BEND

Albendazole Tablets USP 400 mg

COMPOSITION:

Each uncoated tablet contains:

Albendazole USP	400 mg
Excipients	q. s.

DESCRIPTION:

Albendazole Tablets 400 mg is a white coloured, elongated, biconvex, uncoated chewable tablet having score line on one side & plain on other side.

Albendazole Tablets 400 mg are indicated in the treatment of single or mixed infestations of intestinal and tissue parasites, in adults and children over 2 years of age. Albendazole Tablets 400 mg is also indicated for the treatment of *Hymenolepis nana* and *Taenia spp.* (tapeworm) infections, when other susceptible helminths species are present.

INDICATION:

Single dose or short term courses of BEND are indicated in the treatment of single or mixed infestations of intestinal and tissue parasites, in adults and children over 2 years of age.

BEND is effective in the treatment of infections caused by:

Enterobius vermicularis (pinworm/threadworm), *Ascaris lumbricoides* (roundworm), *Ancylostoma duodenale* and *Necator americanus* (hookworms), *Trichuris trichiura* (whipworm), *Strongyloides stercoralis,* animal hookworm larvae causing cutaneous *larva migrans,* and the liver flukes *Opisthorchis viverrini* and *Clonorchis sinensis.*

BEND is also indicated for the treatment of *Hymenolepis nana* and *Taenia spp.* (tapeworm) infections, when other susceptible helminths species are present. Treatment courses should be extended to 3 days

PHARMACOKINETICS:

Absorption:

Albendazole is poorly absorbed from the gastrointestinal tract due to its low aqueous solubility. Albendazole concentrations are negligible or undetectable in plasma as it is rapidly converted to the sulfoxide metabolite prior to reaching the systemic circulation. The systemic anthelmintic activity has been attributed to the primary metabolite, Albendazole sulfoxide.

Maximal plasma concentrations of Albendazole sulfoxide are typically achieved 2 to 5 hours after dosing and are on average 1.31 mcg/ml (range 0.46 to 1.58 mcg/ml) following oral doses of Albendazole (400 mg) in six hydatid disease patients, when administered with a fatty meal. The mean apparent terminal elimination half-life of Albendazole sulfoxide typically ranges from 8 to 12 hours.

Distribution:

Albendazole sulfoxide is 70% bound to plasma protein and is widely distributed throughout the body; it has been detected in urine, bile, liver, cyst wall, cyst fluid, and cerebral spinal fluid (CSF). Concentrations in plasma were 3 to 10- fold and 2 to 4-fold higher than those simultaneously determined in cyst fluid and CSF, respectively.

Metabolism:

Albendazole is rapidly converted in the liver to the primary metabolite, Albendazole sulfoxide, which is further metabolized to Albendazole sulfone and other primary oxidative metabolites that have been identified in human urine.

Excretion:

Urinary excretion of Albendazole sulfoxide is a minor elimination pathway with less than 1% of the dose recovered in the urine. Biliary elimination presumably accounts for a portion of the elimination as evidenced by biliary concentrations of Albendazole sulfoxide similar to those achieved in plasma.

PHARMACODYNAMICS:

Pharmacotherapeutic group: Anthelmintic and Antiprotozoal, Benzimidazole derivatives

ATC code: P02CA03

Mechanism of Action:

Albendazole is a Benzimidazole carbamate with anthelmintic and antiprotozoal activity against intestinal and tissue parasites.

Albendazole exhibits vermicidal, ovacidal and larvacidal activity and exerts its anthelmintic effect by inhibiting tubulin polymerization. This causes the disruption of the helminth metabolism, including energy depletion, which immobilises and then kills the susceptible helminth. Albendazole inhibits colchicine binding by tubulin derived from Trichinella spiralis with an inhibition constant of about 10M. The morphological effects produced by known microtubule inhibitors in Giardiatrophozoite detachment and distortion of morphology, are very similar to those resulting from exposure to benzimidazole. There is a good correlation between the binding constant to Haemonchus contortus tubulin and the known anthelmintic potency of various benzimidazoles.

The antihelminthic action of albendazole is thought to be mainly intra-intestinal. However, at higher albendazole doses, sufficient is absorbed and metabolised to the active sulphoxide metabolite, to have a therapeutic effect against tissue parasites.

DOSAGE AND ADMINISTRATION:

Method of administration: Oral

Albendazole should be taken with meals. 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 tablets may be crushed.

BEND is chewable tablet may be crushed, chewed, or swallowed whole.

Adults and Children (over two years):

- *Enterobius vermicularis, Ascaris lumbricoides, Ancylostoma duodenale, Necator americanus and Trichuris trichiura:* Albendazole Tablets 400 mg as a single dose, taken on an empty stomach.
- Suspected or confirmed *Strongyloides stercoralis* infestation: Albendazole Tablets 400 mg once daily, taken on an empty stomach for three consecutive days. Patients should then be appropriately followed for at least 2 weeks to confirm cure.
- *Cutaneous larva migrans:* Albendazole Tablets 400 mg once daily, taken with food for one to three days has been reported to be effective.
- Suspected or confirmed *Taenia spp.* or *Hymenolepis nana* infestation, when other susceptible helminths species are present: Albendazole Tablets 400 mg once daily, taken on an empty stomach for three consecutive days. If the patient is not cured after three weeks, a second course of BEND treatment is indicated. In cases of proven *H. nana* infestation, retreatment in 10-21 days is recommended.

