bloating have been observed. These can normally be dealt with by taking the dose during meals or by lowering the dose.

Skin and subcutaneous tissue disorders
Cutaneous and subcutaneous hypersensitivity reactions, in particular angioneurotic oedema, urticaria, rash and pruritus.

OVERDOSE:
A few overdose cases have been reported. Some patients experienced mild to moderate symptoms with doses up to 640 mg (e.g. nausea, somnolence, abdominal pain). More serious complications (convulsion, pulmonary or cardiac complications) were observed in cases of intentional overdose of Betahistine especially in combination with other overdosed drugs.

TREATMENT OF OVERDOSE:
No specific antidote is known. Treatment of overdose should include standard supportive measures.

STORAGE AND PACKAGING:
- Store in a cool, dark and dry place.
- Store in the original package in order to protect from moisture.
  Tablets should not be removed from blister until immediately before administration.

DIRECTIONS:
- Keep out of reach of children.
- To be sold on prescription of a registered medical practitioner only.

PACKING:
- **Betazak** 8mg tablets are available in (3x10) blister pack.
- **Betazak** 16mg tablets are available in (3x10) blister pack.

بیٹازیک®

بیٹاہسٹین ڈائی ہائیڈروکلورائیڈ

8 ملی گرام / **16** ملی گرام

خوراک:۔ یہ دوا ڈاکٹر کی ہدایت کے مطابق استعمال کریں۔

ہدایات:۔ دوا کو ٹھنڈی اور خشک جگہ پر رکھیں۔ دوا کو گرمی، روشنی اور نمی سے محفوظ رکھیں۔
تمام دوائیں بچوں کی پہنچ سے دور رکھیں۔

پیشکش:۔ **بیٹازیک® 8** ملی گرام گولیاں (۳×۱۰) بلسٹر پیک میں دستیاب ہیں۔
بیٹازیک® 16 ملی گرام گولیاں (۳×۱۰) بلسٹر پیک میں دستیاب ہیں۔

Manufactured by:

Schazoo Zaka (Pvt) Ltd.
Kalalwala, 20-Km Lahore-Jaranwala Road,
Distt: Sheikhupura, Pakistan.

BetaZak®
Betahistine Dihydrochloride
8mg / 16mg

DESCRIPTION:
Betazak (Betahistine Dihydrochloride) is a synthetic and orally active analogue of histamine. The major application of Betazak is in the treatment of Ménière's disease and Ménière like syndrome characterized by severe attacks of vertigo, tinnitus and progressive loss of hearing, frequently accompanied by nausea and vomiting.

BETAZAK TABLETS ARE AVAILABLE FOR ORAL ADMINISTRATION AS:

BETAZAK TABLETS 8mg
Each Tablet contains:
Betahistine Dihydrochloride BP……8mg

BETAZAK TABLETS 16mg
Each Tablet contains:
Betahistine Dihydrochloride BP ……16mg

CLINICAL PHARMACOLOGY:
Mechanism of Action:
Betahistine was found to have weak H1 receptor agonistic and potent H3 antagonistic properties in both the central and autonomic nervous system.
Pharmacological testing has shown that the blood circulation in the striae vascularis of the inner ear improves, probably by means of a relaxation of the precapillary sphincters of the microcirculation of the inner ear.
Betahistine was also found to have a dose dependent inhibiting effect on spike generations of neurons in lateral and medial vestibular nuclei.
Betahistine accelerates the vestibular recovery after unilateral neurectomy, by promoting and facilitating central vestibular compensation; this effect, characterized by an up regulation of histamine turnover and release, is mediated through H3 receptor antagonism.
Taken together these properties contribute to the beneficial therapeutic effects seen with regard to Ménière's disease and vestibular vertigo.
Betahistine increases histamine turnover and release by blocking presynaptic H3 receptor and inducing H3 receptor down regulation. This effect provides explanation for the efficacy of Betahistine in the treatment of vertigo and vestibular diseases.

PHARMACOKINETICS:
ABSORPTION:
Betahistine is rapidly and completely absorbed from all parts of gastro-intestinal tract after oral administration of the drug in tablets, and peak plasma concentrations of Betahistine are attained after approximately one hour of oral administration.

