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ON THE MECHANISM OF PLASMINOGEN ACTIVATOR RELEASE BY DDAVP: ANIMAL STUDIES. F.E. Boulton, C.V. Prowse and J.D. Cash. Edinburgh & S.E. Scotland Blood Transfusion Service, and Scottish National Blood Transfusion Service, Edinburgh, Scotland.

In pentobarbitone anaesthetised dogs, IV infusion of 1-desamino-8-D-arginine vasopressin (DDAVP) over 15 minutes produced a dramatic increase in plasma plasminogen activator (PA) levels, as measured by the euglobulin lysis time. However, 70 ug/Kg of DDAVP were required, compared with circa 0.4 ug/Kg for a similar response in unanaesthetised human subjects. Factor VIII levels increased only slightly in dogs even at these relatively high doses.

Infusion of 7.0 ug/Kg DDAVP into the femoral artery of dogs had no discernible effects on the PA level of ipsilateral femoral venous blood - similar to findings previously reported for humans[1]. In contrast, infusion of this dose into the carotid artery of dogs produced a marked rise of PA in jugular venous and systemic blood.

Fifty mls of jugular venous effluent were collected immediately after DDAVP infusion to carotid artery, the plasma separated, stored frozen, and subsequently infused intravenously to another dog. PA levels rose moderately.

It is suggested that DDAVP acts on some cephalic receptor - possibly in the hypothalmus - from which a humoral factor is released which in turn releases PA from a peripheral storage site. The high doses of DDAVP required in these studies, and the relative lack of fVIII response, suggests that barbitone anaesthesia may interfere with this mechanism.

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A NOVEL FIBRINOLYTIC ENZYME? Nooshabeh Pejhan, Jacqueline A. Law and Graham D. Kemp. Department of Biochemistry and Microbiology, University of St. Andrews, St. Andrews, Scotland, U.K.

It has been known for some time that plasma contains acid proteinases and that such enzymes are capable of the eventual digestion of fibrin under the conditions of the monochloroacetic acid assay for factor XIII action. It has also been suggested that the enzyme responsible is pepsin, present in the circulation as pepsinogen. There is also a reported case of an individual with a tendency for abnormal bleeding but with no apparent defect apart from an increased rate of fibrin clot dissolution at acid pH. Factor XIII, fibrinogen and all other clotting factors were apparently normal.

Characterisation of such acid proteinases has been hindered by their low activity against conventional acid proteinase substrates. We have developed a more sensitive assay, based on fibrin clot dissolution. Using this we have noted differing rates of fibrin clot dissolution at acid pH in different individuals and isolated a relatively pure enzyme capable of digesting fibrin at acid pH. Its presence in a high molecular weight fraction and comparison of its mode of action on various substrates indicate some differences from pepsin(ogen). This, plus a more detailed examination of the properties of the substrate suggests that a role for this enzyme in physiological situations is not out of the question and that the designation of 'acid' proteinase may be inaccurate.