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## **Multiple Myeloma - Stages [1]**

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**ON THIS PAGE:** You will learn about how doctors describe myeloma's growth or spread. This is called the stage. To see other pages, use the menu on the side of your screen.

Staging is a way of describing where a cancer is located, if or where it has spread, and whether it is affecting other parts of the body. Doctors use diagnostic tests to find out the cancer's stage, so staging may not be complete until all of the tests are finished. Knowing the stage helps the doctor decide what kind of treatment is best and can help predict a patient's prognosis, which is the chance of recovery. There are different stage descriptions for different types of cancer.

For myeloma, it is important to begin with whether the patient is experiencing symptoms. It is common to classify patients with newly diagnosed myeloma as being either symptomatic from the disease (having symptoms and signs) or asymptomatic (without any symptoms). Patients without symptoms are generally watched closely without treatment, which is called active surveillance (see the [Treatment Options](#) [3] section). Patients with symptoms or about to develop symptoms need treatment.

As described below, the symptoms related to myeloma include hypercalcemia (elevated blood Calcium), poor **R**enal or kidney function, **A**nemia, or **B**one pain or bone lesions (CRAB).

- **C**alcium levels increased: serum calcium > 0.25 mmol/L above the upper limit of normal or > 2.75 mmol/L
- **R**enal insufficiency: creatinine > 173 mmol/L

- **Anemia** hemoglobin 2 g/dl below the lower limit of normal or hemoglobin < 10 g/dL
- **Bone lesions:** lytic lesions (areas of bone damage), osteoporosis (thinning of the bones), or a compression fracture of the spine (an MRI or CT test may clarify)
- Other: symptomatic hyperviscosity, [amyloidosis](#) [4], and/or recurrent serious bacterial infections (more than two episodes in 12 months)
- Patients about to develop symptoms due to more extensive replacement of the bone marrow by myeloma plasma cells or very high serum free light chain levels.

## **Durie-Salmon System**

The Durie-Salmon system has traditionally been used for the staging of myeloma. This staging system is good for assessing the extent of the disease or size of the tumor. According to this system, there are three stages, stages I, II or III (1, 2 or 3). Each stage is further subclassified into A or B depending on whether kidney function has been affected, with the subclassification B meaning there is significant kidney damage.

**Stage I:** Many patients with stage I myeloma show no symptoms because there are fewer cancer cells in the body. If the cancer has affected kidney function, the prognosis may be worse regardless of the stage. Factors characteristic of stage I include:

- Number of red blood cells within or slightly below normal range
- Normal amount of calcium in the blood
- Low levels of M protein in the blood or urine
  - M protein <5 g/dL for IgG; <3 g/dL for IgA; <4g/24h for urinary light chain
  - No bone damage on x-rays

**Stage II:** More cancer cells are present in the body in stage II. Again, if kidney function is affected, then the prognosis worsens regardless of the stage. Criteria for stage II are defined as those that fit neither stage I nor stage III.

**Stage III:** Many cancer cells are present in the body at stage III. Factors characteristic of this stage are:

- Anemia with a hemoglobin less than 8.5 gm/dL
- Hypercalcemia
- Advanced bone damage (more than three bone lesions)
- High levels of M protein in the blood or urine, which is defined as:
  - M protein >7 g/dL for IgG; >5 g/dL for IgA; >12 g/24h for urinary light chain

## International Staging System

Another classification system called the International Staging System (ISS) is now used more commonly. It defines the factors that influence patient survival. The ISS is based on data collected from patients with multiple myeloma from around the world. The system has three stages based on the measurement of serum albumin and the levels of serum  $\beta$ 2 microglobulin. Recent efforts involve further classifying myeloma based upon patterns of gene expression in myeloma cells; this is an ongoing area of research.

**Stage I:**  $\beta$ 2-M less than 3.5 mg/L and albumin greater than or equal to 3.5 gm/dL.

**Stage II:** Either  $\beta$ 2-M greater than 3.5 mg/L but not greater than 5.5 mg/dL and/or albumin less than 3.5 g/dL.

**Stage III:**  $\beta$ 2-M greater than 5.5 mg/L.

**Recurrent or relapsed myeloma.** Myeloma that returns after a period of being in control after treatment is called recurrent myeloma or relapsed myeloma. If there is a recurrence, the cancer may need to be staged again (called re-staging) using one of the systems above.

## Other classifications

Some people have no symptoms of myeloma, but they may have abnormal plasma cells producing an abnormal protein (M protein). Doctors generally monitor these people closely, and active treatment does not begin unless the person starts to experience symptoms, called symptomatic myeloma.

**Monoclonal gammopathy of unknown significance (MGUS).** This condition occurs when people have a low level of M protein (meaning there are small quantities of abnormal plasma cells), but they do not have any other evidence of myeloma, such as bone damage, excessive plasma cells, or low numbers of red blood cells. People with MGUS have a 1% chance per year of developing myeloma or rarely other types of blood problems such as chronic lymphocytic leukemia (CLL), lymphoma, Waldenstrom's macroglobulinemia, or amyloidosis. For this reason, a person with MGUS should be monitored for health changes by his or her doctor on a regular basis.

**Smoldering multiple myeloma (SMM) or asymptomatic myeloma.** People who are diagnosed with SMM have slightly higher levels of M protein and more plasma cells in the bone marrow than people with MGUS. There is still no evidence of symptoms or signs of myeloma, such as bone disease or anemia. But, a person with SMM may be prescribed bisphosphonates for symptoms of osteoporosis or osteopenia (a low density of bone minerals). Most people with SMM eventually develop myeloma. For this reason, the health of people with smoldering myeloma should be closely monitored by their doctors who may recommend starting treatment when there is progression of disease and patients are at the risk of developing symptoms within 18 months to two years.

Patients who do not have CRAB features but more than 60% plasma cells with either involved/uninvolved light chain ratio greater than 100 or more than one bone lesion removed from SMM are now considered for active treatment.

## **Prognosis**

The International Staging System (ISS) of myeloma gives information about prognosis and predicts the person's chance of recovery. Researchers are also looking at other ways to predict prognosis for patients with multiple myeloma. Some of these ways of evaluating prognosis include:

- High levels of  $\beta$ 2-M may indicate a large number of myeloma cells are present and kidney damage has occurred. The level of this protein increases as myeloma becomes more advanced.
- Lower amounts of serum albumin may indicate a poorer prognosis.
- Lactate dehydrogenase (LDH) is an enzyme; higher blood levels of LDH indicate a poorer prognosis.
- Abnormalities of chromosomes (cytogenetics) in the cancer cells may show how aggressive the cancer is.

- A plasma cell labeling index can be done in a specialized laboratory using bone marrow samples to find out how fast the cancer cells are growing.

Learn more about [talking with the doctor about prognosis](#) [5].

*Information about the cancer's stage will help the doctor recommend a specific treatment plan. The [next section in this guide is Treatment Options](#) [3]. Or, use the menu on the side of your screen to choose another section to continue reading this guide.*

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### **Links**

[1] <http://www.cancer.net/cancer-types/multiple-myeloma/stages>

[2] <http://www.cancer.net/about-us>

[3] <http://www.cancer.net/node/19374>

[4] <http://www.cancer.net/node/31339>

[5] <http://www.cancer.net/node/31681>