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Public summary of opinion on orphan designation

Autologous CD34+ cells transduced with a lentiviral vector encoding galactosidase alpha for the treatment of Fabry disease

On 19 October 2020, orphan designation EU/3/20/2341 was granted by the European Commission to Clinical Technology Centre (Ireland) Limited, Ireland, for autologous CD34+ cells transduced with a lentiviral vector encoding galactosidase alpha (also known as AVR-RD-01) for the treatment of Fabry disease.

What is Fabry disease?

Fabry disease is an inherited disease that is caused by the lack of an enzyme called alpha galactosidase A, which breaks down and removes Gb3, a complex molecule containing sugars and fats.

In patients with this condition, large amounts of Gb3 build up in vital organs, such as the kidneys and heart, leading to kidney failure and heart problems. Gb3 also builds up in the tissues of the skin, eye and nervous system leading to skin damage, clouding of the front part of the eye, pain in the hands and feet and complications affecting the brain.

Fabry disease is a long-term debilitating disease due to recurrent episodes of severe pain that cannot be relieved with painkillers. It is also life-threatening due to kidney problems, heart attack and stroke.

What is the estimated number of patients affected by the condition?

At the time of designation, Fabry disease affected less than 2 in 10,000 people in the European Union (EU). This was equivalent to a total of fewer than 104,000 people*, and is below the ceiling for orphan designation, which is 5 people in 10,000. This is based on the information provided by the sponsor and the knowledge of the Committee for Orphan Medicinal Products (COMP).

*For the purpose of the designation, the number of patients affected by the condition is estimated and assessed on the basis of data from the European Union, Iceland, Liechtenstein, Norway and the United Kingdom. This represents a population of 519,200,000 (Eurostat 2020).

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What treatments are available?

At the time of designation, Fabrazyme (agalsidase beta) and Replagal (agalsidase alfa), which are enzyme replacement therapies, and Galafold (migalastat), which allows any existing enzyme to work better, were authorised in the EU to treat Fabry disease.

The sponsor has provided sufficient information to show that the medicine might be of significant benefit for patients with Fabry disease. Results from early studies indicate that enzyme replacement therapy in patients with Fabry disease can be reduced or stopped following use of this medicine.

This assumption will need to be confirmed at the time of marketing authorisation, in order to maintain the orphan status.

How is this medicine expected to work?

The medicine is made up of bone marrow cells called CD34+ taken from the patient. These cells are able to develop into different types of immune cells. To make this medicine, the cells are modified by a virus containing the gene for the alpha galactosidase A enzyme, which is lacking in patients with Fabry disease; this results in the gene being introduced into the cells. When the modified cells are transplanted back into the patient, they are expected to produce new blood cells that carry the missing enzyme throughout the body. This is expected to lead to a reduction of Gb3 levels in the body and therefore help to relieve the symptoms of the disease.

The type of virus used in this medicine does not cause disease in humans.

What is the stage of development of this medicine?

The effects of the medicine have been evaluated in experimental models.

At the time of submission of the application for orphan designation, clinical trials with the medicine in patients with Fabry Disease were ongoing.

At the time of submission, the medicine was not authorised anywhere in the EU for the treatment of Fabry disease. Orphan designation of the medicine had been granted in the United States for this condition.

In accordance with Regulation (EC) No 141/2000, the COMP adopted a positive opinion on 10 September 2020, recommending the granting of this designation.

Opinions on orphan medicinal product designations are based on the following three criteria:

- the seriousness of the condition;
- the existence of alternative methods of diagnosis, prevention or treatment;
- either the rarity of the condition (affecting not more than 5 in 10,000 people in the EU) or insufficient returns on investment.

Designated orphan medicinal products are products that are still under investigation and are considered for orphan designation on the basis of potential activity. An orphan designation is not a marketing authorisation. As a consequence, demonstration of quality, safety and efficacy is necessary before a product can be granted a marketing authorisation.

For more information

Contact details of the current sponsor for this orphan designation can be found on EMA website.

For contact details of patients' organisations whose activities are targeted at rare diseases see:

- Orphanet, a database containing information on rare diseases, which includes a directory of patients' organisations registered in Europe;
- European Organisation for Rare Diseases (EURORDIS), a non-governmental alliance of patient organisations and individuals active in the field of rare diseases.