first by giving two intravenous injections one day apart of polyanetholsulphonate of sodium (Liquoid, Roche) at a dose of 30 mg/kg body weight, and the second by giving 3 intravenous injections of soluble complexes within twenty-four hours. The complexes were made with anti-streptococcal M protein serum and M protein in the presence of antigen excess. Each mouse received 10 mg antibody protein. In both types of nephritis the lesions consisted of swollen glomeruli due to marked endothelial and epithelial proliferation. Using immunofluorescent techniques it was possible to demonstrate fibrin in the first type and fibrin and M protein in the second, within the glomerular tufts.

Using the same experimental methods, mice were pretreated with heparin or with urokinase. Neither proteinuria nor hæmaturia were found on daily urine analysis. Kidney sections revealed glomeruli of normal size without proliferation. Fibrin or M protein could not be demonstrated within the glomerular tuft. Dicumarol alone was less effective than urokinase or heparin.

In another series of experiments using the same experimental methods, daily intraperitoneal injections of heparin were started one to four days after the last challenging injection. The proteinuria decreased after treatment. Mild or focal proliferation was seen in histological sections and occasional fibrin or M protein deposits were found by immunological techniques.

A further series of experiments was performed in which two daily intravenous injections of 100 units of urokinase were given instead of heparin. The glomeruli were found to be within normal size; no fibrin or M protein could be detected with special techniques.

Urokinase seems to prevent and to cure glomerular lesions better than heparin and with minimal complications.

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Clinical Experience with Anticoagulant Therapy in the Management of Disseminated Intravascular Coagulation in Children

Disseminated intravascular coagulation (DIC) plays an important pathogenetic role in a number of medical conditions resembling the Sanarelli-Shwartzman phenomenon as produced in animal experiments. Since 1961 a total of 21 patients were systematically investigated for evidence of disturbances in hæmostatic mechanisms. Appropriate data could be collected in 3 out of 3 cases of purpura fulminans, in 6 out of 8 cases of hæmolytic-uræmic syndrome and in 8 out of 10 cases of acute meningococcæmia. In most of the cases they were compatible with DIC, although they did not provide conclusive proof of such a mechanism. The most consistent findings were thrombocytopenia and hypofibrinogenæmia.

As a logical consequence, treatment was attempted with anticoagulation (heparin 10,000–15,000 i.u./m²/day I.V.) and with substitution by fibrinogen (1 g/m²) when severe hypofibrinogenæmia was present. Anticoagulation was considered to be satisfactory if the thrombin time was 60 sec, with normal controls between 13 and 18 sec. Routine treatment to combat shock and to correct water and electrolyte disturbances and the use of appropriate antibiotics, however, was not an adequate alternative for anticoagulant therapy, or for fibrinogen replacement therapy. Corticosteroids were deliberately not administered.

The results of treatment with anticoagulants have been analysed and compared with those of cases published in the literature. Three cases of purpura fulminans were successfully treated; all of them presented coagulation defects. Four out of 8 patients with hæmolytic-uræmic syndrome showed a satisfactory response. In 2 additional cases the pathogenetic process was arrested following heparin therapy, but the patients finally succumbed from hypertensive cardiac failure and/or renal insufficiency. Of the 10 cases with meningococcæmia only 2 could be saved; these 2 favourable results are attributed essentially to the addition of heparin to the usual therapy, since only very severely ill patients were selected.

The results of these studies are encouraging and suggest that further experiences should be sought.

The following papers were also read:

Laboratory Diagnosis

Dr C Merskey *(New York)*

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Fibrinogen Catabolism and the Use of Heparin

Dr L R I Baker and Dr M C Brain
(Royal Postgraduate Medical School of London)

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The Use of Epsilon Aminocaproic Acid

Dr D C O James *(Westminster Hospital, London)*