Gradual Correction of Leukocyte Alkaline Phosphatase in Chronic Myelocytic Leukemia after Interferon- α

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Since the first publication of Talpaz et al. [1], recombinant interferon- α (IFN- α) has been successfully used in the treatment of Philadelphia chromosome (Ph)-positive chronic myelocytic leukemia (CML). About two thirds of patients have shown long-lasting hematologic control, and Ph-negative hematopoiesis can be established in 24% of the patients [2].

To our knowledge there has been no report addressing leukocyte alkaline phosphatase (LAP) levels in CML patients treated with IFN- α . In our experience, 7 patients with CML were treated with IFN- α at a dose of 5×10^6 units/day s.c, 5 times/week for 7-12 months. LAP score determination was made by a histochemical method using naphthol AS-MX phosphate and Fast Violet B (Sigma, USA) [3]. In 6 of 7 patients responding to IFN- α , LAP values were found to have increased gradually to the normal range within 3-6 months (table 1). Normalization of LAP activity preceded Ph-negativity in case 5. In contrast, neither hematologic control nor the correction of decreased LAP activity has been accomplished in 1 patient (case 2).

However, contrary to our results, there are some in vitro data showing that interferon(s) may suppress the expression of LAP by G-CSF in both normals and patients with CML [4]. Since expanded neutrophil mass and a relative reduction in monocytes with decreased secretion of G-CSF has been considered responsible for the low LAP levels in CML, the fall in leukocyte count resulting from IFN- α treatment may be the explanation to the increase in LAP level [5]. In fact, the observation that normal levels of LAP may return as patients enter remission by chemotherapy is not new [6]. On the other hand, recently, Dowding et al. [7-8] have proposed an explanation to IFN effect in CML. It seems that IFN may alter the deficient attachment of CML progenitor cells to the bone marrow stroma. This may favor Ph-negative hematopoiesis leading to the gradual correction of low LAP levels.

This investigation concerns whether an increased LAP level is a preceding finding to Ph1 negativity. Although our preliminary data suggest that further studies including a larger group of patients are definitely needed to document the value of LAP score monitoring in the treatment of CML with IFN- α . Another question of whether persistently low LAP scores show primary resistance to IFN also remains to be determined.

Table 1. Patients' characteristics at the beginning and after IFN treatment

NP = Nonpalpable; Ph1 = Philadelphia chromosome.

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