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EMA/COMP/432848/2015
Committee for Orphan Medicinal Products

Public summary of opinion on orphan designation

Triheptanoin for the treatment of carnitine palmitoyltransferase II deficiency

On 28 July 2015, orphan designation (EU/3/15/1526) was granted by the European Commission to Ultragenyx UK Limited, United Kingdom, for triheptanoin for the treatment of carnitine palmitoyltransferase II deficiency.

What is carnitine palmitoyltransferase II deficiency?

Carnitine palmitoyltransferase II deficiency is an inherited disease caused by the lack of an enzyme called CPT II. CPT II is one of the enzymes needed by the mitochondria (the energy-producing components within cells) to break down certain fatty acids in order to generate energy. If this enzyme is lacking, cells cannot function normally causing a wide range of signs and symptoms including hypoglycaemia (low blood sugar levels), exercise-induced muscle pain and weakness, and damage to the liver, brain, nerves and heart.

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

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

At the time of designation, carnitine palmitoyltransferase II deficiency affected approximately 0.1 in 10,000 people in the European Union (EU). This was equivalent to a total of around 5,000 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).

What treatments are available?

At the time of designation, no satisfactory methods were authorised in the EU for the treatment of carnitine palmitoyltransferase II deficiency. Treatment of patients primarily involved restriction of dietary fat, as well as increased frequency of food intake to avoid overloading the body with fatty acids. However, these dietary regimens were of unproven value or only partially successful.

[*]Disclaimer: 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 (EU 28), Norway, Iceland and Liechtenstein. This represents a population of 512,900,000 (Eurostat 2015).

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How is this medicine expected to work?

Triheptanoin is a synthetic (artificially produced) fat, which is broken down in the liver into substances that can be used to generate energy without the need for CPT II. By bypassing the need for CPT II, this medicine is expected to restore normal energy generation and ultimately improve the overall outcome of the patients.

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 triheptanoin in patients with carnitine palmitoyltransferase II deficiency were ongoing.

At the time of submission, triheptanoin was not authorised anywhere in the EU for carnitine palmitoyltransferase II deficiency. Orphan designation of the medicine had been granted in the United States for this condition.

In accordance with Regulation (EC) No 141/2000 of 16 December 1999, the COMP adopted a positive opinion on 18 June 2014 recommending the granting of this designation.

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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

Sponsor's contact details:

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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.

Translations of the active ingredient and indication in all official EU languages[1], Norwegian and Icelandic

Language	Active ingredient	Indication
English	Triheptanoin	Treatment of carnitine palmitoyltransferase II deficiency
Bulgarian	Трихептаноин	Лечение на дефицит на карнитин палмитоил-трансфераза II
Croatian	Triheptanoin	Liječenje nedostatka karnitin-palmitoil-transferaze II
Czech	Triheptanoin	Léčba deficitu karnitin-palmitoyl transferázy II
Danish	Triheptanoin	Behandling af carnitin-palmitoyltransferase II mangel
Dutch	Triheptanoin	Behandeling van carnitinepalmitoyltransferase II deficiëntie
Estonian	Triheptanoiin	Karnitiinpalmitoüültransferaas tüüp II defitsiidi ravi
Finnish	Triheptanoiini	Karnitiinipalmityylitransferaasi II:n puutoksen hoito
French	Triheptanoïne	Traitement du déficit en carnitine palmitoyltransférase de type II
German	Triheptanoin	Behandlung eines Carnitin-Palmitoyltransferase-II Mangels
Greek	Τριεπτανοΐνη	Θεραπεία της ανεπάρκειας παλμιτοϋλτρανσφεράσης της καρνιτίνης II
Hungarian	Triheptanoin	Karnitin-palmitoil-transzferáz II hiány kezelése
Italian	Trieptanoina	Trattamento del deficit di carnitina-palmitoil transferasi II
Latvian	Triheptanoīns	Karnitīna palmitoiltransferāzes II deficīta ārstēšana
Lithuanian	Triheptanoinas	Karnitino palmitoiltransferazės II stokos gydymas
Maltese	Triheptanoin	Kura ta' nuqqas ta' carnitine palmitoyl transferase II
Polish	Triheptanoina	Leczenie niedoboru palmitoilotransferazy karnityny II
Portuguese	Tri-heptanoína	Tratamento da deficiência da carnitina-palmitoil transferase II
Romanian	Triheptanoin	Tratamentul deficitului de carnitin-palmitoil transferază II
Slovak	Triheptanoín	Liečba deficitu karnitín-palmitoyl-transferázy II
Slovenian	Triheptanoin	Zdravljenje pomanjkanja karnitin palmitoil transferaze II
Spanish	Triheptanoína	Tratamiento del déficit de carnitina palmitoiltransferasa II
Swedish	Triheptanoin	Behandling av karnitinpalmitoyltransferas II-brist
Norwegian	Triheptanoin	Behandling av karnitinpalmitoyltransferase II-mangel
Icelandic	Tríheptanóín	Meðferð við skorti á karnitín palmítóýl transferasa 2

[1] At the time of designation