

ZENTEL

Albendazole

QUALITATIVE AND QUANTITATIVE COMPOSITION

Each film coated tablet contains albendazole USP 200 mg

PHARMACEUTICAL FORM

Tablet: circular, off white film - coated with pyramid shaped structure on both sides.

CLINICAL PARTICULARS

Indications

ZENTEL is a benzimidazole carbamate with anthelmintic and anti-protozoal activity against the following intestinal and tissue parasites: Roundworm (*Ascaris lumbricoides*), pinworm (*Enterobius vermicularis*), hookworm (*Necator americanus*, *Ancylostoma duodenale*), whipworm (*Trichuris trichiura*), threadworm (*Strongyloides stercoralis*), tapeworm (*Taenia* spp and *Hymenolepis nana* only in the case of associated parasitism), Chlonorchiasis (*Chlonorchis sinensis*), Opisthorchiasis (*Opisthorchis viverrini*) and cutaneous larva migrans; Giardiasis (*G.lamblia*, *G.duodenalis*, *G.intestinalis*, *Lamblia intestinalis*) in children.

Dosage and Administration

Dosage

Indications	Age	Dose	Period
- Roundworm - Pinworm* - Hookworms - Whipworm	Adults and children over 2 years of age.	400 mg [two 200 mg or one 400 mg tablet(s) or 10 mL 4% or 20 mL 2% suspension]	Single dose.
	Children 1-2 years of age.	200 mg (one 200 mg tablet or 5 mL 4% or 10 mL 2% suspension)	Single dose.
- Strongyloidiasis - Taeniasis - Hymenolepiasis ⁼	Adults and children over 2 years of age.	400 mg (see above)	One dose per day for 3 days.
- Chlonorchiasis - Opisthorchiasis	Adults and children over 2 years of age.	400 mg (see above)	Two doses per day for 3 days.

- Cutaneous larva migrans	Adults and children over 2 years of age.	400 mg	One dose per day for 1 to 3 days.
- Giardiasis	Children 2 – 12 years of age only.	400 mg (see above)	One dose per day for 5 days.

*In order to obtain a complete cure in the case of pinworm infestation, prescribe strict measures of hygiene, also treat the relatives and individuals sharing the same housing.

In cases of proven Hymenolepiasis, retreatment in 10 to 21 days is recommended.

Method of Administration

If the patient is not cured after three weeks, a second course of treatment is indicated.

No special procedures, such as fasting or purging, are required.

The tablets can be chewed or taken with water. Some people, particularly young children, may experience difficulties swallowing the tablets whole and should be encouraged to chew the tablets with a little water, alternatively the tablets may be crushed.

Special Patient Populations

- **Elderly**

Experience in patients 65 years of age or older is limited. Reports indicate that no dosage adjustment is required, however, *ZENTEL* should be used with caution in elderly patients with evidence of hepatic dysfunction (see *Hepatic Impairment* and *Pharmacokinetics*).

- **Renal impairment**

Since renal elimination of albendazole and its primary metabolite, albendazole sulfoxide, is negligible, it is unlikely that clearance of these compounds would be altered in these patients. No dosage adjustment is required, however, patients with evidence of renal impairment should be carefully monitored.

- **Hepatic impairment**

Since albendazole is rapidly metabolised by the liver to the primary pharmacologically active metabolite, albendazole sulfoxide, hepatic impairment would be expected to have significant effects on the pharmacokinetics of albendazole sulfoxide. Patients with abnormal liver function test results (transaminases) prior to commencing albendazole therapy should be carefully **monitored**.

Contraindications

ZENTEL should not be administered during pregnancy, or in women thought to be pregnant.

ZENTEL is contraindicated in patients with a known history of hypersensitivity to the drug (albendazole or constituents).

Warnings and Precautions

In order to avoid administering *ZENTEL* during early pregnancy, women of childbearing age should initiate treatment during the first week of menstruation or after a negative pregnancy test.

Treatment with *ZENTEL* may uncover pre-existing neurocysticercosis, particularly in areas with high taeniosis infection. Patients may experience neurological symptoms e.g. seizures, increased intracranial pressure and focal signs as a result of an inflammatory reaction caused by death of the parasite within the brain. Symptoms may occur soon after treatment, appropriate steroid and anticonvulsant therapy should be started immediately.

ZENTEL suspension contains benzoic acid which is a mild irritant to the skin, eyes and mucous membrane. It may increase the risk of jaundice in newborn babies.

Interactions

Praziquantel has been reported to increase the plasma levels of the albendazole active metabolite.

