Paediatric Research Society

Abstracts of Papers read at 14th Meeting, Bristol, October 18–19, 1968

Nasal Obstruction in the Newborn

Peter M. Dunn
University of Bristol

The relatively narrow nasal passages of the newborn infant create a high resistance to airflow and are readily occluded. Most newborn infants are 'obligatory' nose-breathers for the first few weeks of life, except when crying. Thus the newborn infant is peculiarly vulnerable to nasal obstruction in the newborn period.

Attention was drawn to an entity termed 'congenital postural deformity of the nose': 6 infants, each having a nose bent acutely to one side, were encountered among approximately 7000 hospital deliveries; 5 of the mothers were primiparae and all 6 infants presented by the vertex. In 3 infants there was a history of deep engagement of the head within the mother's pelvis for 4, 6, and 9 weeks before delivery. In the remaining 3 cases there was a history of premature rupture of the membranes 1, 6, and 8 weeks before birth. None of the infants had malformations outside the skeletal system; 1 had bilateral dislocation of hips, 1 had scoliosis, and 1 had flexion deformities of hips and knees with Talipes. It was suggested that all these deformities were caused by intrauterine pressure. 2 of the 6 infants suffered from severe respiratory distress. One had completely obstructed respiration which could be relieved by opening the mouth or by straightening the nose. The passage of a section of 'endotracheal' tube into one nostril served both to correct the deformity and to maintain the airway in this case.

Aspects of Hypoglycaemia in Kwashiorkor

Brian A. Wharton
University of Bristol

Hypoglycaemia (blood glucose less than 40 mg./100 ml.) with symptoms was a rare complication of kwashiorkor in Uganda, but when it did occur death was inevitable. It was present in one-sixth of the children who died during this time. Hypoglycaemia without symptoms, however, occurred in one-third of the children, but if the blood glucose remained above 20 mg./100 ml. it had no unduly grave significance.

The biochemical origins of the hypoglycaemia, though uncertain, were probably hepatic. There were, however, important clinical associations with hypothermia and severe infection.

Relation Between Insulin Levels and Glucose Disappearance in Normal and Diabetic Patients

Leo Stimmilller
London

If porcine insulin is injected intravenously into normal subjects the insulin disappears exponentially from the plasma at a rate of 21% per minute, to reach an equilibrium level close to the initial fasting level. The glucose levels also fall rapidly and exponentially to reach a nadir at between 20 and 25 minutes, followed by a rise in glucose. The time of the nadir occurs when over 99% of the insulin has disappeared from the plasma. In diabetic subjects the fall in insulin is slower. This results in the glucose levels falling more slowly, the minimum glucose level occurring significantly later. For the same insulin dosage there is the same proportional fall in glucose in the normal and diabetic subject.

The Addis Count—Is it Worth While?

S. R. Meadow
Institute of Child Health, Birmingham

The Addis count is an estimation of the rate of excretion of cells and casts in the urine. Despite modification since its introduction 40 years ago, it remains an unsatisfactory test. Errors arise from the problems of collecting complete timed urine specimens from children, and uncontaminated specimens from girls. Cell disintegration may occur in the urine and during centrifuging, and accurate identification of the formed elements is difficult.

A method was used which dispensed with the centrifuge, and allowed easier cell identification. Urine was passed through a Millipore filter to which the cells and casts stuck. They were fixed, stained, and examined as a permanent dry preparation. This method was compared with the traditional Addis method in normal
children and in children with renal disease. More accurate measurement was possible, particularly if a 4-hour specimen was used rather than an overnight 12-hour specimen. However, there are so many variable errors in any method of estimating cell excretion rates, that the method could well be discarded in paediatric practice.

Cell concentration in a random urine specimen is easily estimated, a fresh mid-stream sample being examined in a counting chamber. This test combined with the Hemastix test for blood gives sufficient information for the management of children with renal disease.

**Auto-immune Disease in the NZB/B1 Mice**

Ron Barnes

*London*

Since the original description of the inbred NZB/B1 strain of mice by Bielschowsky, Helyer, and Howie (1959), a considerable amount of data have accumulated concerning the auto-immune disease that characterizes this mouse. We, as others, have investigated a possible genetic basis for the disease by hybridization. The results of this study suggest that if there is any genetic mechanism it must necessarily be very complex to account for all the findings in the NZB × CFW hybrid. An alternative environmental aetiological agent seems more likely. One method of investigating such an agent is the introduction and examination of the NZB/B1 in different environments. The fact that the NZB/B1 still develop their characteristic disease in both the 'specific pathogen free' and 'germ-free' states does not necessarily exclude an infective aetiology. In both situations transplacental passage during the initial introduction of the animals is still possible, and perhaps confirmed by the electron microscopical demonstration of virus-like particles in 'germ-free' NZB/B1. To investigate the transplacental passage of the proposed infective agent, ovum transplantation was successfully performed, and preliminary data were presented of nurturing fertilized normal mouse ova to term in the uterus of the auto-immune NZB/B1.

**References**


**Genetically Determined Variant in Human β-Lipoprotein**

Chris Wood

*Bristol*

The gene frequency of the Lp(a) variant of human serum β-lipoprotein in a British population sample has been found to be 0.415. Phenotypes positive for Lp(a) may be divided by a radial immunodiffusion method into two groups, the ratio of which fits well with the expected ratio of homozygotes and heterozygotes according to the Hardy-Weinberg equilibrium. The positive phenotype frequency is lower in the newborn than in adults, but there is no evidence of a maternal influence on the infant’s phenotype other than her contribution to the infant’s genotype.

**Factors Influencing Exposure of Children to Lead**

D. Barltrop and N. J. P. Killala

*London*

[Published in full in this issue]

**Experience with Use of THAM in the Newborn**

Cliff Roberton

*London*

In the presence of pulmonary disease THAM has a theoretical superiority over sodium bicarbonate in that it not only combines directly with CO₂ in the plasma and promotes its excretion in the urine, but generates bicarbonate ion in the process, without adding sodium ions to the circulation. Adults with a hypercapnic acidosis are, however, known to suffer respiratory depression or even apnoea after its administration.

The use of THAM in newborn babies suffering from respiratory distress has been reviewed over a three-year period. 74 babies who were breathing spontaneously received a dose of the drug, and 15 of these had an episode of marked respiratory depression or apnoea in the two minutes after the injection; 2 of the 15 had cardiac arrests. No apnoea has been seen after sodium bicarbonate administration.

THAM solutions of two strengths (3–6% and 7%) were used. The 7% solution was, in general, used in the sickest, most acidic babies, and it was noticed that there was a significantly higher incidence of intraventricular haemorrhage in those babies who received 7% THAM.

It has been suggested that early administration of THAM may effect a permanent improvement in the pulmonary hypoperfusion in the respiratory distress syndrome, but similar improvement has been noted in babies receiving sodium bicarbonate.

The theoretical advantages of using THAM must be weighed against the danger of causing apnoea.

**Acid-base Studies in Cyanotic Congenital Heart Disease in Infancy**

Steve Jordan

*Bristol*

Serial studies of pH and acid-base state in 52 patients were reported. Metabolic acidosis is common in
The Addis count--is it worthwhile?

S. R. Meadow

Arch Dis Child 1969 44: 543-544
doi: 10.1136/adc.44.236.543-c

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