

PEPLOC OTC

SCHEDULING STATUS[52]

1. NAME OF THE MEDICINE PEPLOC OTC 20 mg tablets

2. QUALITATIVE AND QUANTITATIVE COMPOSITION

Each PEPLOC OTC tablet contains pantoprazole sodium sesquihydrate equivalent to pantoprazole 20 mg. PEPLOC OTC contains sugar (marmel) 70.50 mg/tablet. Essentially sodium free. For the full list of excipients, see section 6.1.

3. PHARMACEUTICAL FORM

Tablet. Orange/y, biconvex and oval gastro-resistant tablets.

4. CLINICAL PARTICULARS

4.1 Therapeutic indications

PEPLOC OTC is indicated for the temporary short-term relief of heartburn and hyperacidity for a maximum daily dose of 20 mg and a maximum treatment period of 14 days.

4.2 Posology and method of administration

PEPLOC OTC should be taken in the morning. The recommended oral dose is 20 mg of PEPLOC OTC per day.

Special populations

Elderly patients
No dosage adjustment is necessary in the elderly.

Impaired renal and liver function

No dosage adjustment is required in the presence of impaired renal function. A daily dose of 20 mg PEPLOC OTC should not be exceeded in patients with mild to moderately severe liver impairment (see sections 4.4 and 5.2).

Pediatric population

Safety and efficacy in children have not been established (see section 4.3).

Method of administration

PEPLOC OTC should be swallowed whole with a little water either before or during breakfast.

4.3 Contraindications

PEPLOC OTC is contraindicated in:
• hypersensitivity to pantoprazole or to any of the ingredients of PEPLOC OTC (see section 6.1)
• safety and efficacy in children have not been established
• severely impaired liver function (see section 4.3)
• co-administration with azacitidine (see section 4.5).

4.4 Special warnings and precautions for use

Co-administration with anticoagulants
The response to anticoagulants such as warfarin may be affected by any concomitant medication. It is therefore good practice to monitor the patient with additional PT (prothrombin time)/INR (international normalised ratio) determinations when PEPLOC OTC is initiated, discontinued or taken irregularly. Changes in absorption should be observed when medicines whose absorption is pH-dependent, e.g. ketconazole, are taken concomitantly.

Gastroic malignancy

Prior to treatment, or in the presence of any alarm symptom (e.g. significant unintentional weight loss, recurrent vomiting, dysphagia, haematemesis, anaemia or melena) the possibility of malignancy of a gastric ulcer or a malignant disease of the esophagus should be excluded, as the treatment with PEPLOC OTC may alleviate the symptoms of malignant ulcers and can thus delay diagnosis.

Diagnosis of reflux oesophagitis

Diagnosis of reflux oesophagitis should be confirmed by endoscopy.

Clostridium difficile associated diarrhoea (CDAD)
PEPLOC OTC may be associated with an increased risk of Clostridium difficile associated diarrhoea (CDAD). A diagnosis of CDAD should not be considered for patients taking PEPLOC OTC who develop diarrhoea that does not improve. Patients should use the lowest dose and shortest duration of PEPLOC OTC therapy appropriate to the condition being treated.

Gastrointestinal infections caused by bacteria

Treatment with pantoprazole may lead to a slightly increased risk of gastrointestinal infections caused by bacteria such as *Salmonella* and *Campylobacter* or *C. difficile* especially in hospitalised patients. Pantoprazole, like proton pump inhibitors (PPIs), might be expected to increase the counts of bacteria normally present in the upper gastrointestinal tract. This difference should be considered for diarrhoea that does not arise in section 4.8.

