CIRCULATING PLATELET AGGREGATES DURING EMOTIONAL STRESS AND CIGARETTE SMOKING. G. G. Gemmini, R. Abbatangelo, D. Prince and G. Neri, University of Florence Medical School, Florence, Italy.

Increased platelet aggregation has been observed in various hypercoagulable states, but its predictive value for thrombosis is so far uncertain. We studied the effect of emotional stress end of cigarette smoking on circulating platelets by platelet aggregates ratio (PAR) according to M. D. and Hoak (1974) in medical students aged 20-22 years. The emotional stress was undergoing a University examination. PAR was measured immediately before the examination, at the end and 15 and 30 min after the examination. PAR was significantly lowered in all the subjects at the end (P<0.01) and after 15 min (P<0.01) but returned toward normal values after 30 min. The decrease of PAR suggests the production of reversible circulating platelet aggregates. The effect of smoking a cigarette has been investigated in 8 students. PAR has been determined before smoking, at the end and after 2.5 and 10 min. Smoking lasted 4 min. In 5 subjects we observed a decrease of PAR at 2 min (P<0.01), whereas at 5 and 10 min PAR value became normal. Let us see if cigarette smoke did not affect PAR value. Our results indicate that: 1) Platelet aggregates are very easily produced in circulating blood; 2) A low value of PAR does not necessarily indicate a platelet hyperaggregability clinically significant.

INCREASED PLATELET AGGREGATION DUE TO A PLASMA AGGREGATING ACTIVITY. G. G. Neri, S. Serroni, R. Abbataangelo, C. P. Gemmini, G. Pavillet, and C. Massey, University of Florence Medical School, Florence, Italy.

In various clinical states an increased platelet aggregation has been observed, but its mechanism(s) is not yet completely understood. Plasma of some patients with history of myocardial infarction (MIF) or with cerebral vascular disorders (CVP) delays platelet disaggregation after aggregation by ATP (Neri Serroni et al. 1974) and induces morphological changes in control platelet (Gebbala and Gross 1976). In a group of 27 MIF and 20 CVP we identified 16 MIF and 12 CVP with plasma aggregating activity (AA) by cross-matches in a modification of the method of Wu and Hoak (1974) for platelet aggregates. As the AA disappeared after heparin treatment (15,500 U x 2 for 7 days) we investigated whether the AA was related to an activation of clotting processes. At this purpose we measured in these patients and in those without AA the concentration of high molecular weight fibrinogen complexes (HMWC) by agarose 45 gel-filtration. The patients with AA showed a significantly (P<0.01) higher HMWC concentration (9.6±2.15 g/l) than those without AA (5.4±1.7 g/l) but the AA was not related to the HMWC themselves, which on the contrary showed a mild antithrombogenic activity. On gel-chronotography of the whole plasma the AA was eluted at an elution volume at which factor X is usually collected.

EFFECTS OF LIPID-LOWERING DRUGS UPON FASTING-INDUCED PLATELET AGGREGATION. K. Gjesdal.

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During fasting, plasma free fatty acid (FFA) concentration increases, correlating with an increase in the percentage of various reversible platelet aggregates (Gjesdal et al., Thromb. Haemost., 36, 325, 1976). In the present study 20 healthy males, who had fasted for 72 hours, received either 3 g of sodium salicylate (SS) or 0.1 g of a nicotinic acid analogue (NAA) orally. Blood was collected before and 1/2, 1, and 2 hours after drug intake. FFA was assayed by titration and platelet aggregates according to Wu and Hoak (Lancet 2, 924, 1974).

After SS, mean FFA concentration was reduced (p<0.01) from 1.87 to 1.34 (1/2h), 1.49 (1h) and 1.66 (2h) mmol/l, whereas NAA resulted in a reduction (p<0.01) from 1.63 to 0.94 (1/2h), 0.65 (1h) and 0.67 (2h) mmol/l. Concomitantly, platelet aggregate percentage decreased transiently (not significantly) from mean values of 383 (SS group) and 321 (NAA group) to minimum levels of 21 and 23% respectively. During lipolysis inhibition, no significant correlation was found between FFA concentration and aggregate percentage, suggesting that other factors than FFA then had the greater influence upon reversible platelet aggregation.