Buscopan®

Composition
1 sugar-coated tablet contains 10 mg hyoscine-N-butylbromide

Description
Round, white, biconvex, sugar-coated tablets

Properties
Buscopan® exerts a spasmolytic action on the smooth muscle of the gastro-intestinal, biliary and genito-urinary tracts. As a quaternary ammonium derivative, hyoscine-N-butylbromide does not enter the central nervous system. Therefore, anticholinergic side effects at the central nervous system do not occur. Peripheral anticholinergic action results from a ganglion-blocking action within the visceral wall as well as from an anti-muscarinic activity.

Pharmacokinetics
Absorption
As a quaternary ammonium compound, hyoscine-N-butylbromide is highly polar and hence only partially absorbed following oral (8%) or rectal (3%) administration**.** After oral administration of single doses of hyoscine butylbromide in the range of 20 to 400 mg, mean peak plasma concentrations between 0.11 ng/mL and 2.04 ng/mL were found at approximately 2 hours. In the same dose range, the observed mean $AUC_{0\text{-}tz}$-values varied from 0.37 to 10.7 ng h/mL. The median absolute bioavailabilities of different dosage forms, i.e. coated tablets, suppositoires and oral solution, containing 100 mg of hyoscine butylbromide each were found to be less than 1%.

Distribution
Because of its high affinity for muscarinic receptors and nicotinic receptors, hyoscine butylbromide is mainly distributed on muscle cells of the abdominal and pelvic area as well as in the intramural ganglia of the abdominal organs. Plasma protein binding is approximately 4.4%. Animal studies demonstrate that hyoscine butylbromide does not pass the blood-brain barrier, but no clinical data to this effect is available. Hyoscine butylbromide (1 mM) has been observed to interact with the choline transport (1.4 nM) in epithelial cells of human placenta *in vitro*.

Metabolism and elimination
Following oral administration of single doses in the range of 100 to 400 mg, the terminal elimination half-lives ranged from 6.2 to 10.6 hours. The main metabolic pathway is the hydrolytic cleavage of the ester bond. Orally administered hyoscine butylbromide is excreted in the faeces and in the urine. Studies in man show that 2 to 5% of radioactive doses is eliminated renally after oral, and 0.7 to 1.6% after rectal administration. Approximately 90% of recovered radioactivity can be found in the faeces after oral administration. The urinary excretion of hyoscine butylbromide is less than 0.1% of the dose. The mean apparent oral clearances after oral doses of 100 to 400 mg range from 881 to 1420 L/min, whereas the corresponding volumes of distribution for the same range vary from 6.13 to 11.3 x 10^5 L, probably due to very low systemic availability.
The metabolites excreted via the renal route bind poorly to the muscarinic receptors and are therefore not considered to contribute to the effect of the hyoscine butylbromide.

Indications
Gastro-intestinal tract spasm, spasm and dyskinesia of the biliary system, genito-urinary tract spasm.

Dosage and Administration
Unless otherwise prescribed by the physician, the following dosages are recommended:
Sugar-coated tablets:
Adults and children over 6 years: 3 - 5 times daily 1 - 2 s.c. tablets
The tablets should be swallowed whole with adequate fluid.

Buscopan® should not be taken on a continuous daily basis or for extended periods without investigating the cause of abdominal pain.

Contraindications
Buscopan® is contraindicated in:
- patients who have demonstrated prior hypersensitivity to hyoscine butylbromide or any other component of the product
- myasthenia gravis
- mechanical stenosis in the gastrointestinal tract
- paralytical or obstructive ileus
- megacolon
- narrow angle glaucoma

In case of rare hereditary conditions that may be incompatible with an excipient of the product (please refer to “special warnings and precautions”) the use of the product is contraindicated.

Special Precautions
In case severe, unexplained abdominal pain persists or worsens, or occurs together with symptoms like fever, nausea, vomiting, changes in bowel movements, abdominal tenderness, decreased blood pressure, fainting, or blood in stool, medical advice should immediately be sought.