Hypomagnesaemia

Severe hypomagnesaemia has been rarely reported in patients treated with proton pump inhibitors (PPIs) like PEPLOC OTC for at least three months, and in most cases for a year. Serious manifestations of hypomagnesaemia such as fatigue, irritability, delirium, convulsions, dizziness and ventricular arrhythmia can occur but they may begin insidiously and be overlooked. Hypomagnesaemia may lead to hypocalcaemia and/or hypokalaemia (see section 4.3). In most affected patients, hypomagnesaemia (and hypomagnesaemia associated hypocalcaemia and/or hypokalaemia) improved after magnesium replacement and discontinuation of the PPI. For patients expected to be on prolonged treatment or who take PPIs with diuretics or medicines that may cause hypomagnesaemia (e.g. diuretics), health care professionals should consider measuring magnesium levels before starting PPI treatment and periodically during treatment.

Bone fractures

The use of PEPLOC OTC may be associated with an increased risk of bone fractures in the hip, wrist or spine. This effect has been reported mostly in people taking high doses, on long-term treatment, and in those who were 50 years and older or in presence of other recognised risk factors. Observational studies suggest that proton pump inhibitors may increase the overall risk of fractures by 10 - 40%. Some of this increase may be due to other risk factors. Patients at risk of osteoporosis should receive care according to current clinical guidelines and they should have an adequate intake of vitamin D and calcium.

Hepatic impairment

In patients with severe liver impairment the liver enzymes should be monitored regularly during treatment with PEPLOC OTC. In the case of mild to moderate liver impairment, PEPLOC OTC should be discontinued.

Mild gastrointestinal complaints

PEPLOC OTC should not be used for mild gastrointestinal complaints such as nervous dyspepsia.

Vitamin B12 absorption

PEPLOC OTC, over a long period of time (which is longer than 3 years), may lead to malabsorption of vitamin B12 caused by hypoe- or achyloria.

This should be considered in patients with reduced body stores or risk factors for reduced vitamin B12 absorption on long-term therapy if respective clinical symptoms are observed.

Co-administration with nonsteroidal anti-inflammatory drugs (NSAIDs)
The use of PEPLOC OTC as a preventive of gastrointestinal ulcers induced by non-selective nonsteroidal anti-inflammatory drugs (NSAIDs) should be restricted to patients who require continued NSAID treatment and have an increased risk to develop gastrointestinal complications. The increased risk should be assessed according to individual risk factors, e.g. high age (>65 years), history of gastric or duodenal ulcer or upper gastrointestinal bleeding.

Combination therapy

In the case of combination therapy, the summaries of product characteristics of the respective medicines should be observed.

Co-administration with human immunodeficiency virus (HIV) protease inhibitors
Co-administration of PEPLOC OTC is not recommended with HIV protease inhibitors for which absorption is dependent on acidic intragastric pH such as atazanavir, due to significant reduction in their bioavailability (see section 4.5).

Long-term treatment

In long-term treatment, especially when exceeding a treatment period of 1 year, patients should be kept under regular surveillance.

Subacute cutaneous lupus erythematosus (SCLE)

Proton pump inhibitors are associated with very infrequent cases of subacute cutaneous lupus erythematosus (SCLE). If lesions occur, especially in sun exposed areas of the skin, and if accompanied by arthralgia, the patient should stop taking PEPLOC OTC and the healthcare provider should consider stopping PEPLOC OTC. SCLE after previous treatment with a proton pump inhibitor may increase the risk of SCLE with other proton pump inhibitors.

Interference with laboratory tests

Increased chromogranin A (CgA) level may interfere with investigations for neuroendocrine tumours. To avoid this interference, PEPLOC OTC treatment should be stopped for at least 5 days before CgA measurements. If CgA and gastrin levels have not returned to reference levels after initial measurement, measurements should be repeated 14 days after cessation of proton pump inhibitor treatment.

Acute interstitial nephritis

Acute interstitial nephritis has been observed in patients taking proton pump inhibitors (PPIs) including PEPLOC OTC. Acute interstitial nephritis may occur at any point during PPI therapy and is generally considered to be idiosyncratic/hypersensitivity reaction and is associated with damage to the tubulointerstitium, leading to acute kidney injury. Patients may present with varying signs and symptoms from symptomatic hypersensitivity reactions (e.g. fever, rash or arthralgia), interstitial nephritis may lead to renal failure, anaemia. In reported case series, some patients were diagnosed on biopsy and in the absence of extra-renal manifestations (e.g. fever, rash or arthralgia). Interstitial nephritis may be acute, relapsing. Discontinue PEPLOC OTC if acute interstitial nephritis develops (see section 4.8).

