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EPAR summary for the public

Revlimid

lenalidomide

This is a summary of the European public assessment report (EPAR) for Revlimid. It explains how the Agency assessed the medicine to recommend its authorisation in the EU and its conditions of use. It is not intended to provide practical advice on how to use Revlimid.

For practical information about using Revlimid, patients should read the package leaflet or contact their doctor or pharmacist.

What is Revlimid and what is it used for?

Revlimid is a medicine used for the treatment of multiple myeloma, myelodysplastic syndromes and mantle cell lymphoma, which are conditions affecting blood cells and bone marrow.

In multiple myeloma, a cancer of a type of white blood cells called plasma cells, Revlimid is used:

- on its own, in adults who have had a stem cell transplant (a procedure where the patient's bone marrow is cleared of cells and replaced by stem cells from a donor) to stop the progression of the cancer;
- in combination with dexamethasone (an anti-inflammatory medicine), for the treatment of adults with previously untreated (newly diagnosed) multiple myeloma, who cannot have stem cell transplantation;
- in combination with melphalan (a cancer medicine) and prednisone (an anti-inflammatory medicine) for the treatment of adults with previously untreated multiple myeloma, who cannot have stem cell transplantation;
- in combination with dexamethasone, in adults whose disease has been treated at least once in the past.

In myelodysplastic syndromes, a group of bone marrow disorders that cause anaemia (low red blood cell counts), Revlimid is used for patients who need blood transfusions to manage their anaemia. In some cases, myelodysplastic syndromes can lead to acute myeloid leukaemia (AML, a type of cancer

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affecting white blood cells). Revlimid is used in patients who have a genetic abnormality (called deletion 5q) and are at a lower risk of AML, and it is used when other treatments are not adequate.

In mantle cell lymphoma, a blood cancer that affects a type of white blood cell called B lymphocytes, Revlimid is used in adults whose disease has come back after treatment, or does not improve with treatment.

Because the number of patients with these diseases is low, the diseases are considered 'rare', and Revlimid was designated an 'orphan medicine' (a medicine used in rare diseases) on 12 December 2003, 8 March 2004 and 27 October 2011.

Revlimid contains the active substance lenalidomide.

How is Revlimid used?

Revlimid is available as capsules (2.5 mg, 5 mg, 7.5 mg, 10 mg, 15 mg, 20 mg and 25 mg) to be taken by mouth. The medicine can only be obtained with a prescription and treatment must be monitored by doctors who have experience in the use of cancer medicines.

Revlimid is taken in repeated 28-day cycles: the patient takes the medicine once a day on certain days over 28 days. Depending on the day, the patient may take one or more medicines or may not take any medicines.

The dose depends on the disease Revlimid is used to treat. The dose should be reduced or treatment interrupted depending on whether the disease has worsened, the severity of any side effects and the levels of platelets (components that help the blood to clot) and neutrophils (a type of white blood cell that helps fight infection). A lower dose should be used in patients who have moderate or more severe reduction in their kidney function. For more information, see the summary of product characteristics (also part of the EPAR).

How does Revlimid work?

The active substance in Revlimid, lenalidomide, is an immunomodulating agent. This means that it affects the activity of the immune system (the body's natural defences). Lenalidomide works in a number of different ways: it blocks the development of abnormal cells, prevents the growth of blood vessels within tumours and also stimulates specialised cells of the immune system to attack the abnormal cells.

What benefits of Revlimid have been shown in studies?

Multiple myeloma

Revlimid was more effective than placebo (a dummy treatment) in two main studies in 1,074 patients with newly diagnosed multiple myeloma and who had had stem cell transplantation. The main measure of effectiveness was how long patients lived without their cancer getting worse. In the first study, patients taking Revlimid lived longer without their disease getting worse (57 months) than patients in the placebo group (29 months). In the second study, patients taking Revlimid also lived longer without their disease getting worse (44 months) than patients in the placebo group (24 months).

In newly diagnosed multiple myeloma, Revlimid has been studied in two main studies involving 2,082 patients, which looked at how long patients lived without their disease getting worse. The first study compared Revlimid with placebo, both taken with melphalan and prednisone. In this study, patients

taking Revlimid (plus melphalan and prednisone) lived longer without their disease getting worse (27 months) than patients in the placebo group (13 months). In the second study, Revlimid taken with low-dose dexamethasone was compared with standard treatment of melphalan, prednisone and thalidomide. In this study, it took 26 months for the disease to get worse in patients taking Revlimid plus dexamethasone, compared with 22 months for those on standard treatment.

Revlimid has also been studied in two main studies involving 704 patients with previously treated multiple myeloma. In both studies, Revlimid was compared with placebo, both taken with dexamethasone. The main measure of effectiveness was how long patients lived without their disease getting worse. The results of the two studies taken together showed that, on average, patients taking Revlimid lived longer without their disease getting worse (48 weeks) than patients in the placebo group (20 weeks).

