

disorders such as Marfan's syndrome, Friedreich's ataxia, or muscular dystrophy, the presence of congenital cardiac malformation, weak respiratory muscles, or extreme scoliosis.

The management suggested for any child with spinal curvature is continuing supervision throughout the years of growth by both a children's specialist and an orthopaedic surgeon orientated towards scoliosis, early correction of any congenital heart lesion, very early treatment of respiratory infection by antibiotics, and admission where practicable to an intensive-care unit for any scoliotic child becoming distressed. If these measures are carried out there is a good chance that most cases will survive.

P. T. BRAY. Cardiff. 'Newborn screening for cystic fibrosis'. The results of 80,000 screening tests in newborn infants carried out as part of the work of the European Working Group for Cystic Fibrosis were presented and analysed. Techniques employed included analysis of meconium for abnormal protein content by chemical methods, Albustix, Labstix; and a recently introduced Boehringer 'Test-Strip', as well as immunodiffusion methods. Sweat electrolyte determinations by direct reading ion-specific electrodes were also used, and measurements of the electrical conductivity of the skin, neutron activation analysis of nails and hair, and estimation of the sodium content of parotid saliva and electrolytes in the tears.

The work is related to the case for screening in general and screening for cystic fibrosis in particular, with regard to the possibility of earliest diagnosis leading to prevention or mitigation of the severe bronchopulmonary manifestations of the disease. The results obtained so far also enable one to assess the incidence of the disease in Europe with useful implications for genetics.

The data presented have been assembled by the sub-committee on screening of the European Working Group.

C. J. ROLLES introduced by Charlotte M. Anderson. Birmingham. 'Usefulness of a modified D-xylose absorption test in the preliminary diagnosis of coeliac disease and its later confirmation'. Though jejunal biopsy remains the definitive procedure in coeliac disease (CD), its use should be selective, and there remains a need for an accurate screening test.

Seventy-one children suspected clinically to have CD had a simple estimation of blood xylose one hour after a 5 g oral dose (given in the fasting state). Later, each had a jejunal biopsy. In all 30 subsequently proven coeliac patients, the xylose level was below 20 mg/100 ml: similar levels were found in 3 noncoeliacs. Had the xylose result been used to select the patients for jejunal biopsy, only 33 biopsies would have been performed, and no case of CD would have been missed.

The clinical, biochemical, and histological features of CD in young infants may be difficult to differentiate from a postinfective state. In coeliac infants withdrawal of gluten from the diet led to a prompt return to normal of the xylose test, usually within a week, while gluten reintroduction caused xylose absorption to fall within a few days. Children who had been on a strict gluten-free

diet for over a year showed no immediate response to a gluten challenge, but did so if gluten was continued for 6 to 8 weeks.

D. N. CHALLACOMBE. Birmingham. 'Study of duodenal microflora and bile salts in contaminated small bowel syndrome'. As bacterial overgrowth of the small intestine may occur in infancy in association with chronic diarrhoea and in the absence of anatomical abnormalities of the bowel, the term 'contaminated small bowel syndrome' has been suggested.

This paper reports a qualitative and quantitative study of the aerobic and anaerobic microflora of the duodenum in infants with chronic diarrhoea. The bacteriological results are compared with a group of control infants in hospital with disorders unrelated to the gastrointestinal tract. The duodenal juice has also been examined for the presence of bile salt abnormalities which might be associated with bacterial colonization of the small intestine.

The absence of *Esch. coli* in the duodenum of control infants and their presence in chronic diarrhoeal disorders suggests that this organism may play a role in the aetiology of chronic diarrhoea. As *Esch. coli* serotypes isolated from our infants were not among those commonly considered to be enteropathogenic, revision of the present concept of enteropathogenicity to include an increasing number of *Esch. coli* serotypes is proposed.

Unlike previous reports, deconjugated bile salts were not found in the duodenal juice of infants with secondary monosaccharide intolerance, but were present in one infant with secondary lactose intolerance. Concentrations of taurine conjugated trihydroxy and dihydroxy bile salts in the duodenal juice were significantly lower in patients with chronic diarrhoea than in age-matched controls.

ANN BANISTER introduced by G. W. Hatcher. Brighton. 'Management of hypernatraemia in infancy'. Controversy still exists over the optimal treatment of hypernatraemic infants. Limited information is available from one previous controlled trial.

38 infants with hypernatraemic dehydration (plasma sodium concentration more than 150 mEq/l.) and measured plasma osmolality greater than 350 mOsm/kg water were admitted to a trial of treatment using differing regimens of intravenous rehydration.

The effects of using 0.45% sodium chloride solution with dextrose at two rates of infusion and that of using 0.18% sodium chloride solution with dextrose were compared. The use of the latter solution given at the rate of 100 ml/kg estimated rehydrated weight per 24 hours is recommended, with the early introduction of potassium. This regimen produces a satisfactory rate of fall of osmolality and of effective rehydration, with minimal risk of producing convulsions or over-expansion of the extracellular fluid volume. A plasma expander must be used in the early stages of treatment where circulatory failure is suspected. Sources of continuing excessive fluid losses from the skin and the respiratory tract must be controlled.

