T Lymphocyte Study in Sickle Cell Anaemia by Means of Rosetting Techniques

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The status of cell-mediated immunity in sickle cell anaemia (SCA) is currently not completely clear, and reported studies are few. T lymphocyte populations have been found decreased [2, 3] or normal [4, 8]. We would like to add our recent studies performed by means of rosetting techniques [4, 7, 11] in 25 SCA patients (10 males, 15 females, mean age 20 years, range 16–29 years). All patients were in a steady state. Rosettes that were formed immediately after centrifuga-tion of a mixture of sheep red blood cells and lymphocytes, and which evidence lymphocytes possessing a high affinity for sheep red blood cells, have been termed ‘active’ E rosettes; the rosettes that required incubation at 4°C for optimal formation were designated as total E rosettes [11]. Statistical comparisons between groups were done using the Student t test. The white blood cell (WBC) total count, percentage, and absolute number of lymphocytes and rosetting T lymphocytes are shown in table I. The WBC were significantly elevated in SCA patients compared to normal controls. Although no difference was found between both groups in mean lymphocyte percentage, a significant increase was observed in SCA patients when these cells were expressed as absolute number. Total E rosette and active E rosette percentages were significantly decreased in the SCA group. Active E rosette percentage has also been observed decreased in a group of children with SCA [5]. Autologous and al-logeneic rosette percentages were not different from control values. When expressed as absolute numbers, all types of rosette-forming cells were significantly increased in the SCA group.

Both active and autologous rosettes detect T lymphocyte subpopulations which are not yet completely identified in their functions. Both clinical and experimental studies suggest that the active rosette-forming cells represent a subpopulation of peripheral T lym-

Table I. Immunological data in SCA (mean $\pm$ SD)

phocytes which are more actively involved in cellular immunity than the total E rosette forming cells, so that active rosettes are a better reflection of T cell competence than the total percentage of T cells [6, 10]. Recent studies have shown correlation between active E rosettes and autologous rosettes and antigens defined on peripheral lymphocytes by OKT8 and OKT4 monoclonal antibodies, respectively [1,9].

We suggest that T lymphocyte subpopulations must be further investigated in SCA patients and that the use of monoclonal antibodies will surely help to

more accurately define in SCA the T cell subpopulations giving additional evidence on the problems of immunocompetence noted in these patients.

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