DBL™ HYOSCINE INJECTION BP

Hyoscine Hydrobromide BP

Description

The molecular formula of hyoscine hydrobromide is C_{17}H_{21}NO_{4}.HBr.3H_{2}O. Its molecular weight is 438.3. The CAS Registry number of hyoscine hydrobromide.3H_{2}O is 6533-68-2.

DBL™ Hyoscine Injection BP is a clear, colourless to straw coloured, sterile solution of Hyoscine hydrobromide.3H_{2}O in Water for Injections. Each mL contains 0.4 mg of Hyoscine hydrobromide trihydrate in Water for Injections. The pH of the solution is between 3.8 and 4.2.

Pharmacology

Hyoscine is a belladonna alkaloid. Hyoscine hydrobromide is a tertiary amine antimuscarinic agent, which competitively antagonizes acetylcholine. The main pharmacologic actions of hyoscine hydrobromide are a decrease in the production of salivary, bronchial and sweat gland secretions, dilated pupils (mydriasis), paralysis of accommodation (cycloplegia), a decrease in micturition, a decrease in gastrointestinal tone and gastric secretion, and bradycardia although transient tachycardia may be observed at higher doses.

The effects of hyoscine hydrobromide differ from those of atropine in that hyoscine hydrobromide has a more potent effect on the iris, ciliary body and some secretory glands than atropine, and a less potent effect on the heart, intestine and bronchial muscle. Its effect on the gastrointestinal tract have lead to its use as an antispasmodic in irritable bowel syndrome. Unlike atropine, hyoscine hydrobromide usually produces CNS depression at therapeutic doses, although CNS stimulation occurs at higher doses, and may also occur when hyoscine hydrobromide is used in the presence of pain. Hyoscine hydrobromide does not usually produce the increased respiration rate or blood pressure observed with atropine administration.

Pharmacokinetics

Hyoscine hydrobromide is rapidly absorbed after intramuscular or subcutaneous administration. It is reported to cross the placenta, and also crosses the blood brain barrier. After intramuscular administration, the onset of action is approximately 30 minutes and the duration of action is approximately 4 hours. Hyoscine hydrobromide is almost completely metabolized in the liver, and excreted in the urine, although it is reported that small amounts are excreted in the breast milk.

Indications

DBL™ Hyoscine Injection BP is indicated as a preoperative medication to produce sedation and amnesia. It is also used preoperatively to inhibit salivation and excessive secretions of the respiratory tract.

Hyoscine hydrobromide is also indicated for the treatment of selected cases of nausea and vomiting resulting from motion sickness, although oral or transdermal administration is more frequently used for this indication.
Contraindications

DBL™ Hyoscine Injection BP is contraindicated in patients hypersensitive to hyoscine hydrobromide.

Hyoscine hydrobromide is also contraindicated in patients with glaucoma or a predisposition to glaucoma, since its effects on the eye can precipitate this condition.

Hyoscine hydrobromide is also contraindicated in patients with pyloric obstruction, paralytic ileus, and in patients with prostatic hypertrophy or urinary bladder neck obstruction, since it may lead to urinary retention in these patients.

Hyoscine hydrobromide is also contraindicated in patients with tachycardia secondary to thyrotoxicosis or cardiac insufficiency, since hyoscine hydrobromide may exacerbate the tachycardia.

Precautions

Hyoscine hydrobromide may impair mental alertness, physical coordination or visual acuity. Patients should be warned against activities such as driving a car or operating machinery whilst affected by hyoscine hydrobromide.

Potentially alarming idiosyncratic reactions may develop following the use of therapeutic doses of hyoscine hydrobromide.

Hyoscine hydrobromide should be administered with caution in children, since children are particularly susceptible to the adverse effects of belladonna alkaloids.

Hyoscine hydrobromide should also be administered with caution in elderly patients, or in patients with impaired metabolic, hepatic or renal function, since adverse CNS effects are more likely to occur in these groups.

Hyoscine hydrobromide should be administered with caution in patients with fever, since reduction in sweating may inhibit heat loss and lead to hyperpyrexia.

Hyoscine hydrobromide should be administered with caution in patients undergoing cardiac surgery, and in patients with cardiac disease, since the transient increase in heart rate which may be caused by hyoscine hydrobromide may be undesirable in these circumstances.

Interference with laboratory tests

Gastric acid secretion test
Administration of cholinergics including hyoscine hydrobromide is not recommended in the 24 hours prior to the test since anticholinergics may antagonize the effects of the drugs used in the evaluation of gastric acid secretory function.

Neuroradiological tests
Mydriasis and cycloplegia may affect the results of neuroradiological tests for intracranial neoplasm, subdural haematoma or aneurysm.

Use in pregnancy (Category B2)
ADEC Category B2 includes drugs which have been taken by only a limited number of pregnant women and women of childbearing age, without an increased frequency of malformations or other direct or indirect harmful effects on the human fetus having been observed. Studies in animals are inadequate or may be lacking, but available data show no evidence of an increased occurrence of fetal damage.
Labour: Parenteral administration of hyoscine hydrobromide before the onset of labour may cause CNS depression in the neonate and may contribute to neonatal haemorrhage due to reduction in Vitamin K-dependent clotting factors in the neonate.

