Prognostic Evaluation of the *IDH1* G105(rs11554137) SNP in Acute Myeloid Leukemia Patients

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Background

Acute myeloid leukemia (AML) is often caused by mutations in the IDH1 gene, which codes for isocitrate dehydrogenase 1. Although there is conflicting evidence, the single-nucleotide polymorphism (SNP) IDH1G105 (IDH1105^{GGT}-rs11554137) has been linked to a poor prognosis in patients with AML.

Since there is a limited data on north African population, this study was carried out to evaluate the prevalence and prognostic significance of the polymorphism IDH1105^{GGT} in Tunisian AML Patients.

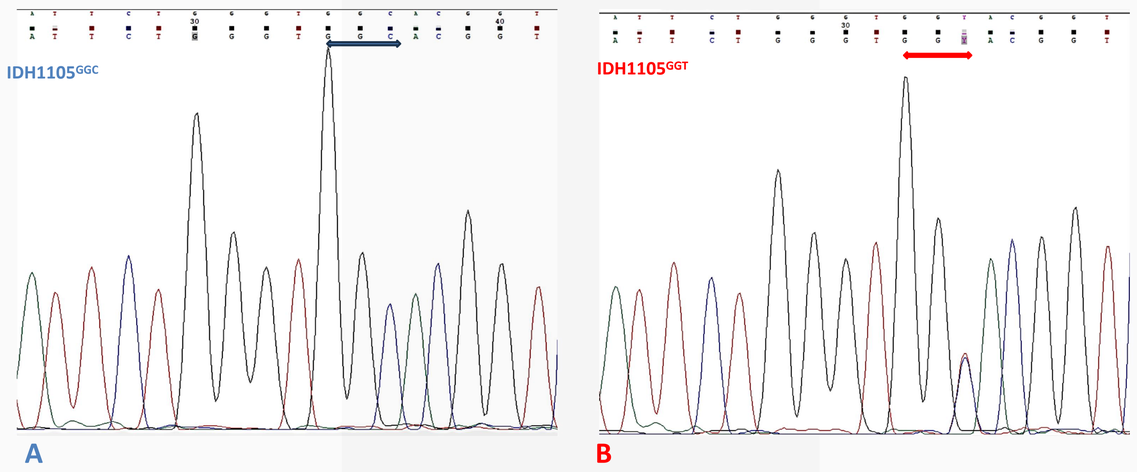
Methods

A retrospective cross-sectional study included patients diagnosed with AML. A Sanger sequencing was performed using a high-fidelity DNA polymerase to asses the IDH1 codon 105 SNP.

Results

Fifty patients with confirmed AML were enrolled in this study. the median age was 57 years, and the sex ratio M/F was 1.2.

the polymorphism IDH1G105 (IDH1105^{GGT}) was found in six patients (12%) but was not associated with the IDH1R132 mutation.



Sequencing result of IDH1 in two different patients.
(A) Patient with normal IDH1 sequence at codon G105.
(B) Patient with IDH1 mutation at codon G105 (C>T).

AML Patients with the IDH1105^{GGT} SNP had a worse prognosis as compared to those with the IDH1105^{GGC} .

Conclusion

Despite the limits of this study, our data on the Tunisian AML patients suggest that the IDH1G105 SNP(rs11554137:C>T) is frequent and associated to adverse outcomes.

References

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