Bax, Bcl-2, and Bax/Bcl-2 as prognostic markers in adults Acute myeloid Leukemia Patients

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Abstract

Background:

Acute myeloid leukemia (AML) is a type of leukemia that is characterized by infiltration of the bone marrow, blood, and other tissues by abnormally differentiated cells of the hematopoietic system.

It is also considered a heterogeneous disease with respect to clinical presentations and outcomes.

AML is characterized by accumulation of several acquired genetic abnormalities and epigenetic changes. Although 60–80% of AML patients achieve a complete remission, the majority of them relapse later on and the 5-year survival rate is very low. This shows the necessary need for new early diagnostic and prognostic biomarkers together with novel treatment options.

Aim and objectives:

This study aimed at measuring protein BAX and Bcl-2 and their ratio in the peripheral blood of newly diagnosed patients with acute myeloid leukemia and correlating the results with other variables and the overall survival.

Patients and methods

This study was a prospective case control study which done at Ain-Shams University Hospitals, division of Clinical Hematology and Oncology-department of Internal Medicine during 6 months for acute myeloid leukaemia patients

Results:

BAX has a negative correlation of statistical significance. To be explained, the value of protein BAX increases when the haemoglobin drops in the patients. In the contrast, other values showed no correlation with BAX protein.

Bcl-2 showed a negative correlation of statistical significance between haemoglobin and ECOG score. In comparison, it showed a positive correlation of significance with albumin.

Protein Bax and Bcl-2 showed high expression in patients more than in controls. On the other hand, protein Bcl-2 showed high expression in patients who are in remission more than the cut point 40 of sensitivity 100%.

Conclusion

in conclusion, while BAX and Bcl-2 was found to be highly expressed in AML patients than in controls, its correlation with survival outcomes remains complex and inconclusive. The study emphasizes the need for larger sample sizes and further investigation into the interplay between BAX ,Bcl-2 a, autophagy, and survival in AML. Overall, these findings contribute to the understanding of BAX and Bcl-2's potential prognostic significance in AML and warrant further exploration.