Scottish Paediatric Society

The Annual General Meeting was held at the Western General Hospital, Edinburgh, on 19 November 1971, with the President, Dr. Patrick MacArthur, in the Chair. Dr. E. N. Coleman was re-elected Honorary Secretary and Treasurer. The titles of the clinical demonstrations were as follows:

Conradi syndrome. *A. J. Keay. (Edinburgh Northern Group of Hospitals.)*

Chronic airway obstruction. *J. Syme. (Edinburgh Northern Group of Hospitals.)*

Replacement of mitral and tricuspid valves following severe rheumatic pancarditis. *M. B. Matthews, R. J. M. McCormack, A. H. Kitchen, and P. H. Talavlikar* (all introduced). (*Western General Hospital, Edinburgh.*)

Myocardial infarction. *N. A. Boyle* (introduced). (*Edinburgh Northern Group of Hospitals.*)

Hodgkin's disease in preschool children. *R. P. C. Barclay* (introduced). (*Edinburgh Northern Group of Hospitals.*)

Scientific Communications

Raised free thyroxine values in patients with familial elevation of thyroxine-binding globulin. *J. H. Hutchison. (University Department of Child Health, Royal Hospital for Sick Children, Glasgow.)* Raised levels of thyroxine-binding globulin (TBG) have been described in euthyroid persons, apparently transmitted as an X-linked dominant or autosomal dominant trait. This abnormality has usually been discovered because the serum PBI level is out of keeping with the patient's clinical state. 4 subjects from one family and another unrelated patient had been found to have raised TBG levels. A surprising feature in all these subjects who were euthyroid and nongoitrous had been elevation of free thyroxine level. (This is in contrast to the finding in pregnancy or in women on oestrogens.) In addition, all these patients had had low or absent thyroxine-binding prealbumin levels. These findings might indicate a need to review present concepts about the role of the serum free thyroxine, or they might reflect some alteration in the molecular structure and/or binding affinity of TBG.

Coagulation studies in the haemolytic uraemic syndrome. *Anna V. Murphy* (introduced) and *M. L. N. Willoughby. (University Department of Child Health, Royal Hospital for Sick Children, Glasgow.)* In the haemolytic uraemic syndrome a micro-angiopathic

blood picture is always present. This is indicative of intravascular fibrin deposition but to what extent it represents intravascular coagulation is uncertain. Few systematic coagulation studies have been performed and, though elevation of fibrinogen degradation products and depression of serum fibrinogen levels have been shown, consumption of the coagulation factors has not been shown. If intravascular coagulation does play a major part in the haemolytic uraemic syndrome, it is of importance from the point of view of management by anticoagulant and antifibrinolytic therapy. Four cases of the haemolytic uraemic syndrome were presented in which detailed coagulation studies had been performed. In two out of four there was conclusive evidence of consumption of coagulation factors. The sequential changes in the levels of the clotting factors after treatment with heparin were strongly suggestive of correction of an intravascular coagulation process. In the third case, in spite of less complete data, there was a clear demonstration of a rise in platelets and fibrinogen in response to heparin therapy. In the fourth case there had been no evidence of consumption of coagulation factors, but the disease had been milder and treatment with heparin instituted immediately.

Pulmonary blood flow in the newborn. *R. Dinwiddie* (introduced) and *G. Russell. (Royal Aberdeen Hospital for Sick Children.)* Previous workers have described the measurement of effective pulmonary capillary blood flow in newborn infants using nitrous oxide as the indicator gas with a single-breath body plethysmographic technique. Others have used monochlorodifluoromethane ('Freon-22') with a rebreathing technique; the results obtained have correlated well with estimates of cardiac output made by conventional methods. Using 3% nitrous oxide as the indicator gas, the authors studied effective pulmonary capillary blood flow in healthy newborn infants using a rebreathing technique. The results were similar to those obtained by other techniques (mean effective pulmonary blood flow = 162 ml/kg per min SD 35.8; 2.79 l./m² per min SD 0.63). Recirculation proved to be only a theoretical problem and in practice had been readily detected by careful analysis of the nitrous oxide disappearance curve. The simplicity and safety of the technique were emphasized. The apparatus required is likely to be widely available in departments of anaesthesia and respiratory medicine, and in the concentrations used

nitrous oxide is less toxic than freon. Further applications of the method were discussed, particularly the measurement of changes in effective pulmonary blood flow after feeding.

Changes in the excretion of 17-oxosteroids and corticosteroids in the urine during childhood and adolescence. Constance C. Forsyth, D. C. L. Savage, Eileen McCafferty (*introduced*), and Jenny Cameron (*introduced*). (*University Department of Child Health, 11 Dudhope Terrace, Dundee.*) There are few reports of accurate fractionation of adrenal metabolites in the urine of children. The authors studied the individual 17-oxosteroids and the α -ketolic metabolites of cortisol and corticosterone during a 24-hour period in 83 normal children and adolescents by paper chromatography using Bush systems. These normal results

were considered of physiological interest and would provide a basis on which the effect of various disease states on adrenal metabolism might be compared later. There was found to be an increase as the child grows older in the excretion of the total 17-oxosteroids, the 11-deoxy-17-oxosteroids and the 11-oxy-17-oxosteroids. The increase in excretion of the 11-oxy-17-oxosteroids is gradual, but that of the 11-deoxy-17-oxosteroids shows a sharp rise in later childhood probably related to the onset of puberty. There is a preferential degradation of the 17-oxosteroids to 5 α derivatives from puberty onwards. The excretion of the total 17-hydroxycorticosteroids and the metabolites of cortisol increases throughout childhood, and when expressed per 100 kg of body weight shows a close relation. The corticosterone metabolites, when expressed similarly, show a marked fall from infancy until the age of 4 years and thereafter correlate with body weight.