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PROGNOSTIC VALUE OF BCL6 GENE REARRANGEMENT IN PATIENTS WITH DIFFUSE LARGE B-CELL LYMPHOMA

Oncology

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ABSTRACT

Diffuse large B-cell lymphoma (DLBCL) is the most common subtype of non-Hodgkin's lymphoma. Differences in treatment outcomes likely relates to genetic heterogeneity within DLBCL. BCL6 gene rearrangement is the most common cytogenetic abnormality in DLBCL, but the effect of the BCL6 rearrangement on outcome has remained uncertain. In our study we analyzed BCL6 gene translocation t (3;14) (q27;q32) in 22 patients with DLBCL as a prognostic marker. There was statistically significant worse overall survival in the group of patients without translocation. Analyzed translocation could be potentially useful prognostic marker for identifying the poor prognosis for DLBCL patients.

KEYWORDS

diffuse large B-cell lymphoma, prognosis, BCL6 gene rearrangement

Introduction

Diffuse large B-cell lymphoma (DLBCL) is the most common subtype of non-Hodgkin's lymphoma, accounting for 30–40% of newly-diagnosed cases (Armitage et al., 1998). Differences in treatment outcomes likely relates to genetic heterogeneity within DLBCL. BCL6 gene rearrangement at chromosome band 3q27 is the most common cytogenetic abnormality in DLBCL, accounting for about 35% of all cases (Offit et al., 1994).

The effect of the BCL6 rearrangement on outcome in DLBCL has remained uncertain despite previous clinical analyses. Based on some study results rearrangement of the BCL6 gene was associated with good prognosis (Iqbal et al., 2007). According to other authors there is no influence on the disease's course in patient with DLBCL or negative influence (Shustik et al., 2010).

Design and Methods

The prospective analysis of BCL6 gene rearrangement in 22 DLBCL patients was done. Included patients were treated at the National Cancer Institute since 2016 and received first-line of CHOP-like chemotherapy.

FISH was performed according to a standard protocol for paraffin-embedded material using commercially available Vysis LSI BCL6 Break-Apart Dual Color (Cytocell aquarius, Germany).
Statistical analysis

Group comparisons were performed by means of $\chi 2$ and Student's t tests. For time to event analyses we used R-statistics, applying Kaplan-Meier survival estimates with the end-point of overall survival, defined as the time from initial diagnosis to death from any cause. P values less than 0.05 were considered statistically significant.

Results

BCL6 gene translocation t (3;14) (q27;q32) was identified in 31.8% of patients. There was no difference between patients with and without translocation t(3;14) (q27;q32) in such characteristics as age > 60, advanced stages, abnormal high LDH, more than 2 extranodal involvements, ECOG >2, high risk patients according to International Prognostic Index.

For identifying the prognostic value of BCL6 rearrangement 1 year overall survival (OS) was analyzed. There was statistically significant better OS in the group of patients without translocation t(3;14) (q27;q32) (74.7 % versus21.4 %, p=0.001) Survival curves are demonstrated in Figure 1.

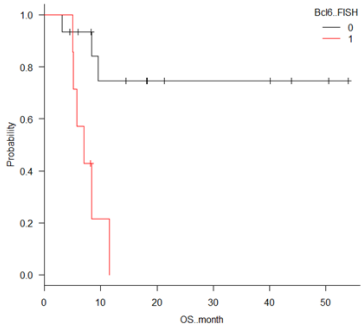

Figure 1. One year OS in the group of patients without translocation t(3;14) (q27;q32) (black color) and with the translocation (red color).

Conclusion

Our data suggest an association between BCL6 rearrangement and inferior outcome in patients with DLBCL. Analyzed translocation could be potentially useful prognostic marker for identifying the prognosis for DLBCL patients.

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