

DICYCLOMINE HYDROCHLORIDE injection, for intramuscular use

HIGHLIGHTS OF PRESCRIBING INFORMATION

These highlights do not include all the information needed to use DICYCLOMINE HYDROCHLORIDE INJECTION safely and effectively. See Full Prescribing Information for DICYCLOMINE HYDROCHLORIDE INJECTION.

DICYCLOMINE HYDROCHLORIDE injection, for intramuscular use.

Initial U.S. Approval: 1950

INDICATIONS AND USAGE

Dicyclomine Hydrochloride Injection, USP is an antispasmodic and anticholinergic (antimuscarinic) agent indicated for the treatment of functional bowel/irritable bowel syndrome (1)

DOSAGE AND ADMINISTRATION

Dosage for dicyclomine hydrochloride must be adjusted to individual patient needs (2).

If a dose is missed, patients should continue the normal dosing schedule (2).

Intramuscular in adults (2.2):

- Intramuscular administration recommended no longer than 1 or 2 days when patients cannot take oral administration
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- Recommended dose: 10 mg to 20 mg four times a day

DOSAGE FORMS AND STRENGTHS

- Dicyclomine Hydrochloride Injection, USP 20 mg/2 mL (10 mg/mL) (3)

CONTRAINDICATIONS

- Infants less than 6 months of age (4)
- Glaucoma (4)
- Nursing mothers (4)
- Obstructive uropathy (4)
- Unstable cardiovascular status in acute hemorrhage (4)
- Obstructive disease of the gastrointestinal tract (4)
- Myasthenia gravis (4)
- Severe ulcerative colitis (4)
- Reflux esophagitis (4)

WARNINGS AND PRECAUTIONS

- For Intramuscular injection only; should not be administered by any other route. Intravenous injection may result in thrombosis or thrombophlebitis and injection site reactions (5.1)
- Cardiovascular conditions:** worsening of conditions (5.2)
- Peripheral and central nervous system:** heat prostration can occur with drug use (fever and heat stroke due to decreased sweating); drug should be discontinued and supportive measures instituted (5.3)
- Psychosis and delirium have been reported in patients sensitive to anticholinergic drugs (such as elderly patients and/or in patients with mental illness):** signs and symptoms resolve within 12 to 24 hours after discontinuation of dicyclomine hydrochloride (5.3)
- Myasthenia Gravis:** overdose may lead to muscular weakness and paralysis. Dicyclomine hydrochloride should be given to patients with myasthenia gravis only to reduce adverse muscarinic effects of an anticholinesterase (5.4)
- Incomplete intestinal obstruction:** diarrhea may be an early symptom especially in patients with ileostomy or colostomy. Treatment with dicyclomine hydrochloride would be inappropriate and possibly fatal (5.5)
- Salmonella dysenteric patients:** due to risk of toxic megacolon (5.6)
- Ulcerative colitis:** dicyclomine hydrochloride should be used with caution in these patients; large doses may suppress intestinal motility or aggravate the serious complications of toxic megacolon (5.7)
- Prostatic hypertrophy:** dicyclomine hydrochloride should be used with caution in these patients; may lead to urinary retention (5.8)
- Hepatic and renal disease:** should be used with caution (5.9)
- Geriatric:** use with caution in elderly who may be more susceptible to dicyclomine hydrochloride's adverse events (5.10)

ADVERSE REACTIONS

The most serious adverse reactions include cardiovascular and central nervous system symptoms. The most common adverse reactions (> 5% of patients) are dizziness, dry mouth, vision blurred, nausea, somnolence, asthenia and nervousness (6)

To report SUSPECTED ADVERSE REACTIONS contact Lambda Therapeutics Limited (Toll Free Number: 1-855-642-2594 or by email: safety.nexuspharma@lambda-cro.com) or the FDA (Toll Free Number: 1-800-FDA-1088 or by the MedWatch website at www.fda.gov/safety/MedWatch/).

DRUG INTERACTIONS

- Antiglaucoma agents:** anticholinergics antagonize antiglaucoma agents and may increase intraocular pressure (7)
- Anticholinergic agents:** may affect the gastrointestinal absorption of various drugs; may also increase certain actions or side effects of other anticholinergic drugs (7)
- Antacids:** interfere with the absorption of anticholinergic agents (7)

USE IN SPECIFIC POPULATIONS

- Pregnancy:** use only if clearly needed (8.1)
- Pediatric Use:** Safety and effectiveness not established (8.4)
- Hepatic and renal impairment:** caution must be taken with patients with significantly impaired hepatic and renal function (8.6)

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FULL PRESCRIBING INFORMATION

1 INDICATIONS AND USAGE

Dicyclomine hydrochloride injection is indicated for the treatment of patients with functional bowel/irritable bowel syndrome.

2 DOSAGE AND ADMINISTRATION

Dosage must be adjusted to individual patient needs.

2.2 Intramuscular Dosage and Administration in Adults

Dicyclomine Hydrochloride Intramuscular Injection must be administered via *intramuscular* route only. Do not administer by any other route.

The recommended intramuscular dose is 10 mg to 20 mg four times a day [*see Clinical Pharmacology (12)*].

The intramuscular injection is to be used only for 1 or 2 days when the patient cannot take oral medication.

Intramuscular injection is about twice as bioavailable as oral dosage forms.

2.3 Preparation for Intramuscular Administration

Parenteral drug products should be inspected visually for particulate matter and discoloration prior to administration, whenever solution and container permit.

Aspirate the syringe before injecting to avoid intravascular injection, since thrombosis may occur if the drug is inadvertently injected intravascularly.

