

Evaluation of T Colony-Stimulating Factor in Patients with Lipoid Nephrosis

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Dear Sir,

Several lines of evidence indicate that cell-mediated immunity (CMI) is impaired in patients with lipoid nephrosis (LN) [8]. We have recently shown that LN patients with the nephrotic syndrome (NS) have a systemic disorder of CMI, characterized by decreased T cell numbers, depressed delayed hypersensitivity reactions and impaired local graft-versus-host reactions [1, 4–6]. Our previous studies [2,3] also illustrated an increase in concanavalin A-induced suppressor cell activity in the majority of LN patients in relapse.

In the present study a more reliable method – T lymphocyte colony assay – was used to study CMI in 14 patients with LN and 13 normal individuals. Colony-forming assays were performed by a one-step culture method with some modifications [9]. The number of T colony-forming cells (TCFC) in the mononuclear cell preparation of LN patients and the NS was found to be significantly lower than in normal subjects, while LN in remission had mean values of the TCFC capacity not significantly different in respect to normal controls. We also examined the activity of T colony-stimulating factor (TCSF) in media conditioned by 0.25% phytohemagglutinin (PHA-P) stimulated peripheral blood lymphocytes (PHA-LCM). The TCSF activity by stimulated peripheral blood lymphocytes (PBL) from LN patients was lower than in normal subjects. To explain our observations, we presumed that the T colony dysfunction seen in LN patients with NS might in part be due to the decreased TCSF activity.

To further demonstrate the role of interleukin 2 (IL 2) in T colony formation, we used a biological assay to remove specifically IL 2 from PHA-LCM. PHA-LCM was absorbed for 1 h \times 3 at 37 °C using 10^8 IL 2-dependent cultured T cells/ml according to the method of Rey et al. [7]. Prior to absorption, cells were incubated for 24 h without IL 2 in order to remove bound IL 2. Absorbed

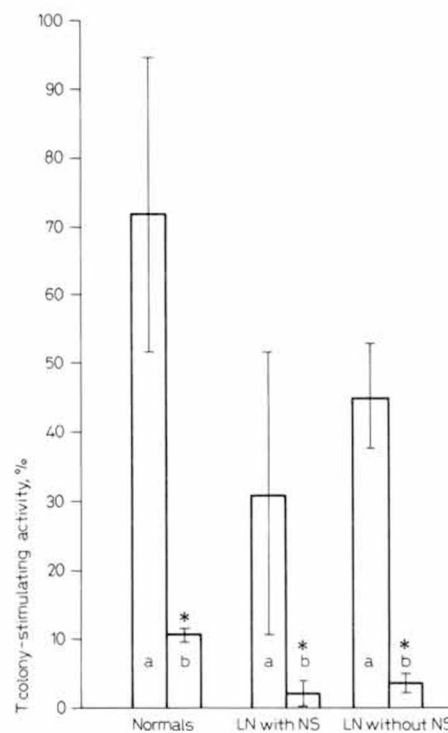


Fig. 1. Effects of absorption of PHA-LCM on IL 2-dependent cultured T cells in normal individuals and in patients with LN. T colony formation was assayed by culturing 1×10^6 PBL in agar medium containing 1% PHA-P and PHA-LCM (20%). Absorbed (b) and unabsorbed (a) PHA-LCM from normal individuals and LN patients were examined for TCSF. The results were expressed as the percentage enhancement of colony growth in normal allogeneic lymphocytes (mean values \pm SD). * $p < 0.01$ (significantly different from unabsorbed controls). p values by Student's t test.

and unabsorbed PHA-LCM (20% v/v in RPMI-1640 plus serum) were examined for TCSF. As can be seen in figure 1, TCSF activity for TCFC in both normal individuals and LN patients is removed from PHA-LCM with IL 2 receptor-bearing cultured T cells. These in vitro findings suggest that IL 2 is the essential factor contained in PHA-LCM from normal individuals and LN patients.

While the immunological defects in LN may be complex, heterogeneous and dynamic, the use of T lymphocyte colony assay allows us a new way of looking at LN. Further studies are warranted to pinpoint the cellular defect in LN.

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