

## **Importance of Soluble CD40 and CD40 Ligand Level for Patients with Childhood Acute Lymphoblastic Leukaemia**

Türkan Patirođlu, Ekrem Ünal, Musa Karakükçü, Fatma Türkan Mutlu,  
Mehmet Akif Özdemir

Erciyes University, Medical Faculty, Paediatric Haematology Division, Kayseri

**Introduction:** Acute lymphoblastic leukaemia (ALL) is the most common type of cancer in childhood. CD40 is a member of the tumour necrosis factor (TNF) family. CD 40-CD40 ligand relationship has been primarily proved by T lymphocyte-dependent B lymphocyte immune response. It is determined to be related with adverse prognosis in patients with adult acute myeloblastic leukaemia and multiple myeloma. The objective of this study is to research into the importance of soluble CD40 and CD40 ligand level for patients with childhood acute lymphoblastic leukaemia.

**Patients and Method:** 45 ALL cases which were followed during the period of February 2008 – February 2010 at Paediatric Haematology Division of Erciyes University have been evaluated within this study. The relationship between CD40 and CD40 ligand levels of patients determined during diagnosis and remission (during maintenance treatment), and information on treatment risk group, sex, age, leukocyte count at the time of diagnosis, lactate dehydrogenase (LDH), erythrocyte sedimentation rate (ESR), immunophenotype, central nervous system (CNS) involvement, response to the treatment, relapse and survival of the patients have been analyzed.

**Result:** Age range of 45 patients (20 female, 25 male) who were the subject of the study was between 22 months and 18 years, and the average was  $7,6 \pm 4,6$ . Leukocyte count was between 870-741660/mm<sup>3</sup> (median, 16450/mm<sup>3</sup>) at the time of diagnosis. 36 of the patients had B lymphoblastic and 9 of them had T lymphoblastic leukaemia. According to risk classification in TR-ALL BFM treatment protocol, 14 of the patients were in standard risk group, 20 of them were in medium risk group and 11 were in high risk group. While 6 patients relapsed in the course of the study, 6 patients died of a progressive disease and 2 patients of the infection. While CD 40 and CD 40 ligand levels were determined to be  $22,41 \pm 9,91$  ng/ml,  $0,22 \pm 0,38$  ng/ml at the time of diagnosis, respectively, they were  $15,17 \pm 5,49$  ng/ml,  $1,04 \pm 0,51$  ng/ml in remission (the difference between was significant,  $p=0,008$ ,  $p=0,000$ ). Although the relationship between CD 40 level and leukocyte count LDH and ESR, CNS involvement was determined, a significant relationship between response to the treatment, relapse and survival was not concluded.

**Discussion:** Although soluble CD40 and CD40 ligand levels in childhood ALL were determined to be higher at the time of diagnosis compared to the remission period, it has been concluded that it doesn't have any direct impacts on prognosis.

**Key Words:** Acute lymphoblastic leukaemia, child, CD 40, CD 40 ligand, prognosis