MIXED POSTERS I

Platelets

COMPLEMENT DEPENDENT AND INDEPENDENT EFFECTS OF BACTERIAL PRODUCTS ON RABBIT AND HUMAN PLATELETS. N. Sampera and J. Vervynck, Lab. of Blood Coagulation, Dept. of Medical Research, University of Leuven, Belgium.

The effect of LPS from aerobic and anaerobic bacteria, two mucopolysaccharides and two meningococcal polysaccharides, on rabbit platelets in stimulated and heparinized plasma was studied by aggregometry. The LPS from aerobic bacteria showed variable aggregating activity. LPS from S. Minnesota Re 595 (essentially lipid A) was the most active. The two mucopolysaccharides were very active whereas the LPS from anaerobic bacteria and the meningococcal polysaccharides were inactive. These effects were abolished by inactivation of complement and by ethyleneglycoltetraacetic acid (EGTA) indicating that they are dependent on activation of the classical pathway. None of these effects was observed using human platelets.

When washed rabbit platelets are mixed with complement-depleted rabbit serum and calcium chloride, generation of thrombin occurs. All the LPS preparations but not the mucopolysaccharides or meningococcal polysaccharides enhanced the rate of thrombin formation to a variable extent. Identical effects have also been found using human platelets (Brit. J. Haemat., in press).

It is concluded that LPS affects rabbit platelets by separate complement dependent and independent mechanisms. However, with human platelets only the complement independent phenomenon (enhancement of thrombin generation) is observed.

PLATELET AND FIBRINOGEN PRODUCTION: RELATIVE SENSITIVITIES TO ENDOTOXIN. R.L. Evans, B.R. Alving, W.R. Bell, and J. Levin. Center for Disease Control, Atlanta; Bureau of Biologics, Bethesda; The Johns Hopkins University School of Medicine, Baltimore, U.S.A.

Both the threshold, and possible mechanisms, for increased platelet and fibrinogen production after endotoxin were determined in male New Zealand rabbits. Animals received E. coli endotoxin (LPS, 026:48) in single IV doses of 0.1, 0.3, 5.0, 10.0, or 50.0 µg/kg body mass. Selenium thiochrome 612 (75S) was injected 18 h after endotoxin, and the percent incorporation into platelets and fibrinogen was used to measure thrombopoiesis and fibrinogen synthesis. Endotoxin was detected with the linus tect only in the blood of rabbits that had received 10.0 or 50.0 µg/kg. However, platelet production was increased after 0.3 µg/kg, the smallest endotoxin dose which caused significant reduction of platelet counts. Fibrinogen synthesis was increased after 5.0 µg/kg. An endotoxin dose of 50.0 µg/kg caused the greatest increase in 75S-labeled platelets and fibrinogen (150% and 30%, respectively). Platelet counts were lowest at this dose; however, fibrinogen levels were not decreased nor were fibrinogen degradation products detected. Therefore, stimulation of fibrinogen synthesis by endotoxin does not appear to be mediated through initial reduction of circulating fibrinogen levels. In contrast, a direct relationship was demonstrated among endotoxin dose, decrease in platelet count, and increase in production. The data suggest that endotoxin may alter platelet production by its effect on levels of circulating platelet...