

itioner may have to overcome his own disbelief and reluctance to become involved and is then faced with trying to establish the diagnosis in the face of parents who may be uncooperative or untruthful. Other factors adding to the difficulty in reaching a diagnosis may include a concern about the confidentiality of the doctor-patient relationship on the one hand and some anxiety about potential professional and even public castigation should a case be missed.

There may also be guidelines or statutory requirements which outline the steps necessary for the diagnosis and subsequent registration of child abuse cases. In New South Wales, the 1977 amendment to the Child Welfare Act requires doctors to notify the Department of Youth and Community Services whenever they have reasonable grounds to suspect child abuse. Any member of the public may also make a notification. On receipt of a notification social workers from the department investigate the circumstances of the injury, seeking expert medical advice at times, before deciding whether to register the case. Apart from the mandatory notification for doctors, the United Kingdom guidelines for the registration of child abuse are similar in that they emphasise the requirement for medical and social investigation before the diagnosis may be made.

As well as the standard texts describing the typical injuries of abused children³ and the characteristics of their parents,⁴ some work has been done in finding ways of differentiating accidental from non-accidental injury. Helfer *et al*⁵ studied 246 children aged under 5 years who fell out of bed and found that none had sustained serious injury, the implication being that severe injuries which are said to be from falling out of bed should be regarded with suspicion. Robertson *et al*,⁶ compared the pattern of

bruising in 400 normal children with that found in 84 abused children and showed that the pattern of bruising was different in the two groups, with injuries to the head, face, and lumbar region being much more common in the abused group.

Although this information is useful, the ultimate diagnosis depends on a combination of history, physical findings, evaluation of the parents, and the practitioner's own experience and acumen. Undoubtedly, many instances of child abuse still go unrecognised but these three cases emphasise the important role and responsibility of the paediatrician not only in being aware of the clinical features of child abuse, but also in conducting a careful medical, in addition to a social, investigation of each case.

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Adrenaline and nebulized salbutamol in acute asthma

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SUMMARY The effects of injected adrenaline and nebulized salbutamol on acute asthma were compared in 46 children. The results showed that salbutamol had a significantly better bronchodilatory effect than adrenaline. Nebulized salbutamol is recommended as a primary method of treatment of asthmatic attacks in childhood.

Although adrenaline is still frequently used for the treatment of acute asthma in children, the short duration of its bronchodilatory effect and the pain of injection are definite disadvantages. Its use is further restricted by the increased heart rate caused by beta₁ stimulation. Selective beta₂ agonists have a good bronchodilatory effect with minimal side effects;¹ the bronchodilatory effect is even greater if the drug is inhaled into the lungs.^{2,3} In this study we

have compared the effects of injected adrenaline and nebulized salbutamol on acute asthma in children. Salbutamol has recently been shown in a similar study to be as effective as adrenaline.⁴

Patients and methods

Forty six children attending clinic because of acute asthma were entered into the study. The children were randomised into two groups—20 children (6 girls and 14 boys) of age, mean (SD) 11.2 (1.8) years were treated with adrenaline (10 µg/kg im) and 26 (11 girls and 15 boys) age mean (SD) 11.4 (2.1) years were treated with salbutamol (0.15 mg/kg). The adrenaline dose was reduced to 6 µg/kg and the salbutamol dose to 0.075 mg/kg if the child had received sympathomimetic drugs in the 8 hour period before coming to the clinic. Salbutamol, diluted with physiologic saline to 2 ml, was administered by face mask and compressor nebulizer (Spira, Module 2; Hämeenlinna Työkeskus, Finland) using an airflow rate of 7 litres/minute over 5 to 10 minutes. Before the treatment and 10 and 30 minutes afterwards the following measurements were made; peak expiratory flow, respiratory rate, blood pressure, and heart rate. To obtain reliable peak expiratory flow values only children aged 7 years or more were included in the study. The clinical condition of 14 patients was considered sufficiently serious to require admission to hospital after the initial treatment.

Results

The absolute peak expiratory flow value was converted to a percentage of the predicted normal value using a nomogram.⁵ Before treatment there was no significant difference in the mean values between the groups. Peak expiratory flow rates expressed as a percentage of normal predicted values of treatment and 10 and 30 minutes afterwards are shown in the Figure; in both groups the improvement was highly significant at both 10 and 30 minutes after treatment. The average improvement expressed as a percentage change in peak

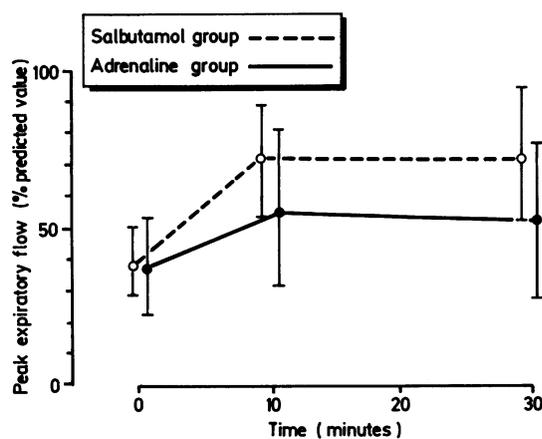


Figure The effect of treatment of asthmatic attack with injected adrenaline or inhaled salbutamol on peak expiratory flow rate.

