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Committee for Orphan Medicinal Products

Public summary of opinion on orphan designation

Ciprofloxacin (inhalation use) for the treatment of cystic fibrosis

On 3 August 2007, orphan designation (EU/3/07/469) was granted by the European Commission to Bayer HealthCare AG, Germany, for ciprofloxacin (inhalation use) for the treatment of cystic fibrosis.

The sponsorship was transferred to Bayer Schering Pharma AG, Germany, in May 2009. Bayer Shering Pharma AG changed its name to Bayer Pharma AG in October 2011.

What is cystic fibrosis?

Cystic fibrosis is a genetic disease caused by abnormalities of a specific gene, called CFTR. Cystic fibrosis appears only when both copies of the CFTR gene are abnormal (a situation called homozygosis). The CFTR gene is responsible for the production of a protein that regulates the passage of water and salts (like chloride) from and to specific cells of the body (epithelial cells). If the CFTR gene is abnormal there is defective transport of water and salts, which in turn results in the thickening of the secretions in several organs, particularly in the lungs and in the pancreas. This leads to accumulation of phlegm (mucus) in the lung and to chronic infections and chronic inflammation of the lung tissues. In the long term, these events and acute reactivations of the lung infections can induce damage to the lung tissue; the disease is life threatening due to the reduced lung function.

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

At the time of designation, cystic fibrosis affected approximately 1 in 10,000 people in the European Union (EU)[*]. This is equivalent to a total of around 46,000 people, and is below the threshold for orphan designation, which is 5 people in 10,000. This is based on the information provided by the sponsor and knowledge of the Committee for Orphan Medicinal Products (COMP).

What treatments are available?

At the time of submission of the application for the orphan drug designation, lung infection and inflammation in cystic fibrosis were treated mainly with antibiotics. These can be taken in a number of

[*]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 25), Norway, Iceland and Liechtenstein. This represents a population of 459,700,000 (Eurostat 2004).

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ways such as by mouth, intravenous infusion or they can be inhaled as a fine mist of particles. Other medications to treat the lung disease included bronchodilators (medications that enlarge the width of the airways) and mucolytics (that help to dissolve the lung secretions). Associated treatments included daily exercise and physiotherapy and several other types of medications such as pancreatic enzymes and food supplements.

Ciprofloxacin (inhalation use) might be of potential significant benefit for the treatment of cystic fibrosis because it might improve the long-term outcome of patients by reducing acute exacerbations of the lung infection. This assumption will have to be confirmed at the time of marketing authorisation. This will be necessary to maintain the orphan status.

How is this medicine expected to work?

Ciprofloxacin is an antibiotic, which is authorised for the short-term systemic treatment of acute exacerbations of infections in cystic fibrosis. The inhalation form is expected to target the lung directly, allowing a reduction of the dose to be administered compared to oral treatment. Targeted inhalation treatment may also reduce the occurrence of bacterial resistance due to long-term treatment with antibiotics from different classes.

What is the stage of development of this medicine?

The evaluation of the effects of ciprofloxacin (inhalation use) in experimental models is ongoing. At the time of submission of the application for orphan designation, no clinical trials in patients with cystic fibrosis were initiated.

Ciprofloxacin (inhalation use) was not authorised anywhere in the world for cystic fibrosis or designated as orphan elsewhere for this condition, at the time of submission.

In accordance with Regulation (EC) No 141/2000 of 16 December 1999, the COMP adopted a positive opinion on 27 June 2007 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	Ciprofloxacin (inhalation use)	Treatment of cystic fibrosis
Bulgarian	Ципрофлоксацин (за инхалаторно приложение)	Лечение на кистозна фиброза
Czech	Ciprofloxacin (inhalační podání)	Léčba cystické fibrózy
Danish	Ciprofloxacin (til inhalation)	Behandling af cystisk fibrose
Dutch	Ciprofloxacin (inhalatie gebruik)	Behandeling van cystische fibrose
Estonian	Ciprofloxacin (inhalatsiooniks)	Tsüstilise fibroosi ravi
Finnish	Ciprofloxacin (inhalaatioon)	Kystisen fibroosin hoito
French	Ciprofloxacine (voie inhalée)	Traitement de la mucoviscidose
German	Ciprofloxacin (zur Inhalation)	Behandlung zystischer Fibrose
Greek	Σιπροφλοξασίνη (εισπνεόμενη)	Θεραπεία της κυστικής ίνωσης
Hungarian	Ciprofloxacin (inhalációs alkalmazás)	Cisztikus fibrózis kezelése
Italian	Ciprofloxacina (uso inalatorio)	Trattamento della fibrosi cistica
Latvian	Ciprofloksacīns (inhalācijām)	Cistiskās fibrozes ārstēšana
Lithuanian	Ciprofloksacinas (inhaliuoti)	Cistinės fibrozės gydymas
Maltese	Ciprofloxacin (għal biex jingibed man-nifs)	Kura tal-fibrożi ċistiku
Polish	Cyprofloksacyna (podanie wziewne)	Leczenie zwłóknienia torbielowatego
Portuguese	Ciprofloxacina (via inalatória)	Tratamento da fibrose quística
Romanian	Ciprofloxacin (administrare inhalatorie)	Tratamentul fibrozei chistice
Slovak	Ciprofloxacín (inhalačné použitie)	Terapia cystickej fibrózy
Slovenian	Ciprofloksacin (za inhaliranje)	Zdravljenje cistične fibroze
Spanish	Ciprofloxacina (via inhalatoria)	Tratamiento de la fibrosis quística
Swedish	Ciprofloxacin (användning för inhalation)	Behandling av cystisk fibros
Norwegian	Ciprofloksacin (bruk til inhalasjon)	Behandling av cystisk fibrose
Icelandic	Cíprófloxacín (til innöndunar)	Meðferð við slímseigjusjúkdómi

[1] At the time of designation