

## **HIGH-DOSE INTRAVENOUS METHYLPREDNISOLONE IN THE TREATMENT OF ACUTE NONLYMPHOBLASTIC LEUKEMIA WITH OCULAR INVOLVEMENT\***

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*Key words: high-dose methylprednisolone. acute nonlymphoblastic leukemia, granulocytic sarcoma*

Orbital involvement with leukemic cells (granulocytic sarcoma) causing proptosis and exophthalmos is rarely seen in developed countries, however, in Turkey it is one of the frequent presenting features which indicates poor prognosis<sup>1-3</sup>.

Recently, we had very encouraging findings with high-dose intravenous methylprednisolone (HIVMP) in children with acute nonlymphoblastic leukemia (ANLL) which resulted in early and very significant clinical and hematological improvement with marked reduction of peripheral and marrow blasts without using other antileukemic drugs<sup>4,5</sup>. Therefore, HIVMP was administered to a child with ANLL with ocular involvement and we report the results.

### **Case Report**

A three-year-old girl with severe proptosis and exophthalmos of her right eye was admitted to the Hacettepe University Children's Hospital. The diagnosis of ANLL (M<sub>4</sub>) was made according to the histologic subtypes based on the FAB criteria<sup>6</sup> by bone marrow aspiration obtained on the same day. Blast cells in the marrow were positive for peroxidase and Sudan black B and negative for periodic acid-Schiff PAS stain. Her initial hemoglobin was 9.20 g/dl, white blood cell count  $10.6 \times 10^9/L$ , with 62% blasts; there were no platelets on the peripheral smear. She had no abnormal physical findings other than very prominent exophthalmos. Chromosome analysis was normal.

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The patient was given HIVMP daily 30 mg/kg for eight days and 20 mg/kg for seven days; each dose given within two to five minutes. During this treatment, cytosine arabinoside (Ara-C) was added (3 mg/kg daily) three days a week intravenously. Besides a very significant regression of orbital mass, progressive improvement of peripheral blood findings were markedly impressive at the end of the second week of treatment. Bone marrow aspiration obtained at this time revealed 2 percent blasts and an adequate number of megakaryocytes.

## Discussion

We have very recently observed a significant antileukemic effect of HIVMP on myeloid leukemic cells in children with ANLL<sup>4,5</sup>. Previously Ara-C was used in combination with other antileukemic drugs in the treatment of ANLL patients with ocular involvement without obtaining significant hematologic improvement in two weeks<sup>1,2</sup>. However, in this case HIVMP treatment in combination with Ara-C resulted in significant regression of the orbital mass with hematologic improvement in an exceptionally short period. Therefore, we are of the opinion that HIVMP had a very important role in achieving these favorable results in this case.

The mechanism of HIVMP effect in the treatment of patients with ANLL is not known but results obtained in experimental studies in mouse myeloid leukemic cells support our results<sup>7-10</sup>. Therefore, we assume that our findings in ANLL children by the administration of HIVMP may very well be related to the increase of granulocyte-macrophage colonies which has been suggested by Lotem and Sachs<sup>7-10</sup> as a new approach in the treatment of patients with ANLL. Although there are still more questions to be answered regarding this new approach, we would like to encourage others to use HIVMP in the treatment of ANLL.

## Summary

A three-year-old girl with acute nonlymphoblastic leukemia (M<sub>4</sub>) and right ocular involvement with proptosis and exophthalmos is presented and the effectiveness of the therapy consisting of high-dose intravenous methylprednisolone (daily 30 mg/kg for eight days and 20 mg/kg for seven days) combined with cytosine arabinoside is discussed.

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