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**Original article**
**Acute lymphoblastic leukemia in northern India**

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**Abstract:**

**Objective:** To study the morphology, analyse the immunophenotype of acute lymphoblastic leukemias by flowcytometry and compare the morphology with immunophenotypic profile.

**Materials and methods:** The present study was conducted in the Department of Pathology at Rajiv Gandhi Cancer Institute to evaluate and analyze morphology and immunophenotype of acute lymphoblastic leukemias.A total of 75 cases that presented to the Hemato-Oncology OPD, and were diagnosed and documented as Acute Leukemias, prospectively during the period January 2009 to December 2011, were included in the present study. Only newly diagnosed untreated acute leukemia patients of all age groups and both sexes were included in the study.A written consent was taken from patients or parents as appropriate.The diagnosis of acute leukemia was established based on peripheral blood and bone marrow morphology and cytochemistry. Immunophenotyping was done in all cases.

**Results:** Out of the 75 cases included in the study period, Acute myeloid leukemia comprised 31 of 75 cases (41.3%), acute lymphoblastic leukemia comprised of 40 of 75 cases (53.3%) and biphenotypic leukemias comprised the rest of 4 cases (5.3%).Out of total 40 cases of acute lymphoblastic leukemais,72%(29) cases had B cell phenotype while 28% (11) cases had T cell phenotype. B cell ALL was predominantly seen in children constituting 75.8 % while T cell ALL was predominantly seen in adults (72.7 %). Immunophenotypic analysis showed that the pro B-cell phenotype was encountered in 22 (53.6 %), mature B-cell in 7 (1.7%) and T-cell in 11 (26.8 %) cases. CD10 positivity was found in 27 cases of B cell ALL (93.1%) and 5 cases of the T-ALL (45.4%).

**Conclusion:** The diagnostic accuracy and reproducibility of morphological diagnosis and cytochemistry varies between 70- 90% and this is further increased to greater than 95% by the incorporation of the flowcytometry in a resource poor country like ours where molecular and cytogenetic studies are available in limited centres.

**Keywords:** acute lymphoblastic leukemia, morphology, flowcytometry.