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Committee for Orphan Medicinal Products

Public summary of opinion on orphan designation

Doxycycline hyclate for the treatment of systemic amyloidosis caused by beta-2 microglobulin

On 5 March 2012, orphan designation (EU/3/12/961) was granted by the European Commission to Giampaolo Merlini, Italy, for doxycycline hyclate for the treatment of systemic amyloidosis caused by beta-2 microglobulin.

What is systemic amyloidosis caused by beta-2 microglobulin?

Systemic amyloidosis is a group of diseases in which deposits of proteins (called amyloids) accumulate in several organs in the body, causing damage to them. In systemic amyloidosis caused by beta-2 microglobulin, deposits containing the protein beta-2 microglobulin accumulate mainly in the bones and joints, causing bone and joint problems as well as fractures. This condition occurs in patients with long-term kidney failure who have been on dialysis for many years, as beta-2 microglobulin cannot be eliminated as normally in the urine.

Systemic amyloidosis caused by beta-2 microglobulin is a long-term debilitating condition because of the bone and joint problems.

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

At the time of designation, systemic amyloidosis caused by beta-2 microglobulin affected approximately 0.45 in 10,000 people in the European Union (EU)[*]. This is equivalent to a total of around 23,000 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).

[*]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 27), Norway, Iceland and Liechtenstein. This represents a population of 506,300,000 (Eurostat 2011).

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What treatments are available?

At the time of designation, there were no treatments authorised in the EU for systemic amyloidosis caused by beta-2 microglobulin. The only effective method for treating this disease was kidney transplantation.

How is this medicine expected to work?

Doxycycline is an antibiotic that belongs to a group called 'tetracyclines'. Doxycycline is known to accumulate in parts of the body where beta-2 microglobulin amyloids form, in particular in the bones and joints. This medicine is expected to work in systemic amyloidosis caused by beta-2 microglobulin by disrupting the deposits of beta-2 microglobulin, leading to the dissolution of the 'amyloids'. This is expected to reduce the symptoms of the disease.

What is the stage of development of this medicine?

At the time of submission of the application for orphan designation, the evaluation of the effects of doxycycline hyclate in experimental models was ongoing.

At the time of submission, clinical trials with doxycycline hyclate in patients with systemic amyloidosis were ongoing.

At the time of submission, doxycycline hyclate was not authorised anywhere in the EU for systemic amyloidosis caused by beta-2 microglobulin or designated as an orphan medicinal product elsewhere for this condition.

In accordance with Regulation (EC) No 141/2000 of 16 December 1999, the COMP adopted a positive opinion on 11 January 2012 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	Doxycycline hyclate	Treatment of systemic amyloidosis caused by beta-2 microglobulin
Bulgarian	Доксициклин хиклат	Лечение на системна амилоидоза, причинена от бета-2 микроглобулин
Czech	Doxycyklin hyklát	Léčba systémové amyloidosy způsoben beta-2 microglobulinem
Danish	Doxycyclinhyclat	Behandling af systemisk amyloidose forårsaget af beta-2 mikroglobulin
Dutch	Doxycyclinehyclaat	De behandeling van systemische amyloidose veroorzaakt door beta-2 microglobuline
Estonian	Doksütsükliinhüklaat	Süsteemse amüloidoosi raviks, mille põhjuseks on muteerunud beeta-2 mikroglobuliin
Finnish	Doksisykliinihyklaatti	Beeta-2 mikroglobuliinin aiheuttaman systeemisen amyloidoosin hoito
French	Hyclate de doxycycline	Traitement de l'amylose systémique due à la béta-2 microglobuline
German	Doxycyclinhyclat	Behandlung von beta-2 Mikroglobulin-assoziierter systemischer Amyloidose
Greek	Δοξυκυκλίνη (Doxycycline hyclate)	Θεραπεία της συστηματικής αμυλοείδωσης προκαλούμενη από β-2 μικροσφαιρίνη
Hungarian	Doxiciklin-hiklát	Beta-2 mikroglobulin okozta amiloidozis kezelése
Italian	Doxiciclina iclato	Trattamento dell'amiloidosi sistemica da beta-2 microglobulina
Latvian	Doksiciklīna hiklāts	Sistemātiskas amiliodozes ārstēšana, kuru izraisījis beta-2 mikroglobulīns
Lithuanian	Doksiciklino hiklatas	Sistemines amiloidozes, sukeltos beta-2 mikroglobulino, gydymas
Maltese	Doxycycline hyclate	Trattament ta 'amyloidosis sistemiċi kkawżati mill-beta-2 mikroglobulina
Polish	Hyklan doksycykliny	Leczenie ogólnoustrojowej amyloidozy wywołanej beta-2 mikroglobuliną
Portuguese	Hiclato de doxiciclina	Tratamento da amiloidose sistêmica causada por mutação da beta-2 microglobulina
Romanian	Doxiciclină hiclat	Tratamentul amiloidozei sistemice produse de beta-2 microglobulină
Slovak	Doxycyklín hyklát	Liečba systémovej amyloidózy spôsobenej beta-2 mikroglobulínom
Slovenian	Doksiciklinijev hiklat	Zdravljenje sistemske amiloidoza, ki jih povzročajo beta-2 mikroglobulin
Spanish	Hiclato de doxiciclina	Tratamiento de la amiloidosis sistémica causada por beta-2 microglobulina

[1] At the time of designation

Language	Active ingredient	Indication
Swedish	Doxycyklinhyklat	Behandling av systemisk amyloidos orsakad av beta-2 mikroglobulin
Norwegian	Doksysyklinhyklat	Behandling av systemisk amyloidose forårsaket av beta2-mikroglobulin
Icelandic	Doxýcýklín hyclate	Meðferð við kerfisbundnum mýlildissjúkdómum sem orsakast af beta2-míkróglóbúlíni