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Effect of *Plasmodium vivax* Infection on Leucocyte Count in Chronic Leukaemia Patients

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To the Editor,

The various haematological manifestations such as anaemia, thrombocytopenia, leucopenia and coagulation abnormalities are well known in acute malarial infections in otherwise healthy people [1]. However, there is no documented observation regarding the effect of malarial infection on the blood elements in patients with leukaemia. We have observed significant reduction in total leucocyte count (TLC) in 4 cases of chronic myeloid leukaemia (CML) and in 2 cases of chronic lymphatic leukaemia (CLL) (table I) who developed *Plasmodium vivax* malarial infection during the course of their illness. None of these patients were receiving any drug, including antileukaemic drugs, just prior to the onset of malarial infection. Moreover, in all the 6 cases, after treatment with chloroquine and primaquine, TLC came up to the values comparable to their immediate pre-infection values (available in 4 cases); in case No. 3 TLC rather increased in spite of simultaneous busulphan therapy. The fact that the leucocyte count is lowered both in CML and CLL suggests that

Table I. The effect of malarial infection on the blood elements in leukaemic patients

Cases 1–4 CML; 5–6 CLL. Treatment: antimalarial alone, except case 3: antimalarial + busulphan. TLC and platelets: $\times 10^6/l$. Number of days.

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the malarial parasite affects both myeloid and lymphoid cell lines. The mechanism by which it does so is not fully clear, although it has been shown that in normal people suffering from acute *P. vivax* infection, neutropenia was a result of decreased circulatory pools of granulocytes with markedly increased marginal pools of granulocytes in presence of normal or increased total blood granulocytes pools [2]. If the same mechanism operates in leukaemic patients and for both myeloid and lymphoid cell lines remains to be proven. The other theoretical possibilities for leucopenia in patients of leukaemia suffering from acute malaria are: (a) a malarial parasite or some product of it may directly inhibit the precursor cells in the bone marrow, or (b) formation of antibodies cross-reacting with leucocytes which may lyse the cells intra- or extravascularly.

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