Myeloma is a cancer of the bone marrow. It forms in a type of white blood cell called a plasma cell. Plasma cells help the body to fight infections by making antibodies that recognise and attack germs. These cells crowd out normal bone marrow cells and may spread to other parts of the body, hence the term multiple myeloma.

Myeloma causes symptoms that need treatment for a period, followed by a period of remission where symptoms subside and do not need any treatment. This cycle of remission and recurrence (relapse) often occurs several times over. Your treatment may involve taking a combination of drugs, including some that have been introduced in recent years and have drastically improved myeloma treatment. Combinations of these have been found to be more effective than single drugs. Unfortunately there is not yet a permanent cure but you can expect to enjoy a good quality of life for many years.
Daratumumab is a medicine called monoclonal antibody, a drug with some specific features and a different mechanism of action than the drugs we have been using for myeloma. It is approved for use on its own to treat myeloma in adult patients whose disease has progressed despite previous treatment with proteasome inhibitors and immunomodulatory drugs. The European Medicines Agency (EMA) granted a conditional marketing authorisation for daratumumab in 2016 after it was reviewed under the EMA’s accelerated assessment programme. Several clinical trials are ongoing and it is subject to annual reviews.

**WHAT IS DARATUMUMAB (DARZALEX®)?**

Daratumumab is a monoclonal antibody that has been designed to recognise and bind to the CD38 protein, which is found in high amounts on myeloma cells. By attaching to CD38, daratumumab kills myeloma cells through a direct anti-tumour activity but it also activates the immune system to kill the cancer cells. It is the first monoclonal antibody single agent treatment approved for treating myeloma.

The safety and effectiveness of daratumumab were demonstrated in two clinical trials. In one study of 106 patients, 29% of patients had a complete or partial reduction in their tumour burden, which lasted for an average of 7.4 months. In the second study of 42 patients, 36% had a complete or partial reduction in their tumour burden. Another significant benefit is the stabilization of the disease reported in approximately 50% of the patients included in these trials, which is relevant because it means that daratumumab stopped the progression of the disease.

There are also clinical trials under way that assess combining daratumumab with standard two-drug regimens: bortezomib plus dexamethasone, and lenalidomide plus dexamethasone. Additional trials are testing various daratumumab-based regimens for patients with newly diagnosed myeloma.

**HOW DOES DARATUMUMAB WORK?**
Daratumumab can cause infusion reactions, but most of them occur during the first infusion and are not severe. You should receive medicines to reduce the risk of infusion-related reactions before and after the infusion and you should be monitored frequently during the entire infusion. Contact a member of the clinical staff if you notice a reaction. Your doctor may need to reduce the infusion rate or stop treatment if you have a severe reaction.

Other side effects may include:

- fatigue
- nausea
- back pain
- fever
- cough, and
- upper respiratory tract infection

You may also develop the following blood abnormalities:

- low white blood cell counts (neutropenia)
- low red blood cells (anaemia) or
- low levels of blood platelets (thrombocytopenia)

Daratumumab is given as an infusion (drip) into a vein at a hospital out-patients department or clinic, under the supervision of a doctor who specialises in the treatment of cancer. The starting dose is calculated using your weight. It is given once a week for the first eight weeks, once every two weeks from week nine to week twenty four, and then every four weeks. Treatment continues for as long as you benefit from it.
References


- Manufacturer’s product information https://www.darzalex.com/


- Rajkumar, SV. Daratumumab in multiple myeloma. Lancet S0140-6736(15)01226-X