

**Effect of nebulized salbutamol in infants with wheezy bronchitis.** M. Radford introduced by A. Moosa. Department of Child Health, Hammersmith Hospital, London.

Airway resistance and thoracic gas volume were measured by means of a whole body plethysmograph in 10 infants suffering from wheezy bronchitis, which was a clinical diagnosis based on a combination of tachypnoea, respiratory distress, and generalized expiratory rhonchi. 1 of the infants had a family history of asthma, 2 had suffered from infantile eczema, and 3 had suffered from previous wheezing attacks. Compared with a group of normal subjects of similar age and weight, these infants had a high airway resistance and a high thoracic gas volume. Salbutamol was administered to the infants using a Wright's nebuliser and about 20 minutes later the measurement of airway resistance and thoracic gas volume were repeated and found to be unchanged. It is concluded that salbutamol is not an effective form of therapy in wheezy bronchitis in infancy.

**Antenatal tests of pulmonary maturity and pulmonary function after birth.** R. Dinwiddie, P. M. Fisher, H. Thom, G. Russell, and H. W. Sutherland. Departments of Child Health and Obstetrics, Aberdeen Maternity Hospital, Aberdeen.

Recently several tests have become available for use on amniotic fluid to detect the presence of adequate levels of pulmonary surfactants before delivery. The simplest of these is the 'shake test' (Clements *et al.*, 1972). However, only a proportion of those infants born to mothers with 'negative' zone tests develop respiratory distress and it was therefore of interest to study pulmonary function in a group of term infants with false 'negative' tests, showing no clinical evidence of respiratory difficulty, to detect lesser degrees of abnormality.

In a preliminary study 'shake tests' were performed on liquor samples obtained within 36 hours of delivery from 79 patients at gestations of 37 weeks or more. 18 of the infants from this group were selected for detailed study, 7 had had results in the positive zone, 4 in the intermediate zone, and 7 in the negative zone. The pulmonary function tests were performed on all infants between the ages of 4 and 26 hours.

The results for respiratory rate, lung compliance, effective lung volume (FRC), and work of breathing were all within normal limits in all 18 infants. The mean effective pulmonary blood flow in the infants with positive zone tests was 179 (SE  $\pm$  15) ml/kg per min, for those with intermediate tests 151 (SE  $\pm$  7) ml/kg per min, and for those with negative tests 124 (SE  $\pm$  11) ml/kg per min. These results indicate a significant reduction in pulmonary blood flow for those with negative tests ( $P < 0.01$ ) and that this group may have subclinical disturbances of pulmonary function.

#### REFERENCE

- Clements, J. A., Platzher, A. C. G., Tierney, D. F., Hobel, C. J., Creasy, R. K., Margolis, A. J., Thibeault, D. W., Tooley, W. H., and Oh, W. (1972). Assessment of the risk of the respiratory-distress syndrome by a rapid test for surfactant in amniotic fluid. *New England Journal of Medicine*, **286**, 1077.

**Fruusemide therapy in infants with respiratory distress syndrome.** M. O. Savage, J. D. Baum, and N. R. C. Robertson. Department of Paediatrics, John Radcliffe Hospital, Oxford.

We have used frusemide in infants with respiratory distress syndrome (RDS) presumed to be due to hyaline membrane disease, who developed pulmonary crepitations in the first 24 hours after birth.

The present study was undertaken to obtain objective evidence on the effects of diuretic therapy on pulmonary function (as shown by changes in  $\text{PaO}_2$ ,  $\text{PaCO}_2$ , and  $\text{pH}$ ). It was noticed that coincident with diuretic therapy, many infants developed hypocalcaemia during the first 72 hours of life. Hence, additional data were collected on calcium and sodium balance in infants with RDS.

Preliminary assessment of data on 10 infants, 5 of whom had frusemide and 5 controls, suggests that it does not produce significant improvement in blood gas tensions. It appears, however, from calcium and sodium balance studies over the period of diuretic therapy that frusemide is associated with significant calciuretic and natriuretic effects. Marked fluid and electrolyte depletion may result from the use of frusemide in premature infants.

**Experience with betamethasone 17-valerate by aerosol in childhood asthma.** M. Friedman and Janna Frears. Whittington Hospital, London.

A 4-month double-blind cross-over trial of betamethasone 17-valerate (B17V) administered by pressurized aerosol was carried out by alternating two placebo periods with two treated periods at monthly intervals, in 20 children with asthma. Subjects ranged in age from 4 years 6 months to 14 years 11 months (mean 8 years 7 months), and had symptoms sufficient to interfere with their daily lives in spite of maintenance medication with bronchodilators, sedatives, and disodium cromoglycate.

Results showed that the average of twice-daily peak expiratory flow readings was increased in every child during actively treated months, compared with placebo months ( $P < 0.001$ ). Every child had fewer symptoms while using B17V, and the average reduction for the group as a whole was 74%. Very much less additional medication for asthma was required during months of active treatment. The observed clinical response to treatment was dramatic in over half the children.

Our total experience with this therapy now exceeds 50 children, with an average use of 12 months. 9 patients have been successfully converted from long-term steroids or ACTH to the B17V aerosol. A reducing dose schedule ranging from 800  $\mu\text{g}$ –200  $\mu\text{g}$  daily has been devised, and many children remain symptom-free at the lowest dose.

Single-blind substitution of a placebo aerosol in well children maintained on B17V for several months has led to an exacerbation of symptoms, and recurrence of exercise asthma, as shown by standardized running tests.

No side-effects have been noted, apart from oral thrush in 2 children. No adverse effect on growth or pituitary-adrenal function has so far been shown.