



VI. ULUSLARARASI KATILIMLI DENEYSEL HEMATOLOJİ KONGRESİ 19-21 NİSAN 2019 – GAZİANTEP NOVOTEL

Can long non-coding RNA HOTAIR be a novel biomarker in the diagnosis of CML?

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GİRİŞ – AMAÇ

Homeobox Transcript Antisense Intergenic RNA (HOTAIR) is a long non-coding RNA that is reported to be more expressed in various cancers in humans compared to non-cancerous adjacent tissues in recent studies. However, little is known about the role of HOTAIR in leukemia. CML is a myeloproliferative disorder of hematopoietic stem cells carrying the Philadelphia (Ph) chromosome and oncogenic BCR-ABL1 fusion gene. CML is a malignancy that occurs in one or two cases in approximately 100000 people in adults every year and it is mostly seen between 25-60 years of age. Studies have been conducted to investigate the profile of miRNA and lncRNA sequences that have been validated at different stages of CML to better understand the disease and to improve therapeutic intervention in CML patients. In this study, we aimed to investigate the relationship of HOTAIR and HOXD genes in CML.

METOD

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Newly diagnosed CML patient group, aged 18 to 75 years, who came to Erciyes University Medical Faculty Gevher Nesibe Hospital Medical Genetics Laboratory, consisted of 30 patients, 15 of whom were male and 15 were female, with a mean age of 48.03 ± 19.90. 20 healthy individuals as a control group consisted of 13 of



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whom were male and 7 were female, with a mean age of $34,95 \pm 9,59$. Our study was performed using 4 mL peripheral blood samples taken in EDTA tubes. Expression levels of HOXD8, HOXD9 and HOXD11 genes from HOXD genes and HOTAIR were determined from peripheral blood samples of 30 CML patients and 20 healthy controls as control group by Real Time PCR method. In our study, the statistical difference between the gene expression levels measured in patient and control samples was compared by using T test method and p values were calculated. The data were analyzed with SPSS 15.0 (SPSS 15.0). $p < 0.05$ was considered significant.

BULGULAR

In the CML patient group; there was a statistically significant increase in the expression level of the HOTAIR gene compared to the control group ($p < 0.05$). The expression levels of HOXD9 and HOXD11 genes in CML patient groups were found to be statistically significantly lower than control group ($p < 0.05$).

SONUC

As a result; It can be said that the HOTAIR gene is oncogenic by suppressing the expression of HOXD9 and HOXD11 genes in CML patients. According to our findings, the increase in HOTAIR expression may be play an important role in the development of leukemia.

In addition, our study, clinical route and drug use of CML patients were followed. Expression level of HOXD11 and HOXD8 genes were found to be significantly lower in patients with drug exchange ($p > 0.05$). No significant difference was observed when the expression levels of the other genes measured at the time of diagnosis of CML patients were compared between patients who responded to treatment and those who did not and were resistant to imatinib.

HOTAIR may be a potential biomarker in the diagnosis of CML and its prognostic effects in CML patients should continue to be investigated.

This study provides a new insight into the relationship of HOTAIR with HOXD genes in leukemia; however, the molecular mechanisms of HOTAIR and HOXD genes should continue to be elucidated in the development and prognostic significance of CML.

ANAHTAR KELİMELELER

LncRNA, HOTAIR, HOXD, CML, Biomarker