Sodium

PEPLOC OTC contains sodium. PEPLOC OTC contains less than 1 mmol (0.023 g) sodium per tablet, that is to say essentially 'sodium free'.

4.5 Interaction with other medicines and other forms of interaction

Concomitant use of food has no influence on the bioavailability of PEPLOC OTC.

Coumarin anti-coagulants (phenprocoumon or warfarin)

The response to anticoagulants such as warfarin, phenprocoumon and acenocoumarol may be affected by any concomitant medicines. There have been reports of increased INR and prothrombin time in patients receiving PPIs and warfarin or phenprocoumon concomitantly. Increases in INR and prothrombin time may lead to abnormal bleeding (e.g. virus leak). It is therefore good practice to monitor the patient with additional PT (prothrombin time)/INR (international normalised ratio) determinations when PEPLOC OTC is initiated, discontinued or taken irregularly.

Medicines with pH-dependent absorption characteristics
PEPLOC OTC may reduce or increase the absorption of medicines whose bioavailability is pH-dependent, e.g. ketconazole, itraconazole, posaconazole and other medicines like erlotinib.

HIV protease inhibitors

Concomitant use of PEPLOC OTC with co-administration of atazanavir 300 mg/ritonavir 100 mg with proton pump inhibitors (PPIs) such as PEPLOC OTC resulted in a substantial reduction in the bioavailability of atazanavir. The absorption of atazanavir was reduced by more than 50%. It is therefore good practice to monitor the patient with additional PT (prothrombin time)/INR (international normalised ratio) determinations when PEPLOC OTC is initiated, discontinued or taken irregularly.

Medicines with pH-independent absorption characteristics
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Methotrexate

Concomitant use of PPIs, including PEPLOC OTC, with methotrexate (primarily at high doses) may elevate and prolong serum levels of methotrexate and/or its metabolite hydroxymethotrexate, possibly leading to methotrexate toxicity. Therefore, in settings where high-dose methotrexate is used, for example cancer and psoriasis, a temporary withdrawal of PEPLOC OTC may need to be considered.

Inhibitors of CYP2C19

Inhibitors of CYP2C19, such as fluvoxamine, could increase the metabolic exposure of pantoprazole. A dose reduction may be considered for patients treated long-term with high doses of PEPLOC OTC, or those with hepatic impairment.

Enzyme inducers affecting CYP2C19 and CYP3A4

Enzyme inducers affecting CYP2C19 and CYP3A4, such as rifampicin and St John's wort (*Hypericum perforatum*), may reduce the plasma concentrations of pantoprazole that are metabolised through these enzyme systems.

There were no interactions with concomitantly administered antibiotics.

Interaction studies have also been performed by concomitantly administering pantoprazole with the respective antibiotics (clarithromycin, metronidazole, amoxicillin). No clinically relevant interactions were found.

4.6 Fertility, pregnancy and lactation

Safety in pregnancy and during lactation has not been established.

Pregnancy

Animal studies have shown reproductive toxicity. As a precautionary measure, it is preferable to avoid the use of PEPLOC OTC during pregnancy.

Breastfeeding

There is insufficient information on the excretion of pantoprazole in human milk but excretion into milk has been reported. A risk to the breast-infants cannot be excluded. Therefore, breastfeeding while using PEPLOC OTC is not recommended.

Fertility

There was no evidence of impaired fertility following the administration of pantoprazole in animal studies. There is no data on fertility in humans with PEPLOC OTC.

