Correspondence

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Thymostimulin in Aplastic Anaemia

R.	Rosario	Giustolisi
P.	Patrizia	Guglielmo
E.	Emma	Cacciola
R.R.	Rossella R.	Cacciola

Catania

Rosario Giustolisi, MD, Patrizia Guglielmo, MD, Emma Cacciola, MD, Rossella R. Cacciola, MD, Chair of Haematology, Università di Catania, Ospedale Ferrarotto, Via S. Citelli 6, I-95124 Catania (Italy)

It has been demonstrated that T lymphocytes from peripheral blood and bone marrow of some patients with severe aplastic anaemia (SAA) were able to suppress hematopoiesis in vitro [1] and that among the T cells those bearing receptors for IgG (T_H-cells) could be responsible for such a suppressive effect [2]. Furthermore, pure red cell aplasia (PRCA) might be correlated to an imbalance between T lymphocyte subpopulations with suppressor T cell predominance [3]. On the basis of these findings, immunotherapeutic approaches employing nonselective immuno-suppressive drugs and/or antilymphocyte globulin were attempted in the management of AA. These treatments are usually accompanied by severe side effects. We here report that in some cases of AA an immunoregulatory T-dependent abnormality can be

Table I. Haematological and immunological parameters before and after Thymostimulin treatment

Patients 1-3 = Pure red cell anaemia; patients 4-6 = severe aplastic anaemia.

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present and may be corrected by immunomodulating drugs.

We studied the T lymphocyte subpopulations identified on the basis of receptors for either IgG (T_H) or IgM (T_μ), according to Moretta et al. [4], in peripheral blood of 6 patients admitted to our institute during 1981 for idiopathic aplastic disorders (3 PRCA and 3 SAA). They all had received conventional treatment with steroids, vitamin B6, androgens and blood transfusions, but with poor and transient effect (one of them, DG.G., had also received immunosuppressive drugs). The above immunological studies performed 30 days after drugs were stopped showed in all patients a significant imbalance between the T lymphocyte subsets, mainly due to a decrease of the absolute T_μ-cell count. On the basis of these findings, we initiated an immunomodulating treatment with a bovine thymic factor (Thy-mostimulin – a group of polypeptides with a molecular weight of 1,000-12,000, Tp-1 Serono, Roma), which, in our previous investigations, showed both in vivo [5] and in vitro [6] the capability of restoring the

unbalanced T_{μ}/T_{γ} ratio in subjects with severe T_{μ} quantitative defect. Thymostimulin was started at 1 mg/kg daily for the first week and then given three times/week for the subsequent 30 days. After treatment, all patients exhibited a significant correction of the T_{μ}/T_{γ} imbalance by selective increase of the T_{μ} -cell count (table I). This was followed in 2 PRCA patients (DG.G. and DL.G.) by clinical and haematological improvement (raise in Hb and Hct levels and reticulocyte count) which lasts unmaintained and transfusion free for 3 and 4 months, respectively. A similar behaviour was also observed in a patient affected by SAA (L.G.), in whom a raise in Hb level and reticulocyte, neutrophil and platelet counts occurred after Thymostimulin treatment. No clinical and haematological changes were observed in the remaining patients. The rapid immunological correction obtained in all our patients led us to believe that it had to be truly correlated to Thymostimulin administration. Why Thymostimulin treatment was followed by the haematological improvement only in 3 of the 6 patients, although they all exhibited the same correction of the T cell pattern, remains to be explained. The well-known pathophysiological heterogeneity of the aplastic syndromes could account for this discrepancy. Our results, therefore, should be of interest in suggesting the possible use of the immunomodulating drugs in those forms of idiopathic aplastic syndromes which are unresponsive to conventional therapy and which exhibit an unbalanced T_{μ}/T_{γ} ratio.

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