

## Myelodysplastic syndrome

Myelodysplastic syndrome (MDS) refers to a heterogeneous group of stem cell malignancies, with a majority of patients succumbing to complications of bone marrow failure rather than leukaemic transformation, despite early designation as pre-leukaemia. Since morphologic criteria for diagnosis and classification of these disorders was proposed by the French-American-British (FAB) co-operative group in 1982, however, no biologic or genetic marker that reliably identifies MDS is discovered. Therefore morphology remains the mainstay of diagnosis and an important parameter that complements cytogenetics for prognostication. This notwithstanding, the recognition of dysplasia can be difficult, showing marked inter-observer variability.

Prerequisites for evaluation of morphologic dysplasia would include well-prepared peripheral blood and bone marrow aspirate smears. Blood and bone marrow smears should be examined for dysplasia, the percentages of blasts and monocytes, and ringed sideroblasts. The bone marrow trephine biopsy, although not strictly necessary, often offers valuable diagnostic and prognostic information such as architectural or stromal changes.

One of diagnostic challenges for MDS is that morphologic dysplasia is not specific for MDS. Causes of secondary dysplasia should be considered and excluded by appropriate clinical and laboratory studies prior to reaching a diagnosis of MDS. The guideline that 10% of cells in a given lineage should be dysplastic to be considered as evidence of MDS is helpful to ensure diagnostic accuracy. In addition, cytogenetic study plays a major role in confirmation of diagnosis and prediction of clinical outcome in MDS, as well as contributing to understanding its pathogenesis.

More recently, the WHO proposes a number of changes to MDS classification: 1) lowering the blast percentage threshold of diagnosing AML from 30% to 20%, thus eliminating the FAB category of RAEBt; 2) separating low grade MDS into 5 categories based on whether single or multiple lineage dysplasia is present; 3) dividing RAEB into two subtypes based on blood and bone marrow blast percentage; 4) moving CMML from MDS to the new category of MDS/MPD. Several clinical studies have confirmed the validity of the WHO classification.

In the horizon, novel therapeutic measures, especially those targeting molecular lesions are being developed. One example of success response is seen with imatinib treatment of CMML with *PDGFR $\beta$*  rearrangement.