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Conventional and molecular cytogenetics in pediatric B-lineage acute lymphoblastic leukemia

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Leukemia's constitute approximately one-third of all malignancies in children (age 0 to 14 years). Of these, acute lymphoblastic leukaemia (ALL) is the most prominent type. The World Health Organization (WHO) classifies ALL as either "B lymphoblastic leukemia" or "T lymphoblastic leukemia." B lymphoblastic leukemia is subdivided by the presence or absence of specific recurrent genetic abnormalities. These translocations characteristic of childhood B-lineage leukemias are t(12;21)[*TEL-AML1*], t(9;22) [BCR-ABL], rearrangements in the *MLL* gene on chromosome 11, band q23, hyperdiploid karyotype (i.e., >50 chromosomes), or a hypopdiploid karyotype (i.e. <46 chromosomes). The most common translocation in pediatric B-cell precursor (BCP-ALL) is t (12;21) (p13;q22) which results in the formation of the ETV6-RUNX1 (*TEL-AML1*) fusion gene. The first translocation mentioned is an independent prognostic indicator for good prognosis, whereas the last 2 anomalies are linked with a poor prognosis in childhood ALL. In our centre, we perform conventional cytogenetic and Fluorescence in situ hybridization (FISH) for ALL panels on all patients of childhood BCP-ALL.

Results of bone marrow cytogenetics and Floroscence *in Situ* Hybridisation (FISH) on these BCP-ALL patients will be reviewed and compared with the existing literature from different parts of the world.

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