expiratory flow was greater for children treated with salbutamol than for those given adrenaline. The difference was highly significant at 10 minutes ($P < 0.001$) and significant ($P < 0.002$) at 30 minutes. Nine patients (45%) in the adrenaline group and five (19%) in the salbutamol group were admitted to hospital and among these the mean peak expiratory flow values were less than 50% of predicted. In those children allowed to return home the mean values were over 50% in both treatment groups (Table). There were no significant changes in respiratory rate, blood pressure, and pulse rate in either group. Muscle tremor occurred in five children in the adrenaline group and in two children in the salbutamol group.

Discussion

The results show that both injected adrenaline and inhaled salbutamol have a good bronchodilatory effect on acute asthma in children aged 7 years or older. Salbutamol was significantly more effective than adrenaline both at 10 and 30 minutes after treatment. The superiority of salbutamol over adre-

Table Peak expiratory flow expressed as a percentage of the predicted normal value in asthmatic children admitted to hospital and in those allowed to return home

	Treated with adrenaline		Treated with salbutamol	
	Home	Hospital	Home	Hospital
No	11	9	21	5
At treatment (mean (SD))	45 (15.1)	28 (13.1)	38.1 (12.6)	37.2 (5.1)
10 minutes after treatment (mean (SD))	66.5 (14.6)	39.9 (26.2)	72.4 (18.5)	61.8 (13.0)
30 minutes after treatment (mean (SD))	67.2 (16.2)	33.5 (17.0)	76.2 (20.4)	46.7 (24.8)

naline may also be seen in the number of patients subsequently needing hospital treatment. The salbutamol doses used in this study seemed to be safe—there were no cardiovascular side effects and muscular tremor occurred in only two out of 26 children. Inhaled salbutamol seems to be the treatment of choice in childhood asthmatic attacks.

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Neonatal herpes simplex pneumonia

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SUMMARY A neonate with herpes simplex pneumonia is described. Herpes simplex infection should be considered in the differential diagnosis of pneumonia in newborn infants, even in the absence of clinically apparent herpes in the mother.

Accompanying the recent interest in maternal genital herpes infection, attention has also been focussed on herpes simplex virus infection in the newborn.¹ At the Grady Memorial Hospital, Atlanta, USA the number of identified cases of neonatal herpes simplex virus infection, estimated at 1 in 7500 births in 1970, has doubled in the past five years to 1 in 3750.² In Britain, however, the illness seems to be much less common and only 98 cases with 24 deaths were reported to the Public Health Service Laboratories in the last 10 years before 1981. (Young S, Communicable Disease Surveillance Centre (PHLS) personal communication 1983). This is probably an underestimate of the true incidence. We describe a neonate with an atypical presentation of disseminated herpes simplex virus infection. This infant presented with pneumonia. Since treatment is now available for herpes simplex infection³ it is important that it should be considered in the differential diagnosis of infants with pneumonia, especially those who fail to respond to antibiotics.

Case report

A 17 year old primigravida had two days of

suprapubic pain, dysuria, and nausea at 33 weeks' gestation. A midstream urine culture was negative. At 38 weeks she developed a fever of 38°C and urinary frequency; two days later spontaneous onset of labour occurred. She was febrile (38°C) on admission and after 6½ hours labour a boy weighing 3.2 kg was born by normal vaginal delivery. The membranes had been ruptured for two and a half hours. The infant's temperature was 38°C at birth but settled over a few hours. A full blood count taken shortly after delivery was unremarkable (white blood cells 9.3×10⁹/l, neutrophils 5.9×10⁹/l, bands 0.3×10⁹/l, ratio of bands:total neutrophil count 0.05) and blood cultures were negative.

On the fourth day the infant's temperature rose again to 38°C, he was mildly jaundiced, but had no other abnormal signs. A blood count showed white blood cells 5.9×10⁹/l, with neutrophils only 1.7×10⁹/l, and a band count of 1.4×10⁹/l giving a noticeably increased ratio of 0.5 (normal ratio less than 0.2). The platelet count was normal. Chest radiograph showed diffuse changes which were most pronounced in the left lung and the right upper zone (Figure, left). After further cultures intravenous penicillin (60 mg/kg, 6 hourly) and gentamicin (3 mg/kg, 8 hourly) were begun.

Apart from the fever the infant remained asymptomatic until the sixth day when he became tachypnoeic. Chest radiograph now showed dense consolidation over the whole left lung and right upper zone (Figure, right). On the seventh day he required supplemental oxygen (F_iO₂ 0.38) but was not acidotic. His neutrophil count remained low and the band count ratio was grossly raised. Although additional