Myelodysplastic syndromes

Two main studies have also been carried out involving a total of 353 patients with lower risk myelodysplastic syndromes. The first study did not compare Revlimid with any other treatment, while the second study compared it with placebo. The main measure of effectiveness was the number of patients who did not need a blood transfusion for at least 8 weeks in the first study and 26 weeks in the second study. In the first study, 97 out of 148 patients (66%) taking 10 mg Revlimid did not need a blood transfusion for at least 8 weeks. In the second study, 38 out of 69 patients (55%) taking 10 mg Revlimid did not need a blood transfusion for at least 26 weeks, compared with 4 out of 67 patients (6%) taking placebo.

Mantle cell lymphoma

One main study involved 254 patients with mantle cell lymphoma that had come back after previous treatment or had not improved on previous treatment. Revlimid was compared with an appropriate medicine chosen by the patients' doctors, and the main measure of effectiveness was how long it took until the disease got worse. The average time before the disease got worse was 38 weeks in those treated with Revlimid, compared with 23 weeks in those given other treatments.

What are the risks associated with Revlimid?

The most common side effects with Revlimid for the treatment of multiple myeloma are: bronchitis (inflammation of the airways in the lungs), nasopharyngitis (inflammation of the nose and throat), cough, gastroenteritis (inflammation of the stomach and intestines with diarrhoea and vomiting), upper respiratory tract infection (cold), tiredness, neutropenia (low levels of neutrophils, a type of white blood cell), constipation, diarrhoea, muscle cramps, anaemia, thrombocytopenia (low platelet counts), rash, back pain, insomnia (difficulty sleeping), decreased appetite, fever, peripheral oedema (swelling, especially of the ankles and feet), leucopenia (low white blood cell counts) and weakness.

The most common side effects with Revlimid for the treatment of myelodysplastic syndromes are: neutropenia, thrombocytopenia, diarrhoea, constipation, nausea (feeling sick), itching, rash, tiredness and muscle spasms.

The most common side effects with Revlimid for the treatment of mantle cell lymphoma are: neutropenia, anaemia, diarrhoea, tiredness, constipation, fever and rash.

The most serious side effects with Revlimid are: neutropenia, venous thromboembolism (blood clots in the veins) including pulmonary embolism (blood clots in the lungs), lung infections including pneumonia, kidney failure, febrile neutropenia (neutropenia with fever), diarrhoea and anaemia.

For the full list of all side effects reported with Revlimid, see the package leaflet.

Lenalidomide can be harmful to the unborn child. Therefore, Revlimid must not be used in women who are pregnant. It must also not be used in women who could become pregnant, unless they take all the necessary steps to ensure that they are not pregnant before treatment and that they do not become pregnant during or soon after treatment. For the full list of restrictions, see the package leaflet.

Why is Revlimid approved?

The Agency's Committee for Medicinal Products for Human Use (CHMP) decided that Revlimid's benefits are greater than its risks and recommended that it be approved for use in the EU.

What measures are being taken to ensure the safe and effective use of Revlimid?

The company that makes Revlimid will provide a letter and educational kits for healthcare professionals, and brochures for patients, explaining that the medicine can be harmful to the unborn child and detailing the steps that need to be taken for the medicine to be used safely. It will also supply cards for patients to ensure that they are informed about appropriate safety measures to be taken by each patient.

The company has also set up a pregnancy prevention programme in each Member State and will collect information on the medicine's use outside its approved uses. The boxes containing Revlimid capsules also include a warning stating that lenalidomide can be harmful to the unborn child.

In addition, the company will carry out a study in patients with myelodysplastic syndromes to gather further safety data, as well as a safety study in patients with newly diagnosed multiple myeloma not eligible for transplant.

Recommendations and precautions to be followed by healthcare professionals and patients for the safe and effective use of Revlimid have also been included in the summary of product characteristics and the package leaflet.

Other information about Revlimid

The European Commission granted a marketing authorisation valid throughout the European Union for Revlimid on 14 June 2007.

The full EPAR for Revlimid can be found on the Agency's website: ema.europa.eu/Find medicine/Human medicines/European Public Assessment Reports. For more information about treatment with Revlimid, read the package leaflet (also part of the EPAR) or contact your doctor or pharmacist.

The summaries of the opinions of the Committee for Orphan Medicinal Products for Revlimid can be found on the Agency's website ema.europa.eu/Find medicine/Human medicines/Rare disease designations:

- treatment of multiple myeloma;
- treatment of myelodysplastic syndromes;

- treatment of mantle cell lymphoma.

This summary was last updated in 02-2017.