4.7 Effects on ability to drive and use machines

PEPLOC OTC has no or negligible influence on the ability to drive and use machines. However, no clinically significant interactions were observed when used concomitantly with caffeine, carbamazepine, diazepam, digoxin, ethanol, gabapentinoids, metoprolol, norepinephrine, nifedipine, phenytoin, procainamide, theophylline, warfarin and oral contraceptives.

4.8 Undesirable effects

5. Summary of the safety profile

The most commonly reported side effects are diarrhoea and headache. Approximately 5 % of patients can be expected to experience adverse drug reactions (ADRs).

6. Tabulated list of adverse reactions

System organ class	Frequency	Side effects
Infections and infestations	Frequency unknown	Clostridium difficile-associated diarrhoea*
Blood and lymphatic system disorders	Less frequent	Leukopenia, thrombocytopenia, pancytopenia, agranulocytosis
Immune system disorders	Less frequent	Anaphylactic reactions including anaphylactic shock and angioedema
Metabolism and nutrition disorders	Less frequent	Increased bilirubin, elevated triglycerides and increased body temperature, lipid increases, hypocalcaemia*, hyperphosphataemia, weight changes
Psychiatric disorders	Less frequent	Mental depression, sleep disorders, depression, disorientation
	Frequency unknown	"Hollusication", confusion*
Nervous system disorders	Frequent	Headache
	Frequency unknown	Dizziness, taste disorders
	Frequency unknown	Paresthesia
Eye disorders	Less frequent	Disturbances in vision (blurred vision)
Gastrointestinal disorders	Frequent	Gastrointestinal complaints such as upper abdominal pain, diarrhoea, constipation or intolerance
	Less frequent	Nausea, vomiting, dry mouth, abdominal distension and bloating, abdominal pain and discomfort
	Frequency unknown	Microscopic colitis*
Hepatobiliary disorders	Less frequent	Increased bilirubin
	Frequency unknown	Severe hepatocellular damage* leading to "jaundice" with or without hepatic failure* and increased liver enzymes (transaminases, -GT)
Skin and subcutaneous tissue disorders	Less frequent	Allergic reactions such as pruritus and skin rash, urticaria
	Frequency unknown	Severe skin reactions such as Stevens-Johnson syndrome*, erythema multiforme*, toxic epidermal necrolysis* (Lyell syndrome) and photosensitivity* drug reactions (e.g. eosinophilia and systemic symptoms (DRESS)*, subacute cutaneous lupus erythematosus*)
Musculoskeletal, connective tissue and bone disorders	Less frequent	Rheynia, myalgia, fracture of the hip, wrist or spine
	Frequency unknown	Hypomagnesaemia, hypocalcaemia in association with hypomagnesaemia, muscle spasms as a consequence of electrolyte disturbance*
Renal and urinary disorders	Frequency unknown	"Interstitial nephriti*" In some patients renal failure has been reported concomitantly (see section 4.8)
Reproductive system and breast disorders	Less frequent	Gynaecomastia
General disorders and administrative site conditions	Less frequent	Asthenia, fatigue, malaise, and peripheral oedema, body temperature increased

*Post-marketing reports.

*Hypocalcaemia in association with hypomagnesaemia.

Reporting suspected adverse reactions after authorisation of the medicine is important. It allows continued monitoring of the benefit/risk balance of the medicine. Healthcare professionals are requested to report any suspected adverse drug reactions to SAHPRA via the Med Safety App (MedSafety SAHPRA) and reporting platform (info-unc.org) found on the SAHPRA website. An email can be sent directly to the company, pharmacovigilance@pharmadynamics.co.za, to ensure safety of the medicine.

4.9 Overdose

Signs and symptoms:

The described side effects may be exacerbated. There are no known symptoms of overdose in man.

Systemic exposure with up to 340 mg administered intravenously over 2 minutes was well tolerated.

Management of overdose:
As pantoprazole is extensively protein bound, it is not readily dialysable.

If specific therapeutic recommendation can be made in cases of overdose with clinical signs of intoxication, Treatment is symptomatic and supportive.

