Multiple myeloma

Multiple myeloma is a blood cancer. It is caused by the proliferation and accumulation of a certain type of white blood cell known as plasma cells, which are cells produced by the bone marrow. The disorder of these cells produces malignant cells, called myeloma cells, which result in the different manifestations of the disease.

For a definition of multiple myeloma in plain language, see:

- Myeloma Canada
- Wikipedia

The incidence of myeloma in Canada

In Canada, around 2,500 people receive a diagnosis of multiple myeloma each year. This diagnosis accounts for 1.3% of all cancers and 10% of blood cancers. Sadly, it is responsible for 1.8% of cancer deaths. The annual incidence is 5.2 new cases per every 100,000 individuals (Canadian Cancer Statistics 2013). Quebec statistics about multiple myeloma are unfortunately not well known, since there is no provincial database on this subject. Despite the many developments in cancer treatment in recent years, this disease remains incurable for the vast majority of patients with standard therapies.

Clinical symptoms and manifestations

The clinical manifestations of this disease arise primarily from two events:

- The accumulation of myeloma cells, especially in the bone marrow and bones. This accumulation, however, can occur

anywhere in the body and can even form tumors known as plasmacytomas;
- The accumulation of antibodies or portions of antibodies toxic to the kidneys and sometimes other organs.

Although a diagnosis of multiple myeloma can be made without a clinical manifestation, through a chance discovery while investigating something else, the majority of patients have symptoms at the time of diagnosis, including:

- General symptoms (fatigue, weight loss, loss of appetite), often present to varying degrees;
- Symptoms of kidney failure, including nausea and vomiting;
- Bone pain (a very common symptom);
- Symptoms associated with anemia (decreased hemoglobin concentration with fatigue, exercise intolerance, headache, sore throat, etc.), thrombocytopenia (decreased platelet count with a tendency for bleeding) and neutropenia (decreased neutrophil count with a tendency for infections).

No symptoms are specific to multiple myeloma. It is therefore important for primary care physicians to be aware of this fact. When a diagnosis of multiple myeloma is plausible, it is important to further investigate. The diagnosis is not made by a questionnaire or a physical exam, but rather by using paraclinical tests (see Diagnosis section).

The risk factors of multiple myeloma

So far, no cause of multiple myeloma has been clearly established. However, some risk factors have been identified, including:

- Age: the disease affects more people over 40 years of age (less than 5% of cases in people under the age of 40),

with a diagnosis occurring usually around the age of 65;
- Sex: there is an overall ratio of 6 men to 4 women with multiple myeloma. It is possible that hormonal factors play a role;
- Origin: multiple myeloma can be diagnosed in people of all races. However, the incidence among black people is approximately twice as high;
- Monoclonal gammopathy of undetermined significance (MGUS, also known as benign monoclonal gammopathy) constitutes a first step in the development of multiple myeloma;
- It is possible that environmental factors such as benzene, pesticides and radiation exposure increase the incidence of MM, but clinical evidence is not convincing;
- It is important to point out that multiple myeloma is not contagious.

Heredity and genetics

While this is not a hereditary disease, the risk is still higher if an immediate family member suffers from multiple myeloma. In addition, there are families where multiple individuals have multiple myeloma.

Like most cancers, multiple myeloma is a genetic disease. Indeed, several recurrent genetic abnormalities have been documented.