**Use in Lactation**

Small quantities of hyoscine hydrobromide may be excreted into breast milk. Hyoscine hydrobromide may also inhibit lactation. Therefore hyoscine hydrobromide is not recommended for use during lactation.

**Use in Children**

*Care should be taken in titrating the dose of hyoscine hydrobromide in children as they are more likely than adults to experience adverse events.*

**Drug Interactions**

Anticholinergic agents
Concurrent use of hyoscine hydrobromide and anticholinergic agents may result in an intensification of the anticholinergic effect.

Antihistamines
Concurrent use of hyoscine hydrobromide and antihistamines possessing anticholinergic effects may result in an intensification of the anticholinergic effect. Concurrent use of hyoscine hydrobromide and antihistamines possessing CNS depression effects may result in a potentiation of the CNS depression and increased sedation.

Belladonna alkaloids
Concurrent use of hyoscine hydrobromide and belladonna alkaloids may result in an intensification of the anticholinergic effect.

CNS depression-producing medications
Concurrent administration of hyoscine hydrobromide and drugs producing CNS depression may result in potentiation of the CNS depression, and increased sedation.

Cyclopropane
Concurrent administration of hyoscine hydrobromide and cyclopropane may result in ventricular arrhythmias.

Monoamine Oxidase (MAO) Inhibitors
Concurrent use of hyoscine hydrobromide and MAO inhibitors possessing anticholinergic effects may result in an intensification of the anticholinergic effect. Concurrent use of hyoscine hydrobromide and MAO inhibitors possessing CNS depression effects may result in a potentiation of the CNS depression and increased sedation.

Oral medications
Since hyoscine hydrobromide decreases gastrointestinal tone and gastric secretions, it may affect the absorption of oral medications.

Phenothiazines
Concurrent use of hyoscine hydrobromide and phenothiazines possessing anticholinergic effects may result in an intensification of the anticholinergic effect. Concurrent use of hyoscine hydrobromide and phenothiazines possessing CNS depression effects may result in a potentiation of the CNS depression and increased sedation.

Procainamide
Concurrent use of procainamide and hyoscine hydrobromide may result in additive antivagal effects on AV node conduction.
Tricyclic antidepressants
Concurrent use of hyoscine hydrobromide and tricyclic antidepressants possessing anticholinergic effects may result in an intensification of the anticholinergic effect.
Concurrent use of hyoscine hydrobromide and tricyclic antidepressants possessing CNS depression effects may result in a potentiation of the CNS depression and increased sedation.

Adverse Reactions

Cardiovascular system: bradycardia (at low doses), initial tachycardia followed by bradycardia (at higher doses), hypotension, arrhythmia.

Central Nervous system: sedation, drowsiness, irritability, disorientation, hallucinations, impairment of memory and concentration, dizziness, confusion, tremor, acute toxic psychosis, restlessness, delerium, excitement.

Symptoms of CNS depression predominate at therapeutic doses. Symptoms of CNS stimulation predominate at higher doses, and at therapeutic doses in the presence of pain.

Gastrointestinal system: dry mouth, constipation, nausea, vomiting.

Genito-urinary system: difficulty in urinating

Ocular: blurred vision, mydriasis, closed angle glaucoma.

Skin and appendages: rashes, erythema, redness or irritation at injection site

Dosage and Administration

DBL™ Hyoscine Injection BP is administered by the intramuscular, subcutaneous or intravenous injection. When given intravenously, the drug should be diluted with sterile water for injection and injected slowly with caution.

When used for preoperative medication, hyoscine hydrobromide should be administered 30 to 60 minutes prior to induction of anaesthesia.

Adult dose: The usual adult dose is 0.3 - 0.6 mg given i.m., s.c., or i.v.. This dose may be repeated 3 - 4 times a day. When used as an antiemetic doses up to 1 mg have been administered . A reduced dosage may be required in elderly or debilitated patients or those with hepatic or renal insufficiency.

Paediatric dose: The usual paediatric dose is 6 mcg/kg body weight , or 200 mcg/m² surface area, i.m., s.c., or i.v.

Compatibilities

For intravenous injection hyoscine hydrobromide should be diluted in sterile water for injection.

Incompatibilities

Hyoscine hydrobromide is reported to be incompatible with alkalies, and with methohexitone sodium.

Overdosage

Clinical features
Symptoms associated with overdosage of hyoscine hydrobromide include CNS stimulation (restlessness, confusion, excitement, incoordination, disorientation, memory disturbances, hallucinations, paranoid and psychotic reactions), tachycardia, hyperpyrexia, blurred vision, mydriasis, rapid respiration or respiratory difficulties.

Severe overdosage may cause coma, respiratory depression, cardiac arrhythmia, and may result in death.

**Treatment**

Treatment of overdose involves the following measures:
- symptomatic and supportive therapy
- diazepam or other short acting benzodiazepine or barbiturate may be given to control CNS stimulation
- if hyperthermia occurs, dissipation of heat should be undertaken (i.e. by cold baths)

**Presentation**

<table>
<thead>
<tr>
<th>Strength</th>
<th>Pack size</th>
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<tr>
<td>0.4 mg/mL</td>
<td>5 x 1 mL</td>
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**Medicine Classification**

Prescription Medicine

**Storage**

Store below 25°C. Protect from light

**Name and Address**

Hospira NZ Limited  
23 Haining Street  
Te Aro  
Wellington  
New Zealand

**Date of Preparation**

8 March 2012