5. PHARMACOLOGICAL PROPERTIES

5.1 Pharmacodynamic properties

Pharmacotherapeutic group: Proton pump inhibitors

Pharmacological classification: A11.4.3 Medicines acting on the gastrointestinal tract – Other.

Mechanism of action:

Pantoprazole is a proton pump inhibitor. It i. inhibits specifically and dose-proportionally i. K⁺/ATPase (adenosine triphosphatase), the enzyme which is responsible for gastric acid secretion in the parietal cells of the stomach.

Pantoprazole is a substituted benzimidazole which accumulates in the acidic compartment of the parietal cells after absorption. In the parietal cell it is protonated and chemically rearranged to the active inhibitor, a cyclic sulfonamide, which binds to the H⁺/K⁺ATPase, thus inhibiting the proton pump and causing suppression of stimulated and basal gastric acid secretion. Pantoprazole is a potent and selective gastric acid secretion inhibitor. Because pantoprazole acts distal to the receptor level, it can influence gastric acid secretion irrespective of the nature of the stimulus.

Pantoprazole starts to take effect in a strongly acidic environment (pH < 3) and remains mostly inactive at higher pH values, which explains its selectivity for the acid secreting parietal cells of the stomach.

Therefore, the complete pharmacological and therapeutic effect of pantoprazole can only be achieved in the acid secreting parietal cells. By means of a feedback mechanism this effect is diminished at the same rate as acid secretion is inhibited.

Effect on gastric acid secretion

Although pantoprazole has a half-life of approximately 1 hour, the antireflux effect increases during repeated once daily administration, demonstrating that the duration of action markedly exceeds the serum elimination half-life.

5.2 Pharmacokinetic properties

Absorption:

Pantoprazole is a unstable in acid and is administered only in the form of an enteric coated tablet. Absorption takes place in the small intestine. On average, the mean serum plasma concentrations are approximately 2 - 3 µg/ml, about 2-3 hours after administration of 40 mg pantoprazole daily, as a single or multiple doses in healthy volunteers. The absolute systemic bioavailability of pantoprazole from single and multiple oral doses of pantoprazole is approximately 77%. Concomitant intake of food had no influence on area under the plasma concentration-time curve (AUC), maximum serum concentration and thus bioavailability. Only the variability of the lag-time will be increased by concomitant food intake.

Distribution:

Pantoprazole's serum protein binding is about 98 %. Volume of distribution is about 0.15 L/kg.

Metabolism:

Pantoprazole is almost exclusively metabolised in the liver. The main metabolite is desmethylpantoprazole, which is conjugated with sulphate after metabolic pathway includes oxidation by CYP2C19.

Renal elimination represents the most important route of excretion (approximately 30 %) for the metabolites of pantoprazole. The metabolite is excreted with the faeces.

The half-life of the main metabolite is approximately 17 hours, which is slightly longer than that of pantoprazole.

Linearity/non-linearity:

The plasma kinetics for pantoprazole administration are linear over the dose range of 10 - 80 mg.

Pharmacokinetics in special patient groups

Pharmacokinetic profile in patients with impaired liver or renal function
For patients with mild to moderately severe hepatic cirrhosis, the terminal half-life values increase from 1 hour to between 7 - 9 hours. The AUC values increase by a factor of 6 - 8, while the maximum serum concentration only increases by a factor of 1.5 in comparison with healthy subjects.

In patients with renal impairment, the half-life of the main metabolite is moderately increased but there is no accumulation at therapeutic doses. The half-life of pantoprazole in patients with renal impairment is comparable to the half-life of pantoprazole in healthy subjects. Pantoprazole is poorly dialysed. A slight increase in AUC and C_{max} occurs in elderly volunteers compared with younger people.

