132 FACTORS PREDISPOSING TO ACUTE BRONCHIOLITIS IN INFANCY

K.H.Carlsen, S.Larsen, I.Ørstavik, Ø.Bjerve, J.Leegaard
(Introduced by S.Halvorsen) Depts. Paed.& Microbiol. Ullevål Hospital, MEDSTAT Res.Centre, Dept.Publ.Health, Oslo City, Oslo, Norway.

Acute bronchiolitis, a severe illness of infancy and mostly caused by RS virus, has been associated with the later development of bronchial asthma. The present study reports factors predisposing to bronchiolitis by constitution and environment.

51 infants hospitalized due to acute bronchiolitis, of which 31 had RS virus infection, were seen regularily until two years of age and compared with 24 control children from two health care centres. At two years of age allergological examination by skin prick test, PRIST and RAST as well as quantitation of immunoglobulins were done. Categorized data analysis were used to compare frequencies. Non parametric methods with correction for ties were used to test differences in continously distributed variables.

The index children were of lower birth weigths than their controls (P<<0.01). Five index children were born prematurely and two small for date, and six suffered from neonatal respiratory complications. More index children were born during the months April through September (P<0.05). More boys than girls were hospitalized due to bronchiolitis (1.5/1). The index children had more lower respiratory infections previous to the bronchiolitis (P=0.02), and the age at their first respiratory infection was lower (P<0.01).The index children had more siblings (P=0.03), and their siblings more often stayed in day care centres and schools (P=0.01). The index children were breast-fed for a shorter time period (P<0.01) and lived in more crowded homes (P<0.01). Atopy was not more common among the index children than the controls, neither among their parents, nor among their siblings.

At two years of age the index children had suffered from many more respiratory infections than the controls (P<0.01), and even more so for obstructive episodes. At two years of age 60% of the index children had had three or more obstructive episodes. To identify factors predisposing to bronchiolitis may be important in two contexts, one the acute illness of infancy; second the later development of obstructive lung disease.

133 CONTINUING RESPIRATORY PROBLEMS THREE AND A HALF YEARS AFTER ACUTE VIRAL BRONCHIOLITIS IN INFANCY

MSC Webb, RL Henry, AD Milner, GM Stokes, AS Swarbrick,
Dept. of Child Health, Queen's Medical Centre, Nottingham, England.

As part of a prospective study, we have reviewed the clinical progress of 81 children, three and a half years after admission to hospital with acute viral bronchiolitis. 56 (69%) reported episodes of lower respiratory symptoms continuing over the preceding year, 25 (31%) had symptoms lasting for longer than 2 weeks on 2 or more occasions, 14 (17%) had symptoms for more than 100 days and 6 (7%) required readmission to hospital with acute respiratory illness. At 2 years, these percentages were 82%, 36%, 33% and 13% respectively. 46 (57%) children were said to be improving or to have become asymptomatic, but 8 (10%) were deteriorating. We compared the symptomatic children with a control group of asthmatics of the same age, and found a significantly higher rate of skin test positivity to common allergens in the latter. Though symptoms were precipitated by a broad range of factors in both groups, upper respiratory tract infection was often the sole factor in the bronchiolitis group. These findings reveal a persisting high incidence of respiratory problems in the index children and suggest that, unlike in asthmatic children, their allergic status is not an important factor.

134 RESPIRATORY SYMPTOMS, LUNG FUNCTION AND BRONCHIAL REACTIVITY AFTER PERTUSSIS IN INFANCY

I.D.A. Johnston, S. Patel, H.R. Anderson, H.P. Lambert, D. Ingram and J.O. Warner,
St. George's Hospital and Brompton Hospital, London, England

In a field survey, children with a history of pertussis, were more likely to have had other chest illnesses, and to have current chest symptoms, but did not differ from controls in spirometry. We have done more detailed laboratory lung function tests, allergy prick skin tests and histamine bronchial challenges on 45 of the 74 cases who were admitted to hospital with pertussis in infancy, and 42 case control children all enlisted from the original survey. Cases (mean age 9.9 yrs) had had more respiratory symptoms in the past year than controls (mean age 10.0 yrs), e.g. 'day or night cough' 27% v. 12%, p = 0.08; 'ever wheezy' 22% v. 5%, p = 0.02. Cases were more likely than controls to have positive allergy skin tests but there was no difference in the histamine PC20 (concentration of histamine to produce a 20% fall in FEV1) between the two groups. Likewise there were no differences in any index of lung function derived as a percent of predicted for height from spirometry, flow-volume curves and single breath nitrogen washout analysis. We conclude that a history of pertussis in infancy is associated with increased current respiratory symptoms but does not cause any detectable deficit in lung function or increased bronchial reactivity in later childhood.

