

HOUSE DUST MITE AVOIDANCE

SIR,—Dr Rudd (Oct. 16, p. 879) raises several points about our Sept. 25 paper. We reported results on nine patients of whom seven became well enough for repeated bronchial provocation with histamine (on at least six occasions each) and the data on all seven were analysed statistically (table 1). Although there is a correlation between overall severity of asthma and reactivity to histamine, there are no reports that changes in clinical state will be followed by changes in bronchial reactivity, except in the studies that involved either allergen avoidance or increased treatment levels. We were well aware that many of the patients were allergic to more than one allergen, and the study was designed to avoid most other important allergens (e.g., grass pollen and animal danders). However, we do think that dust mite allergens are very important and we can measure them. The levels of dust mite antigen P₁ in our hospital rooms were 240 (100–457) ng/g compared with 13 600 (2552–60 298) ng/g in the patients' own rooms (geometric mean and SD range, $p < 0.001$). The object of our study was to understand the ways in which allergens might contribute to asthma.^{1,2} We did not give direct evidence to show that mites were the cause of these patients' asthma because there is no simple way of establishing that. Bronchial provocation with nebulised allergen extract bears very little relation to the conditions of natural exposure to allergens³ and in the most careful studies correlates very closely with the results of skin tests.⁴ What we observed was that some patients who were allergic to mite allergens improved when they lived in conditions where the exposure to mite allergens was reduced by a factor of about 50. One of the more likely explanations of our results is that reducing the number of mite faecal particles entering the lungs can lead to reductions in bronchial reactivity.

Professor Murray and Dr Ferguson's letter (Nov. 27, p. 1212), while commenting on aspects of our study, appears to support its conclusion. The obvious control situation would have necessitated the setting up of a dusty room in hospital. This we were unable to undertake. Our statement that routine bedroom cleaning is inadequate agrees with their interpretation. We believe that allergen avoidance in the home requires both modification of the bedroom and reduction of the dust mite allergen level in the remainder of the house. Their results were obtained by modification of the bedroom alone. However, in the absence of dust mite allergen levels in particular areas of their patients' homes, we do not know if exposure, in the climatic conditions prevailing in British Columbia, is similar to that in the U.K.

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CYTOGENETICS OF B-CELL LINEAGE ACUTE LYMPHOCYTIC LEUKAEMIAS OF CHILDHOOD

SIR,—The Pediatric Oncology Group has cytogenetically classified 74 patients with pre-B-cell acute lymphocytic leukaemia (pre-B ALL) and 9 patients with B-cell ALL. The distribution of chromosomal abnormalities in pre-B ALL more closely resembled that reported for childhood ALL in general than that regarded as characteristic of B-ALL.

Chromosome analyses by direct non-culture methods and immunological marker studies were done on bone marrow cells from ALL patients before chemotherapy, as part of the ALL classification studies in progress in the Pediatric Oncology Group and at St Jude Children's Research Hospital. Giemsa banding was attempted, but cytogenetic classification included cases where banding was unsuccessful, if there was clear evidence of mosaicism for other than normal diploid cells. B-cell lineage was determined by

the demonstration of cytoplasmic μ heavy chains (pre-B cell) or surface immunoglobulin (B-cell), in the absence of E-rosette or T-antigen positivity.

Chromosomal analysis was attempted in 129 patients with pre-B ALL but too few cells in mitosis made 55 cases technically unsatisfactory for evaluation. Of 74 evaluable cases, 45 had normal diploid chromosome sets; 14 were hyperdiploid; 11 were pseudodiploid; and 4 were hypodiploid.

Giemsa banding was successful in 61 of the 74 pre-B ALL cases and in 49 of these preparations were good enough to demonstrate the presence or absence of the 14q+ abnormality. None of these 49 patients had the 14q+ translocation while all 9 patients with B-ALL, with satisfactory banding, had the 14q+ abnormality and 8 of these were translocations from chromosome 8.

B-ALL is frequently associated with the 8;14 chromosome translocation, and our study confirms this. However, Kaneko et al.¹ and Imamura et al.² have reported chromosomal analyses of single cases of pre-B ALL which revealed a 14q+ chromosome, suggesting that the 14q+ abnormality might be a marker for pre-B, as well as B, lymphoblasts. However, we could not find the 14q+ chromosome in any of the 49 pre-B ALL patients evaluated. The 14q+ abnormality in pre-B ALL must be a rare, rather than a characteristic, finding.

The Pediatric Oncology Group has reported disease-free survival in 83 pre-B ALL patients as being significantly inferior to that of identically treated patients with null cell (non-T, non-B, non-pre-B) ALL.^{3,4} The pre-B group and the null group did not differ in respect of age, white-blood-cell count at diagnosis, prevalence of the common ALL antigen (CALLA) on the leukaemic cells, or French American British classification.

Both Kaneko and Imamura reported short survivals in each of their pre-B ALL patients.^{1,2} They noted that the pre-B phenotype, in association with a 14q+ abnormality, was associated with a poor prognosis, analogous to the poor outcome usually seen in B-ALL. The inferior prognosis of our group of children with pre-B ALL cannot be attributed to the 14q+ chromosome, since we did not find this abnormality.

In children with ALL karyotypic abnormalities predict prognosis independently of traditional risk factors.⁵⁻⁸ Patients with hyperdiploid chromosome patterns did better and those with pseudodiploid or hypodiploid patterns did worse than those with normal chromosome analyses. In our 74 pre-B ALL patients whose lymphoblast chromosome patterns were evaluable, no increase was noted in pseudodiploidy or hypodiploidy—indeed the distribution resembles that reported by others for childhood ALL without regard to immunological grouping. Thus the poorer prognosis of pre-B ALL patients when compared with null-ALL patients seems not to be explicable by cytogenetic phenotype distribution.

A combination of immunological cytogenetic techniques holds great promise for the prognostic classification in ALL. Further

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