

evidence has been presented which suggests that intraglomerular coagulation may play an important role in the natural history of acute ischaemic renal failure and may be the mechanism by which the septicaemia leads to oliguric renal failure. The presence of urinary fibrin degradation products would appear to support this view. An experimental model which is relevant to the clinical situation is produced by a continuous infusion of endotoxin which results in the deposition of fibrin within the glomerular vessels.

A Study of Antiheparin Activity of Serum and Platelet Factor 4 C. H. J. SEAR AND L. POLLER (*Withington Hospital, Manchester*) The hypothesis that serum antiheparin activity is due to platelet factor 4 (PF4) (Farbiszewski *et al*, 1968; O'Brien *et al*, 1970) has been investigated using biochemical fractionation techniques. Antiheparin activity was measured with a heparin plasma thrombin time system, and clotting times were determined under rigidly standardized conditions with the aid of a photometric clot detection device. Platelet lysates containing PF4 were prepared by freezing and thawing purified human platelets. A comparison of the platelet counts of human whole blood, platelet-rich plasma, and platelet-free plasma with the antiheparin activities of sera derived therefrom suggested that 70-80% of the whole blood serum activity originated in the platelets. Isoelectric precipitation studies at low ionic strength demonstrated a degree of chemical similarity between PF4 and the major serum activity and showed that the precipitation behaviour of PF4 is markedly influenced by its chemical environment. The platelet and serum activities were shown to have similar molecular sizes as judged by gel filtration through Sephadex G-200. These experiments also suggested that both activities reside with low molecular weight species (MW 25000-30000 daltons) that are incorporated into high molecular weight complexes under physiological conditions of pH and ionic strength.

References

- Farbiszewski, R., Niewiarowski, S., Worowski, K., *et al* (1968). *Thrombos. Diathes. haemorrh. (Stuttg.)*, **19**, 578-583.
O'Brien, J. R., Finch, W., and Clark, E. (1970). *Proc. Soc. exp. Biol. (N. Y.)*, **134**, 1128-1131.

The Effects of Progestogens on Blood Clotting and Platelet Function L. POLLER (*Withington Hospital, Manchester*) We have previously shown (Thomson and Poller, 1965; Poller *et al*, 1971a) that oral contraception with combined oestrogen/progestogen preparations results in rises in certain clotting factors and accelerated platelet aggregation and that the progestogen-only preparation, chlormadinone

acetate, a 17 acetoxy steroid, caused no observable changes in clotting factors. Changes in platelet aggregation were only noted after long-term administration (Poller *et al*, 1969, Poller *et al*, 1971b). With the withdrawal from the market of chlormadinone acetate no progestogen has been available.

We have therefore studied the effects of another progestogen, norethisterone, a 19 norsteroid, in two groups of women on clotting parameters and platelet function. The first group had been taking combined preparations previously. The second group had not previously been on oral contraceptives. Raised clotting factors and accelerated platelet aggregation from combined preparations rapidly returned to normal when norethisterone was substituted. No rises of clotting factors have so far been detected in the second group.

References

- Poller, L., Thomson, J. M., Tabiowo, A., and Priest, C. M. (1969). *Brit. med. J.*, **1**, 554-556.
Poller, L., Thomson, J. M., and Thomas, W. (1971). *Brit. med. J.*, **4**, 648-650.
Poller, L., Thomson, J. M., Thomas, W., and Wray, C. (1971). *Brit. med. J.*, **1**, 705-707.
Thomson, J. M., and Poller, L. (1965). *Brit. med. J.*, **2**, 270-273.

Erythrocyte 2, 3-diphosphoglycerate in Diabetes and Renal Disease PAULINE M. EMERSON AND J. DARLEY (*Department of Haematology, Radcliffe Infirmary, Oxford*) In patients with well controlled diabetes mellitus, the erythrocyte 2, 3-diphosphoglycerate (DPG) content does not differ significantly from the normal. However, in 15 patients with uncontrolled diabetes, the DPG levels were decreased below the normal range of 4.5 ± 0.5 mM to 2.2 ± 0.4 mM per litre of red cells. The lowered DPG levels counteracted the effect of pH on the oxygen dissociation curve so that the tissue oxygen supply remained unaffected.

The DPG took up to five days to return to normal, and it is suggested that this delay is secondary to a fall in plasma phosphate. Rapid correction of blood pH by intravenous bicarbonate should be avoided, as this leads to a rapid fall in the calculated P_{50} resulting from the persistently low levels of DPG and giving rise to the possibility of tissue anoxia. Preliminary studies on three patients given phosphate supplement during the first five hours of treatment suggest that this regime is not long enough to have a beneficial effect.

In 56 patients with chronic renal failure, blood collected before dialysis gave a significantly raised DPG level of 6.22 ± 1.38 . This did not correlate well with either the plasma phosphate or bicarbonate levels, but correlated fairly well with the haemoglobin concentration. Further studies are being undertaken