Buscopan 10 mg Tablets should be used with caution in conditions characterised by tachycardia such as thyrotoxicosis, cardiac insufficiency or failure and in cardiac surgery where it may further accelerate the heart rate. Due to the risk of anticholinergic complications, caution should be used in patients susceptible to intestinal or urinary outlet obstructions.

Because of the possibility that anticholinergics may reduce sweating, Buscopan should be administered with caution to patients with pyrexia.

Elevation of intraocular pressure may be produced by the administration of anticholinergic agents such as Buscopan in patients with undiagnosed and therefore untreated narrow angle glaucoma. Therefore, patients should seek urgent ophthalmological advice in case they should develop a painful, red eye with loss of vision whilst or after taking Buscopan.

One sugar-coated tablet of 10 mg contains 41.2 mg sucrose, patients with the rare hereditary condition of fructose intolerance should not take this medicine.

Interactions
The anticholinergic effect of drugs such as tri- and tetracyclic antidepressants, antihistamines, antipsychotics, quinidine, amantadine, disopyramide and other anticholinergics (eg. tiotropium, ipratropium, atropine-like compounds) may be intensified by **Buscopan®**.
Concomitant treatment with dopamine antagonists such as metoclopramide may result in diminution of the effects of both drugs on the gastrointestinal tract.
The tachycardic effects of beta-adrenergic agents may be enhanced by **Buscopan®**.

Fertiliy, pregnancy and lactation
Pregnancy
There is limited data from the use of hyoscine butylbromide in pregnant women.
Animal studies are insufficient with respect to reproductive toxicity.
As a precautionary measure Buscopan is not recommended during pregnancy.

Lactation
There is insufficient information on the excretion of **Buscopan®** and its metabolites in human milk.
A risk to the breastfeeding child cannot be excluded. Use of **Buscopan®** during breastfeeding is not recommended.

Fertility
No studies on the effects on human fertility have been conducted.

Effects on ability to drive and use machines
No studies on the effects on the ability to drive and use machines have been performed. Because of possible visual accommodation disturbances patients should not drive or operate machinery if affected.

Side Effects
Many of the listed undesirable effects can be assigned to the anticholinergic properties of **Buscopan®**.

Adverse events have been ranked under headings of frequency using the following convention: Very common (≥ 1/10); common (≥ 1/100 to < 1/10); uncommon (≥ 1/1000 to <1/100); rare (≥ 1/10000 to <1/1000); very rare (<1/10000); not known (cannot be estimated from the available data).

Immune system disorders
Not known*: anyphylactic shock, anaphylactic reactions, dyspnoea, and other hypersensitivity

Cardiac disorders
Uncommon: tachycardia

Gastrointestinal disorders
Uncommon: dry mouth

Skin and subcutaneous tissue disorders
Uncommon: skin reactions (e.g. urticaria, pruritus), abnormal sweating
Not known*: rash, erythema
Renal and urinary disorders
Rare: urinary retention

* This adverse reaction has been observed in post-marketing experience. With 95% certainty, the frequency category is not greater than uncommon (3/1,368) but might be lower. A precise frequency estimation is not possible as the adverse drug reaction did not occur in a clinical trial database of 1,368 patients.

Overdosage

Symptoms

Serious signs of poisoning following acute overdosage have not been observed in man. In the case of overdosage, anticholinergic effects such as urinary retention, dry mouth, reddening of the skin, tachycardia, inhibition of gastrointestinal motility and transient visual disturbances may occur, and Cheynes-Stokes respiration has been reported.

Therapy

In the case of oral poisoning, gastric lavage with medicinal charcoal should be followed by magnesium sulfate (15%). Symptoms of **Buscopan**® overdosage respond to parasympathomimetics. For patients with glaucoma, pilocarpine should be given locally. Cardiovascular complications should be treated according to usual therapeutic principles. In case of respiratory paralysis, intubation and artificial respiration should be considered. Catheterisation may be required for urinary retention. In addition, appropriate supportive measures should be used as required.

Pack Size

20s, 100s and 500s.
Not all pack sizes are available in the market.

Store below 30°C.

Please refer to packaging material for information on shelf-life.

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Store in a safe place out of the reach of children!