Supreet Khare, Transl Med 2016, 6:4(Suppl)
http://dx.doi.org/10.4172/2161-1025.C1.019

Role of immunophenotyping in the diagnosis of acute leukemias of ambiguous lineage: A new entity described in WHO 2008

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There is a rare type of acute leukemia that is difficult to classify, and which concurrently has morphologic, cytochemical and immunophenotypic characteristics of both myeloid and T- or B-lymphoid lineages. The recent WHO classification of 2008 refers to this type of entity as bilineage AL, or biphenotypic AL (BAL), and places it into a subtype of the group 'acute leukemia of ambiguous lineage'(1,2) alongwith AL with aberrant expression. BAL represents <5% cases of acute leukemia. This study aims to analyze immunophenotypic profile of acute leukemias of ambiguous lineage and to study the prevalence in Indian scenario. Flow cytometric immunophenotyping (FCI) was performed on fresh bone marrow or blood specimens. Single-cell suspensions were incubated with combinations of monoclonal antibodies in four-color immunofluorescence. The antibodies were conjugated to fluorescein isothiocynate (FITC), phycoerythrin (PE), peridinin chlorophyll protein complex (PerCP) and allophycocyanin (APC). Antibodies used in the analysis recognized stem cell and pan-leukocyte antigens including CD45. Samples were analyzed using 4 color flow cytometry and the blast cell populations were identified by CD45 versus side scatter properties using standard staining and analytical methods. Out of 24 cases of acute leukemia in 4 months, we report 04 cases diagnosed as AML or ALL based on FAB (16%). However, on FCI these were diagnosed as BAL, bilineage AL & ALL with aberrant myeloid expression. Unlike other leukemias, BAL is a type of acute leukemia with uncommon biological and clinical features. Limited studies are available hence at least; Patients who are not responding well should be screened for ambiguous lineage using comprehensive FCI and molecular studies.

Biography

Supreet Khare has studied form Armed Forces Medical College, Pune, India. He is now the Internal Medicine Resident at University of Arizona.

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