Clinical Impact of Galectin 9 Expression on Outcome of Acute Myeloid Leukemia

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No
Yes

Introduction

AML is a genetically heterogeneous disease. AML survival and relapse are controlled by genetic alterations, as well as a functional interaction between the tumor and the immune system. One promising molecular target is the Galectin-9, (Gal9) a member of the ninth member of the β-galactoside-binding soluble lectin family. Gal9 induce T-cell death and facilitate immunosuppression in the tumor microenvironment by binding to immunomodulatory receptors.

Objectives

To analyze the prognostic significance of Gal9 expression in newly diagnosed adult patients with AML in our department

Design

50 previously untreated AML patients with a median age of 52 years (range, 20–85 years) were included in this study. According to the European LeukemiaNet classification, 14% were assigned as favorable, 38% as intermediate and 48% as adverse-risk.

Interventions:

- "7+3" and high-dose cytarabine, n=28,
- "AZA-VEN" n=22
- 25 patients underwent HSCT.

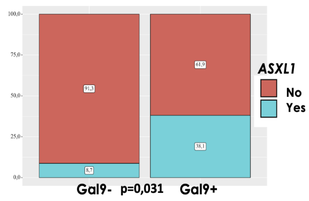
The expression of Gal9 was assessed in the blast population using flow cytometry.
The median expression - 15% (0% - 99%).
Patients were divided into positive and negative groups according to Gal9 expression.
We analyzed the relationship between Gal9 expression and CR, early relapse (ER) and relapse free survival (RFS).

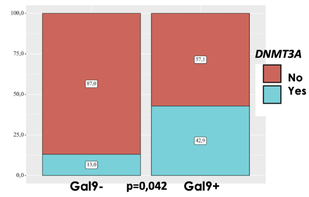
Summary

Expression of Gal9 in AML indicates a high ER rate and reduces long-term sRFS in patients receiving chemotherapy-alone. HSCT may reduce the adverse effects of Gal9 expression on AML patients. Furthermore, Gal9 may be suggests as a promising future target for immunotherapy

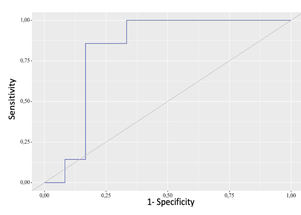
Results

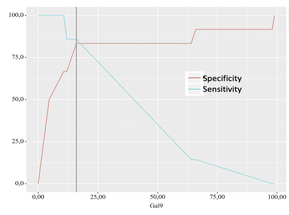
- Gal9 was positive in 23/50 patients (46%).
- There were no differences between groups in parameters such as sex, age, white blood cell count, and percentage of bone marrow blast cells.
- *IDH1/2*, *ASXL1*, *NPM1*, *FLT3-ITD*, and *DNMT3A* were the most commonly affected genes.
- *ASXL1* and *DNMT3A* mutations occurred significantly more frequently in the Gal9+ group than in the Gal9- negative group (38,1% *vs* 8,7%, *p*=0.031 and 42,9% vs 13,0%, *p*=0.042).





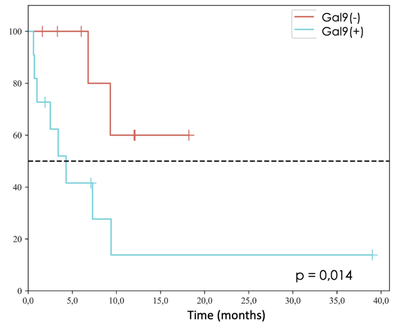
- The frequency of CR did not differ between the two groups.
- The cut-off of 16% predicted the occurrence of ER with a sensitivity of 85.7% and specificity of 83.3%: 60% vs 11,1% (p=0,04).





- For chemotherapy-alone patients, median RFS was 4,3monts in the Gal9+ group and not reached in the Gal9− negative group (p=0.014).
- Allo-HSCT in the Gal9+ group significantly improved RFS (landmark analysis): median RFS not reached vs 6.8 months (p=0.032)

RFS in the group of patients without alloHSCT in 1CR



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