DISTRIBUTION:
Little or no binding occurs with human plasma proteins.

METABOLISM AND ELIMINATION:
Elimination of Betahistine takes place mainly by metabolism and the metabolites are subsequently eliminated mainly by renal excretion. Following the absorption, the drug is metabolized rapidly in the metabolite and almost completely in metabolite 2-pyridylacetic acid (2-PAA). Plasma levels of Betahistine are very low. All pharmacokinetics analysis are therefore based on 2-PAA measurements in plasma and urine.
The concentration of 2-pyridylacetic acid reaches its maximum at 1 hour after intake and declines to half approximately after 3.5 hours. The 2-pyridylacetic acid is excreted almost quantitatively in urine within 24 hours after administration. In the dose range between 8 and 48 mg, about 85% of the original dose was recovered in the urine. No unchanged Betahistine has been detected in urine. Recovery rates are constant over the oral dose range 8-48 mg indicating that the pharmacokinetics of Betahistine is linear, and suggesting that the involved metabolic pathway is not saturated.
Under fed conditions Cmax is lower compared to fasted conditions. However, total absorption of Betahistine is similar under both conditions, indicating that food intake only slows down the absorption of Betahistine.

INDICATIONS:
Ménière's syndrome as defined by the following core symptoms;
- Vertigo (with nausea / vomiting)
- Tinnitus (ringing in the ear)
- Hearing loss (hardness of hearing)

Symptomatic treatment of vestibular vertigo.

DOSAGE & ADMINISTRATION:
Adults: Initial oral treatment is 8 to 16 mg three times daily.
Maintenance doses are generally in the range 24 - 48 mg daily. Daily dose should not exceed 48 mg. Dosage can be adjusted to suit individual patient needs. Sometimes improvement could be observed only after a couple of weeks of treatment.
Pediatric population: Betahistine tablets are not recommended for use in children under the age of 18 years due to lack of data on safety and efficacy.

CONTRAINDICATIONS:
Betahistine tablet is not to be taken if there is hypersensitivity to the active substance or to any of the excipients.
- Phaeochromocytoma

PRECAUTIONS & WARNINGS:
- Caution is advised in the treatment of patients with peptic ulcer or a history of peptic ulceration, because of the occasional dyspepsia encountered in patients on Betahistine.
- Clinical intolerance to Betahistine may occur in bronchial asthma patients. These patients should therefore be monitored carefully during the treatment with Betahistine.
- Caution is advised in prescribing Betahistine to patients with either urticaria, rashes or allergic rhinitis, because of the possibility of aggravating these symptoms.
- Patients with rare hereditary problems of galactose intolerance, the Lapp lactase deficiency or glucose-galactose malabsorption should not take this medicine.

DRUG INTERACTIONS:
- There are no proven cases of hazardous interactions.
- Metabolism of Betahistine is inhibited by drugs that inhibit monoamino - oxidase (MAO) including MAO subtype B (e.g. selegiline). Caution is recommended when using Betahistine and MAO inhibitors (including MAO-B selective) concomitantly.
- Betahistine is a histamine analogue, concurrent administration of H1 antagonists may cause a mutual attenuation of effect of the active agents.

PREGNANCY AND LACTATION
Pregnancy: There is very limited amount of data for the use of Betahistine in pregnant women. The potential risk for humans is unknown. As a precautionary measure, it is preferable to avoid the use of Betahistine during pregnancy.
Lactation :There is insufficient information on the excretion of Betahistine in human milk. Betahistine should not be used during breastfeeding.

EFFECTS ON ABILITY TO DRIVE AND USE MACHINES
Vertigo, tinnitus and hearing loss associated with Ménière's syndrome can negatively affect the ability to drive and use machines. Betahistine is regarded to have no or negligible effects on the ability to drive and use machines as no effects potentially influencing this ability were found to be related to Betahistine in clinical studies.

UNDESIRABLE EFFECTS:
Like all medicines, Betazak may also have side effects
Undesirable Effects by system Organ class:

Immune System Disorders:
Hypersensitivity (allergic) reactions (such as anaphylaxis) have been reported.

Gastrointestinal Disorders:
Mild gastric complaints (vomiting, gastrointestinal, abdominal, distension, and