Summary

Multiple myeloma [MM] is a debilitating malignancy that is a part of a spectrum of diseases ranging from monoclonal gammopathy of unknown significance (MGUS) to plasma cell leukemia

Multiple myeloma accounts for 1% of all malignancies: 10% of all hematological malignancies in Caucasians and 20% in African Americans. It is the second most common hematologic malignancy in the United States. The overall incidence rate in the United States is 4.4/100,000/year with a male: female ratio of 1.4:1. Internationally, MM accounts for 0.8% of all cancer deaths with approximately 86,000 new cases per year. The current 5-year survival for a patient newly diagnosed with MM in the United States was 33% (data from 1996 to 2002), up from 26% 30 years ago. In patients treated on clinical trials, the median survival is approximately 50 %.

The characteristic findings in MM are lytic bone disease, renal insufficiency, anemia, hypercalcemia, and immunodeficiency.

The initial workup for multiple myeloma includes; history, physical examination, laboratory studies, imaging studies and bone marrow studies

The Presenting symptoms include bone pain, pathologic fractures, anemia, infection, hypercalcemia, spinal cord compression, or renal failure.

Laboratory studies include Complete blood count, comprehensive metabolic panel, serum protein electrophoresis, urine protein electrophoresis, immunofixation, quantitative immunoglobulin levels and Beta-2 microglobulin.

Imaging studies include radiograph, CT scan, MRI and nuclear medicine.

Bone marrow aspirate and biopsy for routine histology and immunohistochemistry, metaphase cytogenetics, fluorescent in situ hybridization (FISH) for plasma cell dyscrasia markers and flow cytometry for B-cell markers.

In 2003, the International Myeloma Working Group agreed on diagnostic criteria for symptomatic myeloma, asymptomatic myeloma and monoclonal gammopathy of undetermined significance.

Differentials of Multiple myeloma include; monoclonal gammopathy of undetermined significance, Solitary bone plasmacytoma, asymptomatic multiple myeloma, Waldenström macroglobulinemia and Amyloidosis .

The number of therapeutic options in the treatment of MM has increased dramatically since the beginning of the millennium, and prospects for the future are even more encouraging.

Conventional therapy for patients with MM was glucocorticoid-based in combination with alkylating agents and/or anthracyclines.

With the incorporation of new classes of medications in the treatment of MM, the old treatment paradigm has shifted, but not excluded conventional approaches. The effectiveness of the immunomodulatory agents thalidomide and lenalidamide, as well as bortezomib, a proteosome inhibitor, has greatly expanded treatment options. These agents, alone or in combination, increase response rates and durability of responses.

In addition, clinical trials have solidified the role of hematopoietic stem cell transplant and established the benefits of post-transplant maintenance therapy. Autologous peripheral blood stem cell –supported high-dose melphalan is now considered standard therapy for myeloma, at least for younger patients. The

markedly reduced toxicity of allotransplants using nonmyeloablative regimens (mini-allotransplantations) may hold promise for more widely exploiting the well-documented graft-versus-myeloma.

A number of new agents are in development that specifically target the myeloma cells and/or the bone marrow microenvironment; e.g. Perifosine (Zentaris), Geldanamycin, Tanespimycin, NPI-0052 and Monoclonal Antibodies.

Over the past decade, there have also been significant improvements in supportive care for skeletal Lesions (The mainstay of treatment for skeletal lesions is bisphosphonates), renal Insufficiency (Patients should be instructed to drink a minimum of 2 L/day to maintain a high urine output. There are proponents of plasmapheresis in MM patients who present with acute renal failure. Patients should be instructed to drink a minimum of 2 L/day to maintain a high urine output. There are proponents of plasmapheresis in MM patients who present with acute renal failure**),** anemia (symptomatic anemia often is improved by administration of exogenous erythropoietin) and Infections (The use of prophylactic antibiotics in MM has not been resolved).

The outcome for patients with multiple myeloma is highly variable. Although the median overall survival time is 3 to 4 years, the range is from less than 6 months to greater than 10 years.

A new staging system for MM, the International Staging System, has replaced the Durie-Salmon staging system in clinical practice. The 2 key advantages of the ISS are ease of use and more accurate prognostic information.

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