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Public summary of opinion on orphan designation

Triheptanoin for the treatment of carnitine palmitoyltransferase I deficiency

On 13 November 2020, orphan designation EU/3/20/2360 was granted by the European Commission to Ultragenyx Germany GmbH, Germany, for triheptanoin for the treatment of carnitine palmitoyltransferase I deficiency.

What is carnitine palmitoyltransferase I deficiency?

Carnitine palmitoyltransferase I deficiency is an inherited disease caused by the lack of an enzyme called CPT I. CPT I is one of the enzymes needed by the mitochondria (the energy-producing components in cells) to break down certain fatty acids to generate energy. If this enzyme is lacking, cells cannot work normally, causing a wide range of symptoms, including severe hypoglycaemia (low blood sugar levels), damage to muscle, including heart muscle, liver problems and abnormal or irregular heartbeat.

The condition is chronically debilitating and life-threatening, particularly since it causes hypoglycaemia, heart problems and damage to various organs.

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

At the time of designation, CPT I deficiency affected less than 0.01 in 10,000 people in the European Union (EU). This was equivalent to a total of around 500 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).

What treatments are available?

At the time of designation, no satisfactory methods were authorised in the EU for the treatment of CPT I deficiency. Treatment of patients primarily involved controlling dietary fat, as well as increased frequency of food intake.

*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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How is this medicine expected to work?

Triheptanoin is a fat which is broken down in the liver into substances that can be used to generate energy without the need for the CPT-I enzyme in the cells. By bypassing the need for CPT-I, this medicine is expected to allow cells to generate energy and improve the symptoms of the disease.

What is the stage of development of this medicine?

The effects of triheptanoin have been evaluated in experimental models.

At the time of submission of the application for orphan designation, clinical trials with triheptanoin in patients with CPT I deficiency were ongoing.

At the time of submission, triheptanoin was not authorised anywhere in the EU for the Treatment of CPT I deficiency. Orphan designation of triheptanoin had been granted in the USA for long-chain fatty acid oxidation disorder, a group of disorders that includes CPT I deficiency.

In accordance with Regulation (EC) No 141/2000, the COMP adopted a positive opinion on 8 October 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.