Mixed worm infestations including *Opisthorchis viverrini* and *Clonorchis sinensis:* Albendazole Tablets 400 mg twice a day, taken with food for three days is effective. Patients should be re-examined 1 month after treatment to confirm fluke eradication.

CONTRAINDICATION:

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

BEND has been shown to be teratogenic and embryotoxic in rats and rabbits. Women of childbearing age should be advised to take effective precautions against conception during and within one month of completion of treatment with BEND

BEND is contraindicated in persons who are known to be hypersensitive to Albendazole, other benzimidazole derivatives, or any component of the tablets.

SPECIAL WARNING AND PRECAUTION FOR USE:

Albendazole has been associated with mild to moderate elevations of hepatic enzymes. Hepatic enzymes generally normalise on discontinuation of treatment.

Liver function tests should be obtained before the start of each treatment cycle and at least every two weeks during treatment. If hepatic enzymes are significantly increased (greater than twice the upper limit of normal), Albendazole should be discontinued. Treatment may be restarted when hepatic enzymes have returned to normal limits, but patients should be monitored for recurrence.

Albendazole has been shown to cause bone marrow suppression and therefore blood counts should be performed at the start and every two weeks during each 28-day cycle. Patients with liver disease, including hepatic echinococcosis, appear to be more susceptible to bone marrow suppression leading to pancytopenia, aplastic anaemia, agranulocytosis and leucopenia and therefore warrant closer monitoring of blood counts. Albendazole should be discontinued if clinically significant decreases in blood cell counts occur

Precautions:

In order to avoid administering albendazole during early pregnancy, women of childbearing age should:

- Initiate treatment only after a negative pregnancy test. These tests should be repeated at least once before initiating the next cycle.
- be advised to take effective precautions against conception during and within one month of completion of treatment with Albendazole for a systemic infection.

Symptoms associated with an inflammatory reaction following death of the parasite may occur in patients receiving Albendazole treatment for neurocysticercosis (e.g. seizures, raised intracranial pressure, focal signs).

These should be treated with appropriate steroid and anticonvulsant therapy.

Oral or intravenous corticosteroids are recommended to prevent cerebral hypertensive episodes during the first week of treatment.

Pre-existing neurocysticercosis may also be uncovered in patients treated with Albendazole for other conditions, particularly in areas with high taenosis 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.

Patients with rare hereditary problems of galactose intolerance, the Lapp lactase deficiency or glucose-galactose malabsorption should not take this medicine.

INTERACTION WITH OTHER MEDICINE AND CONCOMITANT USE:

Albendazole has been shown to induce liver enzymes of the cytochrome P450 system responsible for its own metabolism.

Drugs that can reduce the effectiveness of albendazole – monitor effect other dose regimens or therapies may be required.

- Anticonvulsants (eg Phenytoin, Fosphenytoin, Carbamazepine, Phenobarbital, Primidone)
- Levamisole
- Ritonavir

Drugs that may increase levels of the active metabolite of albendazole – monitor to possible increased albendazole adverse effects.

- Cimetidine
- Dexamethasone (continuous use raises albendazole levels by 50%)
- Praziquantel

Grapefruit juice also increases the plasma levels of albendazole sulfoxide.

Other possible interactions

Because of possible alterations in cytochrome P450 activity, there is a theoretical risk of an interaction with the following

- Oral contraceptives
- Anticoagulants
- Oral hypoglycaemics
- Theophylline

Care should be exercised when Albendazole is given to patients taking these medicines.

PREGNACY AND LACTATION:

Pregnancy:

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

Breast-feeding:

It is not known whether Albendazole or its metabolites are secreted in human breast milk. Thus, BEND 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:

Dizziness is reported as a common reaction. Patients should be advised that if affected they should not drive, operate machinery or take part in activities where this could put them or others at risk.

UNDESIRABLE EFFECT:

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

Very common ≥1/10

Common ≥1/100 to <1/10

Uncommon ≥1/1000 to < 1/100

Rare ≥1/10,000 to < 1/1000

Very rare < 1/10,000

Blood and the lymphatic system disorders:

Uncommon: Leucopenia

Very rare: Pancytopenia, aplastic anaemia, agranulocytosis

Immune system disorders:

Uncommon: Hypersensitivity reactions including rash, pruritus and urticaria

Nervous system disorders:

Very common: Headache

Common: Dizziness

Gastrointestinal disorders:

Common: Gastrointestinal disturbances (abdominal pain, nausea, vomiting)

Gastrointestinal disturbances have been associated with albendazole when treating patients with echinococcosis.

Hepato-biliary disorders:

Very common: Mild to moderate elevations of hepatic enzymes

Uncommon: Hepatitis

Skin and subcutaneous tissue disorders:

Common: Reversible alopecia (thinning of hair, and moderate hair loss)

Very rare: Erythema multiforme, Stevens-Johnson syndrome

General disorders and administrative site conditions:

Common: Fever

OVERDOSE:

Since no specific antidote is known, recommended treatment of Albendazole overdose consists of the following:

In case of overdosage, symptomatic therapy (gastric lavage) and general supportive measures should be undertaken within the first 2 to 3 hours after ingestion.

INCOMPATIBILITY:

Not Applicable

SHELF LIFE:

36 months

PACKAGING:

1 tablet is packed in the Alu-PVC Blister Pack, such 1 blister packed in printed carton along with pack insert

STORAGE CONDITION:

Store in dry place below 30° C.

Keep out of reach of children.

MANUFACTURED BY:

Cian Healthcare Ltd.

(An ISO 9001 : 2015 & WHO GMP Certified Co.)

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