Details of mortality and morbidity were given, and the

general management of hypernatraemia in infancy was discussed.

K. A. LACEY introduced by J. M. Parkin. Newcastle. 'Community study of short stature'. This paper describes a total community study to determine the causes of short stature in childhood.

In the Newcastle study of child development, data have been collected prospectively from birth from all children born to Newcastle mothers in 1960, 1961, and 1962. Those children who were born in 1960 and whose heights at the age of 10 years were below the third centile were identified and brought to hospital for examination and investigation.

Of the 98 children seen, an organic explanation was present in 16. 13 of these had a gross and previously well-documented problem (e.g. Down's syndrome, cerebral palsy, congenital heart disease). A boy with renal failure had been diagnosed a few weeks before the study, and a girl with a chromosomal abnormality and one with probable growth hormone deficiency, were diagnosed as a result of the study. The remaining 82 were 'small normal' children and had either a family history of short stature, a delayed bone age, or both. In 50% of these there was a significant social problem. It is concluded that short stature is more commonly associated with adverse home circumstances than with organic disease.

CATHERINE S. PECKHAM (Sheila Sheppard and W. C. Marshall) introduced by J. A. Dudgeon, London, and R. W. Smithells, Leeds. 'Surveillance of congenital rubella defects'.

C. PAPADATOS. Hellenic Paediatric Society. 'Immunoglobulin levels in postmature newborns.' Premature termination of pregnancy together with pregnancies lasting longer than 42 weeks have always been recognized as important factors affecting fetal survival.

The present investigation was carried out with the object of studying immunoglobulin in different stages of postmaturity and comparing them to maternal levels.

Our material consisted of 91 newborns. Of these, 32 were term, unselected babies with a normal pregnancy and delivery, and 59 were consecutive postmature infants born after a gestation by history of 42 or more completed weeks.

Immunoglobulin levels were evaluated on the basis of 3 criteria. (1) Gestational age. With duration of pregnancy as basic factor, 32 newborns were considered term and 59 postmature. (2) Occurrence of histopathological placental abnormalities. In term pregnancies placentas were normal, while in postmature babies definite placental anomalies were noted. On the basis of this criterion, 33 babies were considered as term and 58 as postmature. (3) Clinically recognizable signs of postmaturity. Taking this factor into consideration, 39 newborns were considered as term and the 52 with obvious clinical signs as postmature.

Statistically significant differences were noted in immunoglobulin levels if postmaturity is judged on the

basis of duration of pregnancy, placental histopathology, or clinically obvious signs of postmaturity.

C. DACOU-VOUTETAKIS. Hellenic Paediatric Society. 'Screening for congenital hypothyroidism: a preliminary report.' No screening procedure has thus far been proposed for congenital hypothyroidism (CH), the most frequent metabolic abnormality with preventable mental retardation. The observation that the ossification centres at the knee appear at the 8th month of gestation and are usually absent in the 2- to 3-month-old infant with athyrotic cretinism prompted us to investigate the possibility of diagnosing CH by taking an x-ray of the knee shortly after birth. 1548 newborns, of birthweight >2800 g, were x-rayed. The newborn was covered with a leaf of lead and only a small window was left at one knee. The ossification centres were absent in 10 cases (0.65%) in which serum thyroxine was subsequently determined. None of these cases showed clinical or chemical evidence of hypothyroidism up to the age of 3 months. Our experience thus far may be summarized as follows. The procedure is easy to perform, inexpensive, safe, does not require special training, and the false positive results are low (0.65%). Further work is obviously needed to determine the percentage of false negative results, and also the final IQ of cases so detected.

A. M. ELSEED introduced by E. A. Shinebourne. London. 'Assessment of techniques for blood pressure measurement in infants and children.' In paediatric practice measurement of arterial pressure presents technical problems especially in obese infants, in patients with coarctation, or after arteriotomy. Palpation, auscultation, flush, and recently the Doppler shift technique have been used, but no controlled trial has compared these indirect methods with simultaneous intra-arterial recordings. We present the results of a double-blind controlled trial of 22 children aged 4 months to 11 years, where the indirect techniques were applied in a randomized order both by a doctor and a trained nurse, while a third observer recorded intra-arterial pressure. All patients had indwelling intra-arterial lines for routine postoperative management and pressures were recorded using a fluid-filled catheter-transducer system, amplitude response flat to 12 Hz. Nurses and doctors obtained similar readings. There was no significant difference between direct readings and pressures obtained by the Doppler technique, but the other techniques underestimated systolic pressure: auscultation  $3.6 \pm 7.6$  mmHg (mean systolic difference  $\pm$  SD)  $P < 0.05$ ; palpation  $10.9 \pm 7.9$ ,  $P < 0.001$ ; flush  $40.1 \pm 11.6$ ,  $P < 0.001$ . Flush pressure approximated to mean pressure. The Doppler technique was also assessed in situations where it was impossible to record systolic pressures by other indirect methods and was successfully used for lower limb pressures in 10 of 12 infants with coarctation, in 4 obese infants, and in 4 children after arteriotomy.

B. HARCOURT introduced by R. W. Smithells. Leeds. 'Detection and investigation of homonymous hemianopic