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Multiple Myeloma

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Multiple Myeloma

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Introduction

Multiple myeloma a rare and largely incurable malignant disease that affects the plasma cells. (Bilotti, Gleason, McNeill, and the International Myeloma Foundation Nurse Leadership Board, 2011). Understanding the pathophysiology of Multiple Myeloma (MM) and treatment options in Oncology and Hematology nursing can be difficult. It is the goal of this poster to outline the pathophysiology, prognosis, treatment options available to multiple myeloma patients.

Multiple myeloma accounts for about 10% of hematologic malignancies in the U.S. (Kuo, Fenves, Mehta, 2011). MM is the second most common hematologic malignancy with twenty-four thousand new MM cases each year (Bianchi, and Anderson, 2014)

Signs & Symptoms

- Bone pain and fractures
- Fatigue
- Increased infections
- Weakness and fatigue
- Restlessness
- Confusion
- Increased thirst
- Nausea and vomiting
- Loss of appetite weight loss
- Impaired kidney function
- Increased or decreased urination

Fatigue is a commonly reported symptom of MM often thought to be a consequence of anemia (Booker, Olson, Pilarski, Noon, and Bahlis, 2009). Anemia (mostly normocytic normochromic) is seen in approximately 75% of patients (Al-Farsi, 2013)

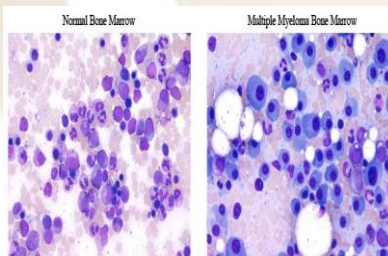
Pathophysiology

In normal physiology mature plasma cells make up less than 5% of the bone marrow cells. Precursor cells plasmablasts and B lymphocytes are stimulated by antigens and cytokines then migrate to the bone marrow where they stop proliferating and begin to differentiate to mature plasma cells (Mangan, 2005). The majority of MM is preceded by a premalignant disease known as monoclonal gammopathy of undetermined significance (Manier, Sacco, Leleu, Ghobrial, and Roccaro, 2012). This monoclonal neoplasm results in the expansion of a single clone of plasma cells (Ferreira, 2013). The monoclonal cells crowd out healthy cells.

Unregulated proliferation of monoclonal plasma cells accumulate in the marrow which leads to secretion of cytokines by the tumor cells. Here in the microenvironment of the bone marrow the ability of myeloma to live and replicate is thought to occur (Mangan, 2005).

The majority of MM patients eventually relapse with all therapeutic options currently available (Lawasut, Groen, Dhimolea, Richardson, Anderson, and Mitsiades, 2013).

Balance between bone resorption and new bone formation is lost in many cases of MM, resulting in bone destruction and the development of osteolytic lesions (Mainer et al., 2012) Bone health is a primary concern for MM patients.



<http://www.keatslab.org/multiple-myeloma-info>

- a cancer of plasma cells wherein the abnormal plasma cells accumulate in the bone marrow and interfere with the production of normal blood cells
- this ranks as the second-most prevalent hematologic cancer after Hodgkin's lymphoma

Statistics

- In the US, the lifetime risk of getting multiple myeloma is 1 in 149 or .67%
- About 22,350 new cases will be diagnosed in 2013
- An estimated of 12,440 new cases will be diagnosed in men and 9,910 in women for 2013
- More than 10,000 deaths are expected to happen for 2013 (Source: American Cancer Society)

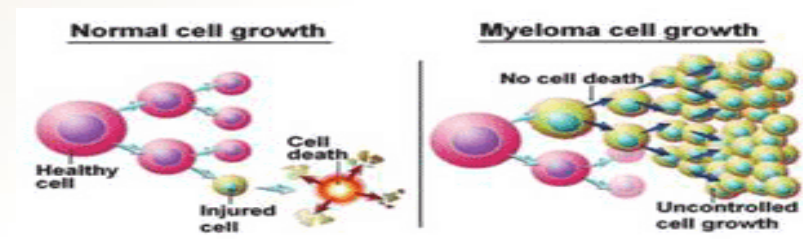
What is a risk factor?

- a condition or behavior that increases a person's chances of having a disease or infection

What is a risk factor?

- AGE** - most people that are diagnosed are at least 65 years old while less than 1% of cases are below 35 y.o.
- GENDER** - men are more likely to have this than women.
- RACE** - it's twice as common among black Americans as white Americans
- RADIATION** - those who had exposure to radiation from an atomic bomb blast had higher risk.
- FAMILY HISTORY** - you are more 4 times more likely to have myeloma if you have a sibling or parent who has the condition. But this is applicable to a small number of cases because most patients don't have affected relatives.
- OBESITY** - being overweight increases a person's risk of having myeloma.
- OTHER PLASMA CELL DISEASES** - people with solitary plasmacytoma will eventually have myeloma.

<http://healthresearchfunding.org>



<http://www.moderncancerhospital.com/cancer/multiple-myeloma/>

Implications for Nursing Care

Treatment options include the use of monoclonal antibodies against specific surface molecules in MM cells (Lawasut et al., 2013). High-dose chemotherapy with autologous stem cell transplantation is the standard of therapy for patients newly diagnosed with multiple myeloma who are younger than age 70 or have no comorbidities (Tariman, and Estrella, 2005). Nursing care occurs in multiple settings. "Nurses provide care and education to patients at all stages of the multiple myeloma (MM) disease continuum, from the premalignant stage and diagnosis all the way through survivorship and to the end of life." (Nicoletti, 2012) Patients present to routine exams, present to emergency department and as inpatients who are newly diagnosed. Post diagnosis nursing care involves treatment with chemotherapy, care in medical surgical settings, survivorship, and hospice.

Conclusion

Multiple Myeloma diagnosis and prognosis is viewed as incurable there remains many treatment options based on the stage of cancer, age and comorbidities. Patient goals should always be considered when developing treatment plans and discussing options. Early stages of the disease can yield many years of quality life with current treatments ranging from monoclonal therapies to bone marrow transplant. For end stage disease patients quality of life can be achieved through compassionate nursing care delivered by palliative measures and hospice care



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