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Committee for Orphan Medicinal Products

Public summary of opinion on orphan designation

Udenafil for the treatment of functional single ventricle congenital heart disease

On 12 December 2016, orphan designation (EU/3/16/1807) was granted by the European Commission to Mapi Ireland Limited, Ireland, for udenafil for the treatment of functional single ventricle congenital heart disease.

What is functional single ventricle congenital heart disease?

Functional single ventricle congenital heart disease is a condition in which babies are born with one of their lower heart chambers (ventricles) not working. As a result, the heart cannot pump blood properly to the lungs and the rest of the body.

Although patients undergo surgery (the Fontan procedure), in the long term patients suffer problems with heart function that steadily reduce their ability to perform exercise and live a normal life. Some patients also develop effects on the nervous system and digestive system.

The condition is long-term debilitating and life-threatening due to effects of reduced heart function, abnormal heart rhythm and the risk of or blood clots that obstruct the circulation.

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

At the time of designation, functional single ventricle congenital heart disease affected approximately 0.3 in 10,000 people in the European Union (EU). This was equivalent to a total of around 15,000 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 application, no satisfactory methods of treatment were authorised for patients with functional single ventricle congenital heart disease. Patients often required surgical procedures to

[*]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 513,700,000 (Eurostat 2016).

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improve the circulation, such as insertion of a shunt, coronary bypass when clots restricted blood flow to the heart muscle, or insertion of a pacemaker for irregular heart rhythm. In the most severe stages of heart failure, heart transplantation was the only curative treatment.

How is this medicine expected to work?

Udenafil is a type of medicine called a PDE5 inhibitor. It works by blocking an enzyme called phosphodiesterase type 5 (PDE5). When this enzyme is blocked, a substance called 'cyclic guanine monophosphate' (cGMP) cannot be broken down in the blood vessels of the lungs. This means that cGMP remains in the vessels where it causes them to widen. In patients with functional single ventricle congenital heart disease, this widening is expected to help blood to flow more easily to the lungs, reducing the burden on the heart and improving oxygen supply to the blood. This is expected to improve the symptoms of the condition.

What is the stage of development of this medicine?

The effects of udenafil have been evaluated in experimental models.

At the time of submission of the application for orphan designation, clinical trials with udenafil in patients with functional single ventricle congenital heart disease were ongoing.

At the time of submission, the medicine was approved in some countries for treatment of a different condition, erectile dysfunction (difficulty getting or maintaining an erection). Udenafil was not authorised anywhere in the EU for functional single ventricle congenital heart disease. 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 4 November 2016 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	Udenafil	Treatment of functional single ventricle congenital heart disease
Bulgarian	Уденафил	Лечение на функционално еднокамерно вродено сърдечно заболяване
Croatian	Udenafil	Liječenje prirođene bolesti srca s jednom funkcionalnom klijetkom
Czech	Udenafil	Léčba funkční vrozené jednokomorové srdeční vady
Danish	Udenafil	Behandling af medfødt univentrikulært hjerte
Dutch	Udenafil	Behandeling van functionele univentriculaire congenitale hartziekte
Estonian	Udenafíl	Ühe funktsionaalse vatsakese kaasasündinud südamehaiguse ravi
Finnish	Udenafiíli	Toiminnallisen yksikammioisen synnynnäisen sydänsairauden hoito
French	Udénafil	Traitement de la cardiopathie congénitale à ventricule unique fonctionnel
German	Udenafil	Behandlung von kongenitaler Herzerkrankung mit funktionell singulärem Ventrikel
Greek	Ουδεναφίλη	Θεραπεία συγγενούς καρδιοπάθειας λειτουργικά μονήρους κοιλίας
Hungarian	Udenafil	Funkcionálisan univentricularis veleszületett szívbetegség kezelése
Italian	Udenafil	Trattamento della cardiopatia congenita con singolo ventricolo funzionale
Latvian	Udenafils	Funkcionāla viena kambara iedzimtas sirdskaites ārstēšana
Lithuanian	Udenafilis	Funkcinės vieno skilvelio įgimtos širdies ligos gydymas
Maltese	Udenafil	Trattament għal mard konġenitali tal-qalb ta'ventrikola waħda funzjonali
Polish	Udenafil	Leczenie czynnościowej wady wrodzonej serca jednokomorowego
Portuguese	Udenafil	Tratamento de cardiopatia congénita funcional univentricular
Romanian	Udenafil	Tratamentul bolii cardiace congenitale cu ventricul unic funcţional
Slovak	Udenafil	Liečba funkčnej vrodenej jednokomorovej srdcovej vady
Slovenian	Udenafíl	Zdravljenje prirojene bolezni funkcionalnega enoprekatnega srca
Spanish	Udenafilo	Tratamiento de la insuficiencia cardíaca congénita por ventrículo único funcional con fisiología de Fontan
Swedish	Udenafíl	Behandling av medfött funktionellt enkammarhjärta
Norwegian	Udenafil	Behandling av medfødt funksjonell univentrikulær hjertesykdom
Icelandic	Údenafíl	Meðferð á starfrænum einslegils meðfædds hjartasjúkdóms

[1] At the time of designation