135 A FOLLOW-UP STUDY OF CHILDREN WITH BRONCHO-PULMONARY DYSPLASIA (BPD)

K. Juntunen, A-L. Järvenpää, M. Hallman, A. Backman, Allergy Hospital, and Children's Hospital, University of Helsinki, Helsinki, Finland.

Artificial ventilation of preterm babies is increasingly used in the neonatal intensive care units. Recurrent bronchitis, obstructive bronchitis, pneumonia and respiratory insufficiency are well known sequelae in some of these patients. We are following 18 children with BPD. 10 of them are suffering from recurrent respiratory infections and obstructive bronchitis. These children are having mild or moderate respiratory insufficiency. In pulmonary function studies both restrictive and obstructive respiratory function disturbances are noticed, and decreased diffusion capacity up to 50 % has been noticed in one of the patients. The chest X-ray shows signs of chronic pulmonary disease. Our finding indicates that some of the patients with bronchopulmonary dysplasia are suffering from a combined parenchymal and bronchial pulmonary function disturbance. During the follow-up study pulmonary hypertension, circulatory anomalies, broncho-oesophagial functional or anatomical disturbances and bronchial hyperactivity are excluded. Our observations indicate that BPD in small premature children correlates to clinical lung disease later in childhood.

136 LONG TERM CONSEQUENCES OF INHALING A FOREIGN BODY

H Davies, I Gordon, D Heaf, P Helms, D Matthew V Novelli
Hospital for Sick Children, Great Ormond Street, LONDON, WC1N 3JH.

Although the acute effects of inhaling a foreign body (FB) have been studied in detail, little is known about the long term consequences for the growing lung. Over the period January 1980 to December 1984 26 children were discharged from this hospital with a bronchoscopically proven diagnosis of foreign body inhalation.
Twenty one children, 14 boys and 7 girls, mean age 2.16 years (range 1 to 5.75) were recalled for clinical assessment, chest radiography and Kr81, ventilation/Tc99m perfusion lung scan (V/Q scan). All except one had inhaled a peanut; in 8 cases the FB lodged in the right lung, in 11 cases it lodged in the left, in one it lodged in the carina, and in one case a FB lodged in both lungs. In 11 cases removal was delayed beyond 7 days. Nine children needed more than one bronchoscopy (max. no. 4).
Mean follow up was 2.05 years (0.38 to 4.8). Fourteen were asymptomatic, 13 had a normal chest X-ray but only 5 had normal V/Q scan. Foreign bodies in the left lung carried a significantly worse prognosis as did the appearance of collapse/consolidation on the initial chest X-ray. Only one of eleven children had a normal lung scan when removal had been delayed beyond seven days.
We conclude that pulmonary sequealae after FB inhalation are not uncommon. Persisting abnormality of regional ventilation is more likely if it lodges in the left lung, if there is collapse/consolidation on the initial chest X-ray or if removal is delayed beyond seven days.

137 NEONATAL ATELECTASIS AND/OR EMPHYSEMA : VALUE OF FLEXIBLE BRONCHOSCOPY.

J.de BLIC, P.SCHEINMANN, J.PAUPE.
Service d'Allergologie et de Pneumologie Infantiles, Hôpital des Enfants Malades, Paris, France.

Occurence of atelectasis and/or emphysema is common in neonatal intensive care units and sets both diagnostic and therapeutic problems. During the last three years we performed flexible bronchoscopy (FB) in 50 neonates and premature infants (mean weight 2050 gr, range 950-4050 gr). Fourty four were intubated before examination. FB was performed under EKG and TcPO2 monitoring. We used a three way stopcock connected to both mechanical ventilation and aspiration source. This procedure allowed alternative adequate ventilation or suctioning. Ten newborns had acute postextubation or post-surgical atelectasis, affecting particularly right upper lobe. No important anatomic lesion was discovered, yet suctioning was effective in 7 cases (70 %). Fourty had persistent atelectasis and/or emphysema and were long term intubated. Endoscopic abnomalities were frequent : 2 mucopurulent plugs, 4 important tracheobronchial dyskinesia, 13 severe local inflammatory injuries narrowing one or more lobar opening, 5 lower tracheal stenosis (1 congenital and 4 acquired) and 6 bronchial stenosis (4 troncus intermedius and 2 left main stem bronchus). Only 10 FB were normal. Suctioning was effective in only 11 cases (22 %). These results confirm interest of FB in neonates and premature infants to remove an acute atelectasis and to explore a persistent atelectasis and/or emphysema. FB allows thus to emphasize the role of inflammatory injuries due to iterative suctioning and the risk of tracheal or bronchial stenosis (27 %).