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Blood Lymphocyte Blastogenesis in Patients with Haematological and Endocrine Disorders: A Preliminary *in vitro* Study

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INTRODUCTION

Lymphocyte activation may be assessed *in vitro* by various methods, one of which employs morphological criteria for the assessment of the phenomenon of lymphocyte blastogenesis, the morphological equivalent to activation. The purpose of this study was to use this method in order to evaluate lymphocyte activation in peripheral blood from healthy human donors and from patients with haematological and endocrine disorders.

METHODS

Heparinized peripheral blood from 12 healthy donors, 6 patients with hyperthyroidism, 5 with hypothyroidism and 1 with chronic lymphocytic leukemia (CLL) was cultured at 37 ºC for 48 h, in 95%air/5%CO_2, in the presence of 4.8 μg/ml phytohemagglutinin, with or without the addition of 2.5-30 μg/ml of cyclosporin A (CsA). Following lymphocyte isolation, fixated lymphocytes were observed under the light microscope after staining with 4% Giemsa (1). The percentage of unactivated lymphocytes, activated lymphoblasts and aberrant cells was determined for each sample. Statistical analyses were performed by one-sample test and Anova followed by Scheffe or Dunnett test.

RESULTS

Between patients with CLL and healthy donors, lymphocyte blastogenesis was comparable. In healthy blood samples, CsA resulted in dose-dependent immunosuppression, while in the CLL samples it provoked a decrease in lymphoblasts along with a significant increase in aberrant cells. In the blood samples from patients with hyper- and hypothyroidism, the dose-response of CsA showed no significant difference from that of healthy donors.

CONCLUSIONS

Lymphocyte blastogenesis was comparable between healthy donors and patients. CsA showed a dose-dependent immunosuppressive effect in all cases, while any cytotoxic action was directed towards abnormal lymphocytes (2). Determination of lymphocyte blastogenesis may be useful for the investigation of the immunological profile and of the immunoregulatory properties of active substances, both in physiological and pathological blood samples.

REFERENCES

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