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Public summary of opinion on orphan designation

Vatiquinone for the treatment of RARS2 syndrome

On 17 January 2018, orphan designation (EU/3/17/1971) was granted by the European Commission to Edison Orphan Pharma BV, The Netherlands, for vatiquinone (also known as alpha-tocotrienol quinone) for the treatment of RARS2 syndrome.

What is RARS2 syndrome?

RARS2 syndrome (or pontocerebellar hypoplasia type 6) is an inherited disorder of the mitochondria, the structures inside cells that supply them with energy. It is caused by a mutation (change) in the gene that enables production of an enzyme called mitochondrial arginyl-transfer RNA synthetase (RARS2). This enzyme is needed for the mitochondria to work normally. Patients with RARS2 syndrome develop rapidly progressive damage to the brain in the early weeks or years of life.

RARS2 syndrome is a debilitating and life-threatening disorder due to hard-to-control seizures (fits), recurring infections, paralysis and developmental delay. The condition is usually fatal in early childhood.

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

At the time of designation, RARS2 syndrome affected less than 0.001 in 10,000 people in the European Union (EU). This was equivalent to a total of fewer than 50 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 RARS2 syndrome. Treatment was mainly supportive, including medicines to treat seizures, antibiotics for infections, and dietary and nutritional support.

*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 515,700,000 (Eurostat 2017).

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How is this medicine expected to work?

In patients with RARS2 syndrome, the abnormality in the mitochondria is thought to result in increased production of unstable compounds containing oxygen (oxidative stress) that damage cells, and lowered levels of substances such as glutathione that normally protect cells. Vatiquinone is a derivative of vitamin E that is expected to enter the cells of the brain and help protect them against oxidative stress by increasing production of glutathione. It is expected that this will slow the damage to the cells and help reduce symptoms of the condition.

What is the stage of development of this medicine?

The effects of vatiquinone have been evaluated in experimental models.

At the time of submission of the application for orphan designation, no clinical trials with vatiquinone in patients with RARS2 syndrome had been started.

At the time of submission, the medicine was not authorised anywhere in the EU for RARS2 syndrome. Orphan designation of vatiquinone had been granted in the EU for Leigh syndrome, another condition related to abnormal function of mitochondria.

In accordance with Regulation (EC) No 141/2000 of 16 December 1999, the COMP adopted a positive opinion on 7 December 2017 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:

Contact details of the current sponsor for this orphan designation can be found on EMA website, on the medicine's rare disease designations page.

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	Vatiquinone	Treatment of RARS2 syndrome
Bulgarian	Ватиквинон	Лечение на синдрома на RARS2
Croatian	Vatikinon	Liječenje RARS2 sindroma
Czech	Vatichinon	Léčba syndromu RARS2
Danish	Vatiquinon	Behandling af RARS2-syndrom
Dutch	Vatiquinone	Behandeling van RARS2 syndroom
Estonian	Vatikinoon	RARS2 sündroomi ravi
Finnish	Vatikinoni	RARS2-oireyhtymän hoito
French	Vatiquinone	Traitement du syndrome de RARS2
German	Vatiquinone	Behandlung des RARS2-Syndroms
Greek	Βατικινόνη	Θεραπεία του συνδρόμου RARS2
Hungarian	Vatiquinon	RARS2 szindróma kezelése
Italian	Vatiquinone	Trattamento della sindrome RARS2
Latvian	Vatikvinons	RARS2 sindroma ārstēšana
Lithuanian	Vatikvinonas	RARS2 sindromo gydymas
Maltese	Vatiquinone	Kura tas-sindrome RARS2
Polish	Vatiquinon	Leczenie zespołu RARS2
Portuguese	Vatiquinona	Tratamento da síndrome de RARS2
Romanian	Vatichinonă	Tratamentul sindromului RARS2
Slovak	Vatiquinone	Liečba syndrómu RARS2
Slovenian	Vatikinon	Zdravljenje sindroma RARS2
Spanish	Vatiquinona	Tratamiento del síndrome RARS2
Swedish	Vatiquinone	Behandling av RARS2-syndrom
Norwegian	Vatikinon	Behandling av RARS2 syndrom
Icelandic	Vatiqíinón	Meðferð við RARS2 heilkenni

[1] At the time of designation