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Cytogenetic profile of Moroccan pediatric acute lymphoblastic leukemia (ALL): analysis of 155 cases with review of literature

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Abstract

Acute lymphoblastic leukemia (ALL) is the commonest malignancy in children, with a peak incidence of 2 to 3 years, accounting for almost 30% of all cancers in this age group.
It is well established that the identification of cytogenetic abnormalities is highly relevant for prognosis and therapeutic decisions in ALL.
The purpose of this study is to define the frequency of recurrent chromosomal abnormalities of ALL in Moroccan patients referred exclusively to BIOLAB laboratory from the children hospital of Rabat over a period of 4 years and compare our findings to the literature.
In this study, we performed conventional karyotype to 155 ALL cases with a successful cell culture rate of 94%.
We identified chromosomal abnormalities in 66% of the total studied cases, of which 70% revealed important recurrent abnormalities with high prognosis values, such as hyperdiploidy, hypodiploidy, t(9;22), t(8;14), t(1;19) and MLL rearrangements.
In total coherence with the literature, the majority of patients (56%), in the present study, were in the age group of 1 to 5 years with male predominance, and B-ALL was the most common blast phenotype (85%).
The frequency of most chromosomal rearrangements successfully identified in our study and their lineage belonging was in correlation with the ones published in the literature.

Keywords: Acute lymphoblastic leukemia; cytogenetic; children; Morocco