to elicit secondary aggregation or >20% secretion of preabsorbed ^{14}C -serotonin in the patients' platelet rich plasma (citrate) were normal. The aggregation response of gel-filtered platelets to $8\mu\text{M}$ divalent cationophore A23187 was markedly reduced ($P=20.9 \pm 6.6\%$, normal (N) = $61.4 \pm 5.7\%$; $p<0.001$). The platelet contents of ATP, ADP, low-affinity platelet factor-4 (LA-PF₄), β -N-acetylglucosaminidase (β -N), β -glucuronidase (β -G), and α -mannosidase (α -M), were normal. However, secretion of ATP + ADP ($P=31.1 \pm 5.3\%$, $N=51.5 \pm 6.4\%$, $p<0.05$), β -N ($P=6.1 \pm 2.5\%$, $N=29.8 \pm 5.2\%$, $p<0.001$) and β -G ($P=1.8 \pm 1.1\%$, $N=10.5 \pm 2.6\%$, $p<0.01$) in response to centrifugation of unfixed A23187-treated platelets from patients was markedly impaired, while of LA-PF₄ and α -M was normal. Secretion with 0.1 u/ml thrombin was impaired for ATP + ADP, β -N and α -M; secretion of LA-PF₄ and β -G was normal. Liberation of pre-incorporated ^{14}C -arachidonate from phospholipids by thrombin (0.05-5u/ml) and production of thromboxane B₂ during blood clotting were normal. Thus, platelets from these MBD patients have normal stores of secretory constituents and normal arachidonate pathway, but markedly impaired mechanism for dense granule and acid hydrolase secretion and impaired aggregation response to A23187, suggesting that impairment is in pathway common to aggregation and secretion. Similarity of secretion in platelets and other tissues, raises the question whether a defect in neuronal secretion is part of pathophysiology of MBD.

CLINICAL STUDIES ON PLATELET AGGREGATION IN PATIENTS WITH CARCINOMA OF GASTROINTESTINAL TRACT. T. Yamamura, H. Matsumoto, Y. Maruyama, T. Wada and M. Yamanaka. 2nd Department of Surgery and Central Clinical Laboratory, Faculty of Medicine, University of Tokyo, Tokyo, Japan.

Platelet aggregation was studied in 73 patients with carcinoma of gastrointestinal tract. Control group was composed of 45 patients with non malignant diseases. Aggregation was induced by adding 10 $\mu\text{g}/\text{ml}$ of Collagen, 1 μM or 2 μM at final concentration of ADP to that platelet rich plasma. Using aggregometer of Bryston, aggregation curves were recorded. The estimation of platelet aggregation was determined by aggregation rate, disaggregation rate and maximum aggregation rate. Patients with carcinoma were divided into two groups according to the presence of peritoneal dissemination, liver metastasis, lymphnode involvement as well as the depth of cancer invasion (limited within submucosa layer or invaded below proper muscle) and the size (≤ 5 cm or > 5 cm). Moreover after resection of tumor, alteration in parameters of platelet aggregation was evaluated. Maximum aggregation rate was higher and disaggregation rate was lower in patients with carcinoma than in control group. There was significant differences in the intensity of platelet aggregation according to the rate of invasion and the size of the tumor, although peritoneal dissemination, liver metastasis, or lymphnode involvement did not affect platelet aggregation. Maximum aggregation rate and aggregation rate were higher and disaggregation rate was lower in the group with deeper invasion of tumor as well as in the group with larger tumors. After removal of tumor, platelet aggregation decreased. These results suggested that a substance or substances which activate platelet aggregation would be released from tumor tissue.