MEDICAL RESEARCH SOCIETY

An Ordinary Meeting of the Medical Research Society was held at King's College Hospital Medical School on Friday, 23 January 1970. The following Communications and Demonstrations were presented:

COMMUNICATIONS

1. INTRAVASCULAR COAGULATION IN ACUTE HEPATIC FAILURE
M. O. RAKE, P. T. FLUTE, M. BRODONOVA, P. ESCARTIN and ROGER WILLIAMS
Liver Unit and Department of Haematology, King's College Hospital, London, S.E.5

Increased rates of catabolism of $^{125}$I-labelled fibrinogen have been found in six patients with acute hepatic failure due to fulminant hepatitis or drug toxicity. Deficiencies of other coagulation factors and platelets, increased fibrinolysis, and failure to correct the deficiencies with replacement therapy in these and a further seven patients suggest an increase in consumption of clotting factors due to disseminated intravascular coagulation. It is suggested that the increased utilization of clotting factors at a time when their synthesis is reduced by liver damage plays an important part in the bleeding diathesis so commonly present in this condition. Treatment with heparin in two cases has demonstrated that the rate of catabolism of fibrinogen can be decreased to normal, and heparin therapy in addition to replacement of coagulation factors by fresh frozen plasma may be the treatment of choice.

2. STUDIES ON DELAYED HYPERSENSITIVITY IN LIVER DISEASE
M. G. M. SMITH, A. W. L. F. EDDLESTON, C. G. MITCHELL and R. S. WILLIAMS.
Liver Unit, King’s College Hospital, London, S.E.5

Investigation of the cellular immune response of patients with liver disease has been delayed for lack of a sensitive in vitro test. The specific inhibition of leucocyte migration in tissue culture by antigen has recently been shown to reflect qualitatively and quantitatively the delayed hypersensitivity response in vivo. We here describe our modification of this technique and its application in patients suffering from liver disease. The leucocytes from seventy such patients have been allowed to migrate in tissue culture with or without the presence of foetal liver homogenate in the medium. Striking differences in migration were found between patients with chronic active hepatitis and primary biliary cirrhosis and patients suffering from a wide variety of other liver disease. However, no relation between the degree of abnormality detected and conventional liver function tests could be found. Comparison of treated with untreated cases of active chronic hepatitis showed no difference between the two groups.

3. DIFFERENCES BETWEEN THE PAPAIN HYDROLYSIS PATTERNS OF THE SERUM γG IMMUNOGLOBULINS OF HEALTHY INDIVIDUALS AND OF RHEUMATOID PATIENTS
J. WATKINS, ARLEEN UNGER and NUALA MAHON
Department of Experimental Pathology, King’s College Hospital Medical School, London, S.E.5
(Introduced by J. Anderson)

Human immunoglobulin γG contains a mixture of four subclasses γG1, 2, 3, 4 which differ antigenically, in biological function, and in their susceptibility to enzymatic degradation with papain. The latter property can be used as a technique for the identification and quantitation of the various subclasses in isolated γG-globulin samples. DEAE-cellulose chromatography was used to separate γG-globulins from the sera of twenty-three healthy controls and from the sera of fourteen patients with rheumatoid arthritis. Genetic typing of whole sera for the antigens Gm (a), (x), (f), (b), (bx), (bf), (b14) was also carried out using agglutination inhibition tests.

Digests were carried out on each γG-globulin preparation with papain and with papain-cysteine at both pH 5–5 and 6–5. Starch gel electrophoresis of these hydrolysates at pH 8–6 reveals nine polypeptide bands which migrate towards the anode of the gel and represent the Fc portion of the digested protein. These bands differ in their relative intensity and apparently indicate preferred scission points on the various 'heavy' polypeptide chains. However, some of the bands appear to be specifically associated with limited aggregation or configurational differences within the molecular populations. Although intensification of these configurational bands could be induced in several of the γG-globulin preparations from the control group by digestion with papain-cysteine at pH 5–5, this was always reversed by digestion at the higher pH. In contrast, the bands persisted in seven of twelve rheumatoid preparations: the patterns of two other samples were indistinct.