

surgical palliation in tricuspid atresia, pulmonary atresia with intact ventricular septum, and mitral atresia. The place of atrial septostomy in the treatment of total anomalous pulmonary venous connexion was not established.

EDWARD HOWARD introduced by Mr. H. H. NIXON (London). 'Internal Anal Sphincter. Observations on Development and Mechanism of Inhibitory Responses in Premature Infants and Children with Hirschsprung's Disease.' To be published elsewhere.

JOHN LORBER (Sheffield). 'Long-term Prognosis of Subdural Effusions in Infancy.' Of 37 consecutive infants suffering from post-traumatic subdural effusions, 34 survived with an average period of observation of 3 years. There were 28 boys. The technique of management consisted of repeated aspirations until the effusions dried up. This was the only treatment necessary in 19 infants, 11 of whom recovered without sequelae.

In 13 infants the effusions failed to clear by this method, and in these a Holter shunt was put into the subdural space draining it into the right auricle. This was satisfactory in 10 infants, and the shunt could be subsequently removed, and 7 of these are normal. Removal of the membrane was only carried out in 7 infants. The indications were based on Ingraham and Matson's earlier observations, but retrospectively these seemed to be inadequate. No child benefited from such a procedure.

Altogether 19 survivors are physically and mentally normal. 4 are moderately handicapped, but 11 are severely handicapped, both intellectually and by physical sequelae. The physical sequelae consist of blindness, spasticity, and convulsions in almost all children. These gross handicaps were not due to the persistence of the subdural effusions, but to the associated brain drainage sustained at the same time as the injury causing the effusion.

Analysis of our data suggests that there is no longer adequate justification for removal of the membrane in subdural effusions, as the effusion frequently persists in spite of it, and less harrowing measures give better results.

HUGH R. BRODIE introduced by PROFESSOR J. P. M. TIZARD (London). 'Measles Vaccine.' Several strains of live measles virus vaccine have been developed, and these differ somewhat in both the immediate post-vaccinal effect on the patients, and the longer term immunological status which they confer. In the Western world the types generally employed are those developed from the original 'Edmonston' strain. These include Edmonston A and B, the further attenuated or 'Schwarz' strain and the various Beckenham strains which have been subcultured in England. The Soviet Union and The People's Republic in China have independently developed their own strains called Leningrad and Peking, which are widely but not universally employed in Public Health programmes in those countries.

Measles virus has been studied at McGill University since 1960. A double-blind trial of four different strains was carried out to study the differences in their clinical reactivity and antigenic properties over a three-year post-vaccinal period.

A. BENTOVIM introduced by PROFESSOR O. H. WOLFF (London). 'Controlled Observations of Phenylketonuric Children on and during Withdrawal from Low Phenylalanine Diet.' There is much controversy about the age when low phenylalanine diet can be withdrawn from PKU children. Marked changes in behaviour are reported with fluctuations in blood phenylalanine levels in PKU children. Systematic assessments were made of these and other parameters on and during controlled withdrawal of low phenylalanine diets from 8 children.

All 8 children (4 boys, 4 girls) had long periods on diet from 4.7 to 14.4 years (average 9.2 years), having started diet from birth (1 case) to 3 years (average 1.9 years). Diet was discontinued from age 6.6 to 16.8 years (average 10.11 years) for a number of reasons. Final intelligence quotient ranged from 40 to 90 (average 68). 3 attended normal school, 4 ESN school and 1 training centre; 2 were about to start work.

Parents were interviewed to obtain details of development and adjustment during the initial 2-4 week period as in-patients; strict dietary control was maintained with regular phenylalanine blood levels. Daily ratings of mood, aggressiveness, activity level, and general behaviour were reliably made by nurses, play-leaders, teachers, and psychiatrists. Psychological assessment and EEG in all were also performed.

During an experimental period of 2-5 weeks timed at random, additional protein was added to the regular diet so that patients and ward staff were unaware of the change.

On diet the behavioural pattern of the 6 younger children tended towards hyperactivity, poor concentration and attention span, excitability, and anxiousness. The two older girls were immature and shy. All children were overdependent, and family reactions of over-protection, anxiety, rejection, and limitation of family life appeared. Many problems appeared to revolve around the administration of an unpleasant and restrictive diet.

After introduction of protein there were general transient changes in previous behavioural tendencies. All children appeared either more aggressive, anxious, or active, but all reversed to previous levels of behaviour in time. Psychological, and EEG assessments also showed no significant change at the end of the period nor after 3-6 months (5 cases).

Follow-up is limited (3-12 months), and to date the most striking change when normal food was introduced finally has been increased emotional maturity, independence, and self-confidence, which followed in all children, and relaxation of general family tension.

Addition of protein to low phenylalanine diets under controlled conditions appears to be a satisfactory method of observing the changes which can be expected