



Multiple myeloma in the spotlight

With March being Multiple Myeloma Awareness Month, Dr Philippa Ashmore gives us a rundown on this bone marrow cancer and the increasing treatment options.

Multiple myeloma (MM) is a common cancer of bone marrow. It's most often seen in older adults, with a higher rate in black patients compared to Caucasians. It's generally a chronic disease with little chance of cure, but with increasing treatment options, the quality and quantity of life for most patients has improved dramatically over the last two decades.

HOW DOES MM DEVELOP?

The myeloma cell, or plasma cell, is an immune system cell that becomes cancerous. When this happens, it homes to the bone marrow where it makes large amounts of antibodies, called an 'M' protein, when detected on blood tests. This can cause several problems both within and outside of the immune system.

SYMPTOMS

Symptoms in myeloma arise from three main disease processes:

1. Excessive antibody production

These antibodies flood the bloodstream and block the filtration system of the kidney. MM patients commonly have some degree of kidney dysfunction that needs to be addressed quickly to avoid kidney failure. The antibodies can also accumulate in tissues, a process called amyloidosis, which causes damage to places, such as the heart, liver, nerves, and gastrointestinal tract.

2. Excessive growth of myeloma cells

Myeloma cells overcrowd the bone marrow, pushing out normal blood production. This leads to dropping blood counts, most commonly a dropping red cell count, or anaemia. One of the most common symptoms, fatigue, is related to this.

Growth of myeloma cells in the bones weakens their integrity (lytic lesions) predisposing to fractures. This is another way patients can present, with the potential for ongoing chronic pain. It also releases calcium from bone into the blood, causing confusion, kidney dysfunction, constipation, and abdominal pain.

Additionally, collections of myeloma cells create tumours, called plasmacytomas, that can cause compression in the spinal cord, resulting in leg weakness and paralysis.

3. Immune system suppression

When myeloma cells increase, they suppress healthy immune cell function (e.g. reduced healthy antibody production) leading to infections.

STANDARD TREATMENT

A multi-disciplinary approach is needed to treat most effectively, depending on how sick a patient is when they're diagnosed. For example, some patients are diagnosed at an early stage, whereas others can be diagnosed when they present as an emergency with kidney failure and multiple fractures. The latter type of patient needs emergency care as well as a significant rehabilitation process, alongside urgent myeloma treatment.

The standard treatment approach has changed the last 20 years or so. Previously aggressive chemotherapy was used, whereas as now the emphasis is on targeted therapies and immune modulation, with occasional low-dose chemotherapy. The exception to this is stem cell transplantation which has an important role for those young and fit enough to tolerate this treatment modality.

The stages of therapy are: induction (a combination of 3-4 medications to get the myeloma under control and reduce the cancer cells substantially); consolidation (either with ongoing medication or a stem cell transplant); and maintenance (1-2 medications used to keep the myeloma controlled for as long as possible which can be several years). A patient may cycle through these stages of treatment several times depending on the activity of their disease.

Main types of medication used

- Corticosteroid (e.g. prednisone or dexamethasone)
- Immunomodulatory imide drugs (IMiDs) (e.g. thalidomide or lenalidomide)
- Proteasome inhibitors (e.g. bortezomib or ixazomib)
- Low dose-chemotherapy (e.g. cyclophosphamide or melphalan)
- Monoclonal antibodies (e.g. daratumumab). These drugs are used in different combinations depending on the stage of treatment and the clinical features that dominate in a particular patient, which allows for a more personalised approach to treating patients.

CHALLENGES IN TREATMENT

Patients can be elderly and frail, with many other health problems. Other challenges are logistical with access to specialists experienced in treating what can be a very complicated disease, and access to the drugs needed to treat.

The above medications have significant costs, and the question of how to sequence particular combinations in this kind of backdrop when the most effective treatments should be used first to induce the longest responses can be extremely difficult.

In the state sector, most of these medications are simply not available, leaving clinicians with far less effective treatment options.

In the private sector, these drugs are available, but patients often run into costly co-payments which for most aren't affordable given the chronic nature of treatment. Fortunately, with the emergence of generics for many of these drugs, the costs have fallen, and access is becoming a reality for far more patients, within the private sector.

Meet the EXPERT



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