Acute leukaemia in siblings

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Summary

Unequivocal lymphoblastic leukaemia in a 4-year-old boy was followed 3 years later by equally unequivocal myeloblastic leukaemia in his 20-year-old brother. The boy achieved complete remission and remains well more than 6 years later whereas his brother failed to respond to treatment and died after 5 months. The parents and 3 remaining siblings showed no recognized features suggesting a constitutional predisposition to leukaemia despite thorough investigation.

Introduction

Acute leukaemia occurring in 2 or more siblings has been reported several times where the same type of acute leukaemia has tended to occur at a similar age, and where a familial predisposition to this event has been suggested by the discovery of consanguinity or chromosome or immunological abnormalities in the patients' first degree relatives (Anderson, 1951; Snyder *et al.*, 1970; Kaur *et al.*, 1972; Kurita, Kamer and Ota, 1974). In contrast to this, a family has now been encountered where clearly dissimilar types of acute leukaemia occurred in 2 brothers at completely different ages, and where the remaining family members showed nothing indicative of a predisposition to these diseases.

Case reports

1. N.S., presented aged 4 years with a 3-week history of leg pains. He had generalized lymphadenopathy, a Hb concentration of 6.6 g/dl, a platelet count of $127 \times 10^9/l$ and a leucocyte count of $6.1 \times 10^9/l$ with $0.24 \times 10^9/l$ blast cells. The bone marrow contained 90% lymphoid blast cells which did not stain with Sudan Black B, and a diagnosis of acute lymphoblastic leukaemia (ALL) was made. He quickly achieved remission with the then current MRC regime, (UKALL II) (Working Party on Leukaemia in Childhood, 1978), continued chemotherapy for a further 2 years, and remains well and disease-free more than 6 years after diagnosis.

2. C.S., a brother of N.S., presented 3 years later at the age of 20 years with a 4-week history of leg and chest pains. He had no lymphadenopathy or hepatosplenomegaly, but was found to be anaemic and thrombocytopenic with a Hb of 10.8 g/dl, and a platelet count of $55.0 \times 10^9/l$. The total WCC was

normal at $6.0 \times 10^9/l$ but concealed $1.3 \times 10^9/l$ blast cells. His bone marrow contained 44% blast cells, some of which displayed Auer rods, and most of which stained with Sudan Black B. A diagnosis of acute myeloid leukaemia was made, and the patient was treated with intermittent courses of cytarabine, thioguanine and rubidomycin. He failed to remit and died 5 months after diagnosis.

Discussion

These boys' remaining sister and 2 brothers were extensively investigated, together with their parents, with particular attention to the possibilities of ancestral consanguinity, environmental peculiarities, immunoglobulin disorders or chromosome abnormalities. The sister, aged 25 years, was found to have a polyclonal increase in IgG, but she suffers from typical ulcerative colitis. The immunological abnormalities noticed in 'leukaemia families' have been low IgA levels in the siblings of those with the disease and raised IgM levels in the mothers (Snyder *et al.*, 1970). All other investigations on the present family produced normal results and nothing at all was discovered to suggest a constitutional predisposition to leukaemia. One may, of course, exist nevertheless, but it does seem equally possible that these unfortunate people are the victims of coincidence.

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