Ritonavir, phenytoin, carbamazepine and phenobarbital may have the potential to reduce plasma concentrations of the active metabolite of albendazole; albendazole sulfoxide. The clinical relevance of this is unknown, but may result in decreased efficacy, especially in the treatment of systemic helminth infections. Patients should be monitored for efficacy and may require alternative dose regimens or therapies.

Pregnancy and Lactation

Pregnancy

ZENTEL should not be administered during pregnancy or in women thought to be pregnant (see *Contraindications*).

Lactation

It is not known whether albendazole or its metabolites are secreted in human breast milk. Thus *ZENTEL* should not be used during lactation unless the potential benefits are considered to outweigh the potential risks associated with treatment.

Effects on Ability to Drive and Use Machines

There have been no studies to investigate the effect of *ZENTEL* on driving performance or the ability to operate machinery. However, when driving vehicles or operating machinery, it should be taken into account that dizziness has been reported after using *ZENTEL* (see Adverse Reactions).

Adverse Reactions

Data from large clinical studies were used to determine the frequency of very common to rare undesirable reactions. The frequencies assigned to all other undesirable reactions (i.e. those occurring at < 1/1000) were mainly determined using post-marketing data and refer to a reporting rate rather than a true frequency.

The following convention has been used for the classification of frequency:

Very common	$\geq 1/10$
Common	$\geq 1/100$ to $< 1/10$
Uncommon	$\geq 1/1000$ to $< 1/100$
Rare	$\geq 1/10,000$ to $< 1/1000$
Very rare	$< 1/10,000$

Immune system disorders

Rare: Hypersensitivity reactions including rash, pruritis and urticaria.

Nervous system disorders

Uncommon: Headache and dizziness.

Gastrointestinal disorders

Uncommon: Upper gastrointestinal symptoms (e.g. epigastric or abdominal pain, nausea, vomiting) and diarrhoea.

Hepatobiliary disorders

Rare: Elevations of hepatic enzymes

Skin and subcutaneous tissue disorders

Very rare: Erythema multiforme, Stevens-Johnson syndrome

Overdose

Treatment

Further management should be as clinically indicated or as recommended by the national poisons centre, where available.

PHARMACOLOGICAL PROPERTIES

Pharmacodynamics

ATC code

P02CA03

Mechanism of Action

Albendazole exhibits larvicidal, ovicidal and vermicial activity, and it is thought to exert its anthelmintic effect by inhibiting tubulin polymerisation. This causes the disruption of the

helminth metabolism, including energy depletion, which immobilises and then kills the susceptible helminth.

Pharmacokinetics

Absorption

In man, albendazole is poorly absorbed (less than 5%) following oral administration.

The systemic pharmacological effect of albendazole is augmented if the dose is administered with a fatty meal, which enhances the absorption by approximately five-fold.

Distribution

Following oral administration of a single dose of 400 mg albendazole, the pharmacologically active metabolite, albendazole sulfoxide, has been reported to achieve plasma concentrations from 1.6 to 6.0 micromol/L when taken with breakfast.

Metabolism

Albendazole rapidly undergoes extensive first-pass metabolism in the liver, and is generally not detected in plasma. Albendazole sulfoxide is the primary metabolite, which is thought to be the active moiety in effectiveness against systemic tissue infections.

Elimination

The plasma half-life of albendazole sulfoxide is 8.5 hours.

Albendazole sulfoxide and its metabolites appear to be principally eliminated in bile, with only a small proportion appearing in the urine.

Special Patient Populations

- **Elderly**

Although no studies have investigated the effect of age on albendazole sulfoxide pharmacokinetics, data in 26 hydatid cyst patients (up to 79 years) suggest pharmacokinetics similar to those in young healthy subjects. The number of elderly patients treated for either hydatid disease or neurocysticercosis is limited, but no problems associated with an older population have been observed.

- **Renal Impairment**

The pharmacokinetics of albendazole in patients with impaired renal function have not been studied.

- **Hepatic Impairment**

The pharmacokinetics of albendazole in patients with impaired hepatic function have not been studied.

PHARMACEUTICAL PARTICULARS

List of Excipients

Lactose, Maize starch, Povidone, Sodium lauryl sulphate, Sodium starch glycollate, Microcrystalline cellulose, Magnesium stearate is of vegetable origin, Trusil vanilla special Trusil orange Special, Film coating: HPMC 15, HPMC 5, dichloromethane, isopropyl alcohol and propylene glycol.

Shelf-Life

Use before the expiry date clearly indicated on the packaging.

Special Precautions for Storage

Tablets: Store below 30°C

Nature and Contents of Container

Tablets: 2's in blister strips comprising a laminate of clear PVC and aluminium foil.

KEEP OUT OF REACH OF CHILDREN

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