EMA/456072/2015
EMEA/H/C/000806

EPAR summary for the public

Cyanokit

hydroxocobalamin

This is a summary of the European public assessment report (EPAR) for Cyanokit. It explains how the Committee for Medicinal Products for Human Use (CHMP) assessed the medicine to reach its opinion in favour of granting a marketing authorisation and its recommendations on the conditions of use for Cyanokit.

What is Cyanokit?

Cyanokit is a powder to be made up into a solution for infusion (drip) into a vein. It contains the active substance hydroxocobalamin (vitamin B_{12a}).

What is Cyanokit used for?

Cyanokit is used as an antidote to treat known or suspected poisoning with cyanide, a highly poisonous chemical. Cyanide poisoning usually results from exposure to smoke from fire, from breathing or swallowing cyanide, or from getting it onto the skin or mucous membranes (moist body surfaces, such as the lining of the mouth).

The medicine can only be obtained with a prescription.

How is Cyanokit used?

Cyanokit is given as an emergency treatment as soon as possible after poisoning. It is given as an infusion over 15 minutes. For adults, the initial dose is 5 g. For children, it is 70 mg per kilogram body weight up to a maximum dose of 5 g. A second dose can be given, depending on how severe the poisoning is and how well the patient is responding. The second dose is given over a period of between 15 minutes and two hours, depending on the patient's condition. The maximum total dose is 10 g for adults, and 140 mg/kg in children up to a maximum of 10 g.

Cyanokit is given along with other appropriate decontamination and supportive measures, including providing oxygen for the patient to breathe.

30 Churchill Place ● Canary Wharf ● London E14 5EU ● United Kingdom
Telephone +44 (0)20 3660 6000 **Facsimile** +44 (0)20 3660 5555
Send a question via our website www.ema.europa.eu/contact

How does Cyanokit work?

The active substance in Cyanokit, hydroxocobalamin, reacts with cyanide in the body to form cyanocobalamin, a non-poisonous compound that is removed from the body in the urine. This lowers cyanide levels in the body and stops the cyanide fixing itself to an enzyme in cells called cytochrome oxidase, which is important for providing energy in cells. This helps to reduce the effects of cyanide poisoning. Hydroxocobalamin (vitamin B_{12a}) has been used as a vitamin supplement since the 1950s.

How has Cyanokit been studied?

There have been no studies directly comparing Cyanokit to any other treatment in humans. Information on its effectiveness was obtained in 83 patients who had been admitted to hospital with suspected cyanide poisoning and who received Cyanokit. In one study of 69 patients, cyanide poisoning was due to exposure to smoke from fire. In this study, the patients' condition at the accident scene was compared with that at the end of the infusion of Cyanokit and over the following three days.

A further 14 patients were studied whose cyanide poisoning was due to something other than smoke inhalation; most of these patients had taken cyanide during a suicide attempt. The information on these patients was obtained from their medical notes, as recorded in databases at two French hospitals.

What benefit has Cyanokit shown during the studies?

In the study of smoke inhalation, the response to Cyanokit was assessed as 'positive' in 31 patients (45%), 'partial' in 15 (22%) and 'absent' in 10 (15%). The response was unknown in the remaining 13 patients. Fifty of the patients in this study survived. Survival was more likely in those who received Cyanokit before their hearts had stopped, who had less severe symptoms of brain damage and who had lower blood cyanide levels. Two patients survived despite their hearts having stopped before receiving Cyanokit. Symptoms of brain damage resolved in 38 of 66 patients.

Of the 14 patients whose cyanide exposure was due to something other than smoke inhalation, 10 survived, including seven patients with 'lethal' levels of cyanide in the blood. The four who died had high blood levels of cyanide, and either their hearts had stopped or they had stopped breathing before receiving Cyanokit.

What is the risk associated with Cyanokit?

Because hydroxocobalamin has an intense red colour, most patients will have dark red colouring of the skin and mucous membranes for up to 15 days and of the urine for up to 35 days after receiving Cyanokit. The frequency of the other side effects of Cyanokit cannot be estimated with the information currently available. For the full list of all side effects reported with Cyanokit, see the package leaflet.

The use of Cyanokit can interfere with the assessment of burns and with laboratory test results. A sticker explaining this is supplied with every pack of Cyanokit. This can be attached to the patient's notes so that hospital staff are made aware of these effects of the medicine.

Why has Cyanokit been approved?

The CHMP concluded that Cyanokit appeared to be a well-tolerated and efficient cyanide antidote, based on its effects on survival and the prevention of brain damage. There is no information available

on success rates with other antidotes for cyanide poisoning, so it was not possible to carry out a comparison between the success rates seen with Cyanokit and with alternatives. However, the CHMP concluded that Cyanokit had advantages over alternative antidotes because it has a good safety profile in patients who have not been poisoned. This makes it a useful option when cyanide poisoning is only suspected.

Therefore, the CHMP decided that Cyanokit's benefits are greater than its risks and recommended that it be given marketing authorisation.

What measures are being taken to ensure the safe and effective use of Cyanokit?

A risk management plan has been developed to ensure that Cyanokit is used as safely as possible. Based on this plan, safety information has been included in the summary of product characteristics and the package leaflet for Cyanokit, including the appropriate precautions to be followed by healthcare professionals and patients.

Other information about Cyanokit

The European Commission granted a marketing authorisation valid throughout the European Union for Cyanokit on 31 November 2007.

The full EPAR for Cyanokit 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 Cyanokit, read the package leaflet (also part of the EPAR) or contact your doctor or pharmacist.

This summary was last updated in 06-2015.