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Exploration of the FLT3-ITD mutation in acute myeloid leukemia patients in the western Algerian population

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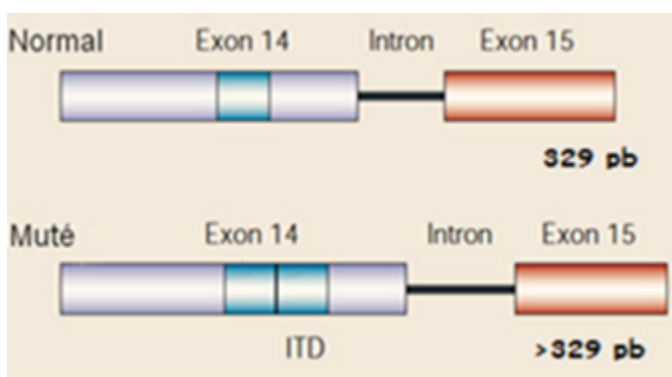
Statement of the Problem: Leukemia affects 9,000 people worldwide each year; with 3/700 have acute myeloid leukemia (AML). They arise from mutations that affect the genes influencing hematopoiesis. FMS-related tyrosine kinase 3 (FLT3) is a tyrosine kinase receptor usually expressed in hematopoietic progenitors, is the most common genetic lesion in AML with mutations detected in 25% to 40% of cases. There are two main types of mutations: tandem internal duplication (ITD), which is the most common (~ 25% of cases) and a point mutation D835 (TKD) (~ 5%). The detection of FLT3-ITD is important for the prognosis especially in those who have a normal karyotype.

Aim: The aim of study is evaluate the FLT3-ITD mutation frequency in the western Algeria population.

Material and Methods: We analyzed eighty-one patients with cytogenetic and molecular biology department at the University Hospital of Oran (EHU) and those from March 2014 to March 2018. We explored the FLT3- ITD mutation using the polymerase chain reaction (PCR).

Results: Statistical analysis showed that out of eighty-one AML patients, only eleven cases had the FLT3-ITD mutation with the heterozygous state. Which corresponds to a frequency of 12%. These results are in perfect agreement with the Chinese population estimated at 11%. However, our results are in disagreement with those reported in European population (50%) and the Egyptian population of 34.6%.

Significances: In this study, we highlighted the frequency of the FLT3-ITD mutation in the western Algerian population. It would be very interesting to consider undertaking a study on the impact of the size of the FLT3-ITD fragment on the prognosis since a study has shown that duplications of 48 to 60 base pairs are associated with very poor prognosis.



FLT3-ITD normal/mutation version