

Online Exclusive

# An Update on the Treatment of Myelodysplastic Syndromes

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Myelodysplastic syndromes (MDS) are a group of heterogeneous clonal disorders of myeloid hematopoietic stem cells affecting about 300,000 people worldwide. Ineffective hematopoiesis and clonal proliferation result in significant cytopenias in affected individuals. Patients are categorized into risk groups (i.e., low, intermediate [1 and 2], and high) based on severity of cytopenias, cytogenetic abnormalities, and the presence of bone marrow blasts. The only potentially curative treatment for MDS is hematopoietic stem cell transplantation, which often is not an option because of advanced age at diagnosis (median age = 76 years). Several alternative treatments to hematopoietic stem cell transplantation show great promise. For low- and intermediate-1-risk MDS, the novel antitumor immunomodulatory agent lenalidomide is approved for patients with del(5q), and two different hypomethylating agents, azacitidine and decitabine, are approved for intermediate-2- and high-risk MDS. Trial results have increased the understanding of these treatments, alone or in combination with other therapies. Effective treatment often requires at least three to six months to achieve a clinical response. In the meantime, or in addition to active therapy, supportive care has a positive effect on quality of life. Greater understanding of the factors affecting MDS treatment options will assist oncology nurses in facilitating the optimal combination of treatment, supportive care, and management of adverse events.

**N**ew clinical data on myelodysplastic syndromes (MDS) were presented at the 50th and 51st annual meetings of the American Society of Hematology (ASH) in December 2008 and 2009, and the 44th annual meeting of the American Society of Clinical Oncology in May 2008. Integration of the most current scientific data into clinical practice will promote optimal care for patients with MDS. This article reviews the epidemiology, natural history, diagnosis and staging, and treatment goals for patients with MDS, and provides an update on clinical advances in MDS management from the meetings.

## Epidemiology

MDS are a group of stem cell disorders characterized by abnormal and ineffective hematopoiesis in one or more blood cell lineages, with an underlying dysplastic bone marrow (Nimer, 2008). The incidence of newly diagnosed MDS exceeds 10,000 cases in the United States annually (Ma, Does, Raza, & Mayne, 2007; Surveillance, Epidemiology and End Results, 2007). MDS are most common in older adult patients, and age is the greatest risk factor for developing MDS. At the time of diagnosis, 86% of patients are 60 years or older. The incidence of MDS rises from 3.4 cases per 100,000 in the general population to more than 25

## At a Glance

- ◆ The goals of treatment for myelodysplastic syndromes (MDS) are to prolong overall survival, reduce transfusion burden, and improve quality of life.
- ◆ Newer treatment options for MDS include antitumor immunomodulatory and hypomethylating agents.
- ◆ Effective treatment often requires a minimum of three to six months of therapy to achieve a clinical response.

cases per 100,000 in people older than 75 years (Ma et al., 2007). Among patients diagnosed with MDS, 14% have been treated for other primary tumors prior to diagnosis (Ma et al., 2007).

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