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Diagnostic role of flowcytometry scoring in low grade primary myelodysplastic syndrome (MDS)

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Primary myelodysplastic syndromes (MDS) are a group of clonal stem cell disorders characterized by ineffective hematopoiesis and peripheral blood cytopenias. In contrast to published from western countries, in an analysis of 106 MDS patients, 48 (45.3%) cases were below 50 years age in our Indian data, which is in much higher frequency. Bone marrow examination for marrow dysplasia and blast count and cytogenetic study are backbone of present MDS diagnosis. However, there is a need for other objective diagnostic criteria and multi-parametric flowcytometry (FCM) has huge potential in low grade MDS. Though no single FCM parameter is found to be sufficiently sensitive and specific to make the diagnosis, quantitative FCM scoring with CD34+ cell-related parameters and myeloid aberrancies as per Ogata score has shown high potential. Using combined objective and subjective FCM scoring (more than three) in normal control (N=31), non-MDS (N=30) patients, proven MDS (n=14) and suspected MDS (n=13) patients, overall sensitivity of 92.6% and specificity of 96.7% was achieved. Using Ogata score (objective criteria) only, the sensitivity increased to 100%, but specificity reduced to 82%. Adding myeloid nuclear differentiation antigen (MNDA) in diagnosis of MDS was further studied in 44 patients. MNDA expression in myeloblasts and granulocytes was low in MDS cases. The use of combined Ogata score and MNDA increased both sensitivity (100%) and also specificity to 95.2% in diagnosis of low grade MDS. We have shown high specificity of multi-parametric FCM in diagnosis of low grade MDS. We recommend use of combined Ogata Score along with MNDA (more than three score) in diagnostic parameter for suspected low grade MDS patients.

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