gestational age. There is a modest excess of low birthweight and preterm infants in the lower social classes, and a small excess of patients in this series from the higher social classes, but this social class effect is insufficient to account for the findings of this study.

The findings of this study are not consistent with the hypothesis that atopic disease is simply the result of sensitisation in genetically predisposed infants who are immunologically immature. It appears that preterm infants are, if anything, less likely to develop severe atopic eczema than those born at or after term. It is known that preterm infants, if compared with term infants, have a decreased production of specific antibodies to cows' milk proteins during the first six months of life. Furthermore, the immunological effects of antigens in the neonatal period may be related not only to the state of maturity of the lymphoid system, but also to that of the neonatal digestive system. It has been shown that the absorption of antigenically intact protein in infants less than 33 weeks' gestation may be up to 100 fold greater than at term, and it is possible that the absorption of large quantities of antigenic material leads to tolerance rather than sensitisation.

There are other possible explanations for these observations, such as protection from preterm delivery in atopic subjects, a lack of atopic disease among twins, or some difference in the method of feeding preterm infants. These possibilities need to be examined in a prospective study to discover the incidence of atopic disease in preterm infants. Protection from severe atopic eczema in preterm infants, if confirmed, could provide important clues about the pathogenesis of atopic disease.

We thank Dr J Roland for kindly obtaining the control data, and Drs DG Sims, J Couriel, J Golding, HP Roper, and Professor RDH Boyd for their help.

References

Accepted 21 December 1987

Mycotic intracranial abscesses during induction treatment for acute lymphoblastic leukaemia

N K FOREMAN,* M G MOTT,* T M PARKYN,† AND G MOSS*

*Paediatric Oncology Unit, Bristol Royal Hospital for Sick Children and †Royal Devon and Exeter Hospital (Wonford), Exeter

SUMMARY
A boy with newly diagnosed acute lymphoblastic leukaemia developed mycotic cerebral abscesses despite treatment with amphotericin. He survived this episode on combination antifungal treatment.

Case report
A 13 year old boy presented with a week's history of bruising and a white cell count of 19.4×10⁹/l of which 39% were blasts. He was febrile at presentation, with no obvious site of infection, and was started on intravenous cefuroxime and tobramycin with oral nystatin (100 000 units four times a day). An indwelling Hickman line was inserted and UKALL X induction, which included prednisolone 40 mg/m² for 28 days, was commenced.

On the fifth day of treatment he developed glycosuria, with a blood glucose of 25 mmol/l, and required insulin. Antibiotics were discontinued from day five, as bacterial cultures were negative, but were restarted on day 11 as he again became febrile and was neutropenic. The only positive culture was Aspergillus species on a throat swab; chest radio-
Mycotic intracranial abscesses during induction treatment for acute lymphoblastic leukaemia

Figure Computed tomogram with intravenous contrast showing the two occipito-parietal lesions.
Discussion

Fungal infection in neutropenic patients is common. In one postmortem study of young cancer patients, 23 out of 88 fatalities showed evidence of systemic fungal infection.1

Our patient was at particular risk of such an infection. The risk factors included prolonged neutropenia, prolonged steroid treatment, diabetes, and an indwelling Hickman catheter.2 In addition he was on prolonged broad spectrum antibiotics, the most important factor in the aetiology of serious and fatal candidiasis. The stopping of antibiotics in those who remain febrile and neutropenic, however, carries a very high risk of serious bacterial infections.3

Empirical antifungal treatment is advocated for neutropenic patients with an antibiotic resistant fever.1 4 5 Amphotericin is the only antifungal with proved efficacy in neutropenic patients and its use as a single agent in this situation is therefore recommended.4 5 Indeed in one study nearly complete elimination of fungal infections was seen if amphotericin was started in those who remained febrile and neutropenic after a week of antibiotic treatment.1 Starting antifungals only late in antibiotic resistant neutropenic fever is known to result in an increased mortality from fungal infection, but the optimal time to start remains uncertain.1 5

In our patient amphotericin was started after six days of fever resistant to antibiotics. Despite this, symptomatic presentation of mycotic cerebral abscesses occurred 12 days later and viable Candida was isolated from these three weeks after the start of amphotericin treatment. Doubt about the efficacy of amphotericin alone as empirical treatment has been expressed previously.6

The use of flucytosine combined with amphotericin has been suggested, not least because of its synergistic activity against Candida.6 This combination, however, has been considered to have a number of disadvantages—namely, the need to lower the dose of amphotericin, the problems of determining flucytosine concentrations, and myelotoxicity.5 While using this combination therapeutically in our patient none of these problems were seen. Amphotericin dosage was reasonable (1 mg/kg on alternate days), flucytosine concentrations were readily determined by our laboratories, and myelotoxicity was not an important problem. The addition of itraconazole seemed justified by the extremely high mortality previously documented for this condition.

References


Correspondence and requests for reprints to Dr MG Mott, Bristol Royal Hospital for Sick Children, St Michael’s Hill, Bristol BS2 8BJ.

Accepted 29 December 1987

Hypothermia and sudden infant death syndrome

K P DUNNE AND T G MATTHEWS

Department of Paediatrics, Rotunda Hospital, Dublin, Ireland

SUMMARY We recently reported an association between recurrent episodes of severe apnoea requiring vigorous resuscitation for which no cause could be found and episodic hypothermia. Two similar cases are now reported that give further evidence of a link between hypothermia and acute life threatening episodes of apnoea.

Our first report concerned a baby boy who at the time of writing this paper was 4 years old.1 He has had no further apnoeic attacks, but does have recurrent attacks of hypothermia (rectal temperature 32–35°C). The only new development is that he now has occasional episodes of sweating and hypoglycaemia that have been documented while he was under observation in hospital. He is being monitored at home with a skin temperature probe.