

Abstract:

Introduction:

Leukemia is a diverse group of hematological malignancies, and accurate diagnosis is crucial for effective treatment. Immunophenotyping using flow cytometry is a powerful tool for distinguishing leukemia subtypes based on cell surface and intracellular antigen expression.

Aim:

This study aimed to characterize the immunophenotypic profiles of 30 leukemia cases using flow cytometry to enhance diagnostic accuracy and inform therapeutic decisions.

Materials and Methods:

The study included 30 cases of leukemia, encompassing acute and chronic forms from both myeloid and lymphoid lineages. Peripheral blood and bone marrow samples were analyzed using flow cytometry. Panels of monoclonal antibodies targeting specific antigens (e.g., CD34, CD13, CD19, CD33, CD3) were used to identify leukemic cells. The immunophenotypic results were correlated with clinical presentations and morphological findings.

Results:

Distinct immunophenotypic patterns were observed across different leukemia subtypes. Acute myeloid leukemia cases showed predominant expression of myeloid markers such as CD13, CD33, and CD34, while acute lymphoblastic leukemia cases exhibited strong positivity for CD19 and CD10. Chronic leukemias displayed characteristic patterns aligning with their respective lineages. The data helped in refining diagnoses, particularly in cases with overlapping morphological features.

Conclusion:

Immunophenotyping by flow cytometry is an invaluable tool for the precise characterization of leukemia, aiding in the differentiation of subtypes and guiding treatment decisions. This study reinforces the role of flow cytometry in improving diagnostic accuracy, particularly in cases where traditional methods are insufficient.