indolent to life-threatening (175). Indolent is a term of the art used to describe relatively benign lymphoproliferative diseases (176,177). The prognosis (risk) is used to guide treatment of MDS.

As reviewed by Orazi and Czader (178), the WHO system for classifying MDS provides these subtypes:

1. Refractory cytopenia with unilineage dysplasia with the subcategories of refractory anemia, refractory neutropenia, and refractory thrombocytopenia;
2. Refractory anemia with ring sideroblasts;
3. Refractory cytopenia with multilineage dysplasia;
4. Refractory anemia with excess of blasts (RAEB) with subcategories RAEB-1 and RAEB-2;
5. Unclassifiable MDS; and
6. MDS with isolated deletion (5q) chromosomal abnormality.

These MDS subtypes are based, in part, on the level or "depth" of anemia, neutropenia, or thrombocytopenia. The term *cytopenia* refers to the anemia, neutropenia, and thrombocytopenia (179).

While chromosomal abnormalities (dysplasias) are used for diagnosing MDS, these abnormalities also occur in deficiencies in folate or vitamin B12 (180). Hence a proper diagnosis requires exclusion of folate deficiency, exclusion of B12 deficiency, and may also require characterization of blood cells by flow cytometry (181,182). Flow cytometry in MDS mainly involves the analysis of white blood cells and immature red blood cells that still bear a nucleus. van de Loosdrecht et al. (183) provide a thorough review of the application of flow cytometry to MDS.

The IPSS score is a function of the percentage of blasts found in the bone marrow, the chromosomal abnormalities in bone marrow blood cells, and the blood cell counts, as indicated in Table 18.2 (184). What the IPSS score

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