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EPAR summary for the public

Revatio

sildenafil

This is a summary of the European public assessment report (EPAR) for Revatio. It explains how the Agency assessed the medicine to recommend its authorisation in the EU and its conditions of use. It is not intended to provide practical advice on how to use Revatio.

For practical information about using Revatio, patients should read the package leaflet or contact their doctor or pharmacist.

What is Revatio and what is it used for?

Revatio is a medicine used to treat adults and children from 1 year of age with pulmonary arterial hypertension (PAH, abnormally high blood pressure in the arteries of the lungs). In adults, Revatio is used in patients with class II (slight limitation of physical activity) or class III (marked limitation of physical activity) PAH.

Revatio contains the active substance sildenafil.

How is Revatio used?

Revatio can only be obtained with a prescription and treatment should only be started and monitored by a doctor who has experience in the treatment of PAH.

Revatio is available as tablets (20 mg), a solution for injection (0.8 mg/ml) and a powder to be made up into an oral suspension (10 mg/ml). The solution for injection is for adults who cannot take Revatio tablets or oral suspension for a short period, but whose condition is stable.

In adults, Revatio is taken at a dose of 20 mg three times a day. Lower doses of Revatio may be needed in patients taking some medicines that affect the way Revatio is broken down in the body. In adults who cannot take the tablets or oral suspension, the solution for injection is injected into a vein by a doctor or nurse at a dose of 10 mg (12.5 ml) three times a day.

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In children aged 1 to 17 years, the recommended dose is 10 mg three times a day in children weighing less than 20 kg and 20 mg three times a day in those over 20 kg. Higher doses should not be used.

How does Revatio work?

PAH is a debilitating disease where there is severe constriction (narrowing) of the blood vessels of the lungs. This leads to high blood pressure in the vessels taking blood from the heart to the lungs and reduces the amount of oxygen that can get into the blood in the lungs, making physical activity more difficult.

The active substance in Revatio, sildenafil, belongs to a group of medicines called 'phosphodiesterase type 5 (PDE5) inhibitors', which means that it blocks the PDE5 enzyme. This enzyme is found in the blood vessels of the lungs. When it is blocked, a substance called 'cyclic guanine monophosphate' (cGMP) cannot be broken down, so that it remains in the vessels where it causes relaxation and widening of the blood vessels. In patients with PAH, sildenafil widens the blood vessels of the lungs, which lowers the blood pressure and improves symptoms.

What benefits of Revatio have been shown in studies?

Revatio was more effective than placebo (a dummy treatment) at improving exercise capacity in one main study in adults and another main study in children.

The main study in adults involved 277 patients with PAH, most of whom had class II or class III disease. Change in exercise capacity was measured as the improvement in the distance patients could walk in 6 minutes after 12 weeks of treatment. Before treatment, adults with class II disease could walk an average of 378m in 6 minutes. After 12 weeks, this distance had increased by 49 m more in the patients taking 20 mg Revatio than in the patients taking placebo. Adults with class III disease could walk an average of 326 m at the start of the study. This distance had increased by 45 m more in the patients taking 20 mg Revatio than in those taking placebo after 12 weeks.

The main study in children involved 235 children aged 1 to 17 years with PAH. Change in exercise capacity in this study was measured as the improvement in the maximum volume of oxygen used during exercise after 16 weeks of treatment, in children able to perform the exercise tests. After 16 weeks, the maximum volume of oxygen the children used during exercise increased on average by 10.2% with Revatio compared with 0.5% with placebo.

The company also presented the results of studies showing that the tablets were equivalent to the oral suspension (produced similar levels of sildenafil in the blood), and that a 10 mg injection was equivalent to a 20 mg tablet.

What are the risks associated with Revatio?

The most common side effects with Revatio in adults (which may affect more than 1 patient in 10) are headache, flushing (reddening of the skin), dyspepsia (heartburn), diarrhoea and pain in arm or leg. Side effects are similar with the solution for injection. In children, the most common side effects (which may affect up to 1 patient in 10) are throat and nose infections, headache, vomiting, fever, diarrhoea, flu and nosebleeds. For the full list of all side effects reported with Revatio, see the package leaflet.

Revatio must not be taken by patients who have ever had a problem with blood flow in the eye called non-arteritic anterior ischaemic optic neuropathy (NAION). Revatio must not be taken with nitrates (medicines used to treat angina), or with medicines that could affect the way that Revatio is broken

down in the body, such as ketoconazole or itraconazole (antifungal medicines) and ritonavir (used to treat HIV infection). It must not be started in patients with severe liver disease or severe hypotension (very low blood pressure), or who have recently had a stroke or heart attack, because Revatio has not been studied in these groups of patients. For the full list of restrictions, see the package leaflet.

Why is Revatio approved?

The Agency's Committee for Medicinal Products for Human Use (CHMP) decided that Revatio's benefits are greater than its risks and recommended that it be approved for use in the EU. The CHMP concluded that Revatio provides an alternative treatment option for PAH.

What measures are being taken to ensure the safe use of Revatio?

The company that markets Revatio will agree with each European Union Member State on how the solution for injection will be distributed. It will also ensure that doctors and pharmacists who will prescribe or dispense the solution for injection in each Member State receive information about how it should be used and how to report side effects such as low blood pressure.

Recommendations and precautions to be followed by healthcare professionals and patients for the safe and effective use of Revatio have also been included in the summary of product characteristics and the package leaflet.

Other information about Revatio

The European Commission granted a marketing authorisation valid throughout the European Union for Revatio on 28 October 2005.

The full EPAR for Revatio can be found on the Agency's website: ema.europa.eu/Find medicine/Human medicines/European Public Assessment Reports. For more information about treatment with Revatio, read the package leaflet (also part of the EPAR) or contact your doctor or pharmacist.

This summary was last updated in 10-2016.