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ELEVENTH ANNUAL MEETING

The prognostic values of the *IL-10 (G1082A)* and *TNF-α (G308A)* polymorphisms in Egyptian patients with acute lymphoblastic leukemia: A single centre study

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INTRODUCTION

Interleukin-10 (IL-10) and *Tumor necrosis factor-alpha (TNF-α)* genes contribute in oncogenesis. We evaluated the influence of the *IL-10 (G1082A)* and *TNF-α (G308A)* polymorphisms on the prognosis and outcome of Egyptian patients with acute lymphoblastic leukemia (ALL).

AIM

Prognostic values of the *IL-10 (G1082A)* and *TNF-α (G308A)* polymorphisms in Egyptian patients with acute lymphoblastic leukemia

METHOD

We conducted a prospective observational study in a university-affiliated oncology centre between January 2016 and June 2019. We enrolled 64 children and 76 adults with ALL. Pediatric and adolescent ALL patients were treated by the Berlin-Frankfurt-Munster (aBFM) regimen , while adults with ALL received the Hyper-CVAD regimen . All participants were of the Egyptian ethnicity. Patients with T-ALL or biphenotypic leukemia were excluded.

Extracted DNA was subjected to polymerase chain reaction (PCR) amplification of the *IL-10* gene.

Genotyping of the *IL-10 (G1082A)* polymorphism was done by allele specific primer- PCR.

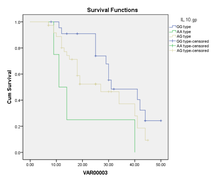
Genotyping of the *TNF-α (G308A)* polymorphism was done by the restriction fragment length polymorphism (RFLP) - PCR method using the following primers

RESULTS

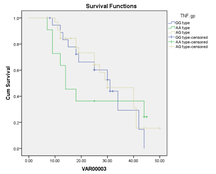
In children with ALL, the A allele of *TNF-α* and *IL-10* polymorphisms was associated with the older age (p = 0.04 & 0.03), more extramedullary disease (p = 0.02 & 0.001), positive Breakpoint cluster region-Abelson (BCR-ABL) rearrangement (p190) (p = 0.04 & 0.001) and more relapse (p = 0.002).

The *IL-10* GG genotype was associated with higher overall survival (OS) in children (p = 0.026). Adults carrying the *TNF-α*-A allele showed more extramedullary disease (p = 0.009) and relapse (p = 0.003).

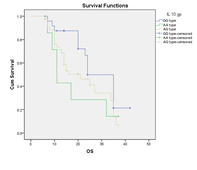
We also found a higher frequency of *IL-10*-A allele in adults with the older age (p = 0.03), the lower hemoglobin level (p = 0.04), positive BCR-ABL rearrangement (p = 0.001), more extramedullary disease (p = 0.001), more relapse (p = 0.002), and a longer time for the 1st complete remission (p = 0.003).



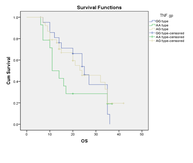
The overall survival of *IL-10 (G1082A)* genotypes in children with ALL.



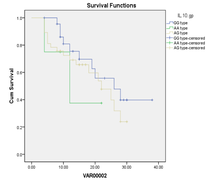
The overall survival of *TNF-α (G308A)* genotypes in children with ALL.



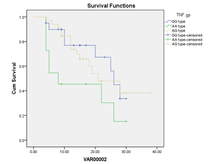
The overall survival of *IL-10 (G1082A)* genotypes in adult ALL group.



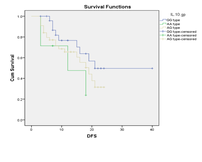
The overall survival of *TNF-α (G308A)* genotypes in adult ALL group.



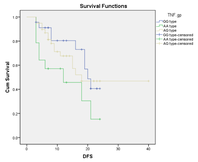
The recurrence-free survival of *IL-10 (G1082A)* genotypes in children with ALL.



The recurrence-free survival of *TNF-α (G308A)* genotypes in children with ALL.



The recurrence-free survival of *IL-10 (G1082A)* genotypes in adult ALL group.



The recurrence-free survival of *TNF-α (G308A)* genotypes in adult ALL group.

CONCLUSIONS

A possible association exists between the A allele *of IL-10* and *TNF-α* polymorphisms and poor prognosis in Egyptian patients with ALL, while the *IL-10* GG genotype may be associated with better survival in children with ALL.

REFERENCES

Brown PA, Shah B, Fathi A, Wieduwilt M, Advani A, Aoun P, et al. NCCN guidelines insights: Acute lymphoblastic leukemia, version 1.2017. J Natl Compr Canc Netw 2017;15:1091–102.

Howell MW. Interleukin-10 Gene Polymorphisms and Cancer. In: Madame Curie Bioscience Database [Internet]. Austin (TX): Landes Bioscience; 2000-2013. Available from: https://www.ncbi.nlm.nih.gov/books/NBK6117

Rothman N, Skibola CF, Wang SS, Morgan G, Lan Q, Smith MT, et al. Genetic variation in TNF and IL10 and risk of non-Hodgkin lymphoma: a report from the InterLymph Consortium. Lancet Oncol 2006;7:27–38.

Terwilliger T, Abdul-Hay M. Acute lymphoblastic leukemia: a comprehensive review and 2017 update. Blood Cancer J 2017;7:e577.

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