Poor metabolisers

In a population study of the European population lack a functional CYP2C19 enzyme and are called poor metabolisers. In these individuals the metabolism of pantoprazole is probably mainly catalysed by CYP3A4. After a single-dose administration of 40 mg pantoprazole, the mean area under the plasma concentration-time curve was approximately 6 times higher in poor metabolisers than in subjects having a functional CYP2C19 enzyme (extensive metabolisers). Mean peak plasma concentrations were increased by about 60 %. These findings have no implications for the posology of pantoprazole.

Elderly

A slight increase in AUC and C_{max} in elderly volunteers compared with younger counterparts is also not clinically relevant.

Concomitant intake of food has no influence on the bioavailability of PEPLOC OTC.

Pediatric population
Following administration of single oral doses of 20 or 40 mg pantoprazole to children aged 5 - 16 years AUC and C_{max} were in the range of corresponding values in adults.

Following administration of single intravenous (iv) doses of 0.8 or 1.6 mg/kg pantoprazole to children aged 2 - 16 years there was no significant association between pantoprazole clearance and age or weight. AUC and volume of distribution were in accordance with data from adults.

5.3 Preclinical safety data

Non-clinical data reveal no special hazard to humans based on conventional studies of safety pharmacology, repeated dose toxicity and genotoxicity.

A two-year carcinogenicity study in rats found both neuroendocrine neoplasms and squamous cell metaplasia in the liver stomach of rats.

The mechanism leading to the formation of gastric carcinomas by substituted benzimidazoles has been carefully investigated and allows the conclusion that it is a secondary reaction to the massively elevated serum gastrin levels occurring in the rat during chronic high-dose treatment.

In the two-year rodent study, an increased number of liver tumours was observed in rats and in female mice and was interpreted as being due to pantoprazole's high metabolic rate in the liver. A slight increase of neoplastic changes of the thyroid was observed in the group of rats receiving the medium (200 mg/kg) dose. The occurrence of these neoplasia is associated with the pantoprazole-related changes in the breakdown of thyroxine in the rat liver. As the therapeutic dose in man is low, no harmful effects on the thyroid glands are expected.

In a peri-natal rat reproduction study designed to assess bone development, signs of offspring toxicity (metally lower mean body weight, lower mean body weight gain and reduced bone growth) were observed at exposure (< 50 mg/kg), approximately 2x the human clinical exposure. By the end of the recovery phase, all parameters were similar across groups, and body weights were also trending towards reversibility after a medicine-free recovery period. The increased mortality has only been reported in pre-weaning rat pups up to 21 days of age, which is extrapolated to compare with the age of 2 weeks in humans. The relevance of this finding to the clinical population is unclear. A previous peri-natal study in rats at slightly lower doses found no adverse effects at 5 mg/kg compared with a low dose of 5 mg/kg.

In this study, Investigations revealed no evidence of impaired fertility or teratogenic effects.

Penetration of the placenta was investigated in the rat and was found to increase with advanced gestation. As a result, concentration of pantoprazole in the foetus is increased shortly before birth.

6. PHARMACOLOGICAL PARTICULARS

6.1 List of excipients

Tablet core:
Carmellose sodium
Colloidal anhydrous silica
Magnesium stearate
Mannitol

Sodium carbonate anhydrous
Sodium starch glycolate type A
Talc
Polyethylene glycol

Hydroxypropyl methylcellulose
Titanium dioxide
Triethyl citrate
Yellow iron oxides

6.2 Impurities

Not applicable.

6.3 Shelf life

30 months.

6.4 Special precautions for storage

PEPLOC OTC should be stored at or below 25 °C. Protect from moisture.

Store blister in the outer carton until required for use.

6.5 Nature and contents of container

PEPLOC OTC tablets are packed in aluminium-polyamide-PVC/aluminium blister strips.

7 x 14 tablets are packed in an outer carton.

6.6 Special precautions for disposal

No special requirements.

7. HOLDER OF THE CERTIFICATE OF REGISTRATION

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8. REGISTRATION NUMBER

A43111.4.3/0344

9. DATE OF FIRST AUTHORISATION

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