

Poster
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P5-060

0708 FACTORS INFLUENCING THROMBIN INDUCED PLATELET RELEASE REACTION

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To study the effect of pH and platelet counts on thrombin induced platelet release reaction, washed human platelets labeled with 14 C-serotonin were suspended in phosphate buffered saline of varying pH values for 15 minutes with thrombin concentrations between 1,1 and 0,068 NIH U/ml of suspension. The amount of serotonin released caused by the thrombin added was dependent on the pH of the incubation medium with an optimum in the range of pH 7,4 -7,6. This effect was more marked with higher thrombin concentrations. The serotonin release controls without thrombin were not influenced by the different pH values and were always less than 10%. The amount of platelets in the reaction mixture influenced the release values not significantly at thrombin concentrations of 1,1 and 0,27 NIH U/ml while with 0,068 NIH U/ml a significant dependence of the release on the number of platelets was observed, resulting in higher release values in platelet mixtures with lower platelet counts. Therefore it can be concluded that the pH is of major influence on the release reaction especially at high thrombin concentrations while the platelet count is of importance only at low thrombin concentrations.

P5-061 0709 RELEASE REACTION OF AVIAN THROMBOCYTES

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Washed thrombocytes from geese, chickens and ducks were aggregated by serotonin, thrombin or acid-soluble collagen. During the process of thrombocyte aggregation only very small amounts of adenine nucleotides were released/about 1 % of total amounts/. However, proteins secreted during this process represented 10 - 15 % of total thrombocyte proteins and resembled proteins from mammalian platelets. Chromatographic analysis /Sephadex 6B, Sephadex G-100, SDS-polyacrylamide gel electrophoresis/ of protein compounds released from thrombocytes showed the presence of 11 different protein fractions among which albumin, fibrinogen and β -thromboglobulin constituted the main components. In the released protein material heparin-neutralizing activity was found.

P5-062 0710 CONSTRICTION AND DAMAGE OF THE PULMONARY ARTERY BY INDUCED INTRAVASCULAR AGGREGATION OF PLATELETS

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The effect of suddenly induced intravascular aggregation of platelets on the pulmonary artery (PA) was studied. Utilizing 18 test, 7 immune thrombocytopenic and 7 aspirin pretreated rabbits, ADP was injected into the central vein. The animals were killed one hour after the injection for histological examination. In vitro responsiveness of PA strips to rabbit aorta contracting substance (RCS) and serotonin was also studied. Histological examination of the lungs revealed that the small and medium sized PAs were characterized by reduced diameter of the lumen, increased wall thickness, convoluted and separated internal elastic lamina, vacuolated endothelial cells and split and vacuolated smooth muscle cells. Many of the affected PAs showed platelet-fibrin thrombi in the lumen. These changes were absent or rare and attenuated in the thrombocytopenic and aspirin pretreated rabbits. In vitro study: when contractile responses were expressed relative to the maximal tension developed by 40 mM K^+ , contraction of the rabbit PA strip induced by serotonin or whole products of platelet aggregation was approximately 1.5 times and one by RCS was 2 times stronger than those of the aorta. The powerful PA response to RCS and serotonin suggests that constriction and damage of the PA can be caused by these substances released from aggregated platelets.