FREE COMMUNICATIONS X

Plasma Inhibitors.


Plasma protease activity is known to be increased during endotoxin shock and recent studies have indicated that the plasma kallikrein-kinin system becomes activated by circulating endotoxin. Plasma levels of pre-kallikrein kallikrein and kallikrein inhibitors were therefore determined in samples from dogs infused with E.coli endotoxin, using assays with a chromogenic substrate for plasma kallikrein (Chromozyme PK, Pontapharm, Basel, Switzerland). "Fast-reacting" and "time-dependent" inhibitors of kallikrein were studied using purified human plasma kallikrein. Considerably reduced levels of plasma pre-kallikrein and increased levels of kallikrein were detected in the late phase of shock and significant reductions in "fast-reacting" and "time-dependent" inhibition of kallikrein was observed. These results show that during endotoxin shock plasma pre-kallikrein becomes activated to kallikrein and indicate that kallikrein inhibitors play an important regulatory role in the pathophysiology of endotoxin shock.


In more than half of a series of samples of cord blood a hitherto unrecognized inhibitor of blood coagulation could be demonstrated. At three days of age this inhibitor is found in all babies. In 22 out of 43 samples the disappearance rate of thrombin in the two-stage prothrombin assay was significant (6-5 times) greater than it was in normal human adult plasma. In the other it was no more than 1.8 times greater than normal. On basis of these results we divided the plasma in an I (activation) and non-I group. We determined thrombin inactivating proteins in I and in non-I plasma respectively and found no significant differences in antithrombin 3, α2-antitrypsin, β-macroglobulin, antiplasmin, C1 esterase inhibitor or inter-α-antitrypsin inhibitor. A non-protein fraction can be prepared from blood containing this inhibitor that has no appreciable inhibitory activity of its own but that markedly enhances the activity of antithrombin 3. We found as yet no reasons to assume that the inhibitor is something else than heparin.