3 DOSAGE FORMS AND STRENGTHS

Dicyclomine Hydrochloride Injection, USP 20 mg/2 mL (10 mg/mL)

4 CONTRAINDICATIONS

Dicyclomine hydrochloride is contraindicated in infants less than 6 months of age [*see Use in Specific Populations(8.4)*], nursing mothers [*see Use in Specific Populations (8.3)*], and in patients with:

- unstable cardiovascular status in acute hemorrhage
- myasthenia gravis [*see Warnings and Precautions (5.4)*]
- glaucoma [*see Adverse Reactions (6.3)* and *Drug Interactions (7.1)*]
- obstructive uropathy [*see Warnings and Precautions (5.8)*]
- obstructive disease of the gastrointestinal tract [*see Warnings and Precautions (5.5)*]
- severe ulcerative colitis [*see Warnings and Precautions (5.7)*]
- reflux esophagitis

5 WARNINGS AND PRECAUTIONS

5.1 Inadvertent Intravenous Administration

Dicyclomine hydrochloride solution is for intramuscular administration only. Do not administer by any other route. Inadvertent intravenous administration may result in thrombosis, thrombophlebitis, and injection site reactions such as pain, edema, skin color change, and reflex sympathetic dystrophy syndrome [*see Adverse Reactions (6.2)*].

5.2 Cardiovascular Conditions

Dicyclomine hydrochloride needs to be used with caution in conditions characterized by tachyarrhythmia such as thyrotoxicosis, congestive heart failure and in cardiac surgery, where they may further accelerate the heart rate. Investigate any tachycardia before administration of dicyclomine hydrochloride. Care is required in patients with coronary heart disease, as ischemia and infarction may be worsened, and in patients with hypertension [*see Adverse Reactions (6.3)*].

5.3 Peripheral and Central Nervous System

The peripheral effects of dicyclomine hydrochloride are a consequence of their inhibitory effect on muscarinic receptors of the autonomic nervous system. They include dryness of the mouth with difficulty in swallowing and talking, thirst, reduced bronchial secretions, dilatation of the pupils (mydriasis) with loss of accommodation (cycloplegia) and photophobia, flushing and dryness of the skin, transient bradycardia followed by tachycardia, with palpitations and arrhythmias, and difficulty in micturition, as well as reduction in the tone and motility of the gastrointestinal tract leading to constipation [*see Adverse Reactions (6)*].

In the presence of high environmental temperature heat prostration can occur with drug use (fever and heat stroke due to decreased sweating). It should also be used cautiously in patients with fever. If symptoms occur, the drug should be discontinued and supportive measures instituted. Because of the inhibitory effect on muscarinic receptors within the autonomic nervous system, caution should be taken in patients with autonomic neuropathy.

Central nervous system (CNS) signs and symptoms include confusional state, disorientation, amnesia, hallucinations, dysarthria, ataxia, coma, euphoria, fatigue, insomnia, agitation and mannerisms, and inappropriate affect.

Psychosis and delirium have been reported in sensitive individuals (such as elderly patients and/or in patients with mental illness) given anticholinergic drugs. These CNS signs and symptoms usually resolve within 12 to 24 hours after discontinuation of the drug.

Dicyclomine hydrochloride may produce drowsiness, dizziness or blurred vision. The patient should be warned not to engage in activities requiring mental alertness, such as operating a motor vehicle or other machinery or performing hazardous work while taking dicyclomine hydrochloride.

5.4 Myasthenia Gravis

With overdosage, a curare-like action may occur (i.e., neuromuscular blockade leading to muscular weakness and possible paralysis). It should not be given to patients with myasthenia gravis except to reduce adverse muscarinic effects of an anticholinesterase [*see Contraindications (4)*].

5.5 Intestinal Obstruction

Diarrhea may be an early symptom of incomplete intestinal obstruction, especially in patients with ileostomy or colostomy. In this instance, treatment with this drug would be inappropriate and possibly harmful [*see Contraindications (4)*].

Rarely development of Ogilvie's syndrome (colonic pseudo-obstruction) has been reported. Ogilvie's syndrome is a clinical disorder with signs, symptoms, and radiographic appearance of an acute large bowel obstruction but with no evidence of distal colonic obstruction.

5.6 Toxic Dilatation of Intestinemegacolon

Toxic dilatation of intestine and intestinal perforation is possible when anticholinergic agents are administered in patients with Salmonella dysentery.

5.7 Ulcerative Colitis

Caution should be taken in patients with ulcerative colitis. Large doses may suppress intestinal motility to the point of producing a paralytic ileus and the use of this drug may precipitate or aggravate the serious complication of toxic megacolon [*see Adverse Reactions (6.3)*]. Dicyclomine is contraindicated in patients with severe ulcerative colitis [*see Contraindications (4)*].

5.8 Prostatic Hypertrophy

Dicyclomine hydrochloride should be used with caution in patients with known or suspected prostatic enlargement, in whom prostatic enlargement may lead to urinary retention [*see Adverse Reactions (6.3)*].

5.9 Hepatic and Renal Disease

Dicyclomine hydrochloride should be used with caution in patients with known hepatic and renal impairment.

5.10 Geriatric Population

Dicyclomine hydrochloride should be used with caution in elderly who may be more susceptible to its adverse effects.

6 ADVERSE REACTIONS

The pattern of adverse effects seen with dicyclomine is mostly related to its pharmacological actions at muscarinic receptors [*see Clinical Pharmacology (12)*]. They are a consequence of the inhibitory effect on muscarinic receptors within the autonomic nervous system. These effects are dose-related and are usually reversible when treatment is discontinued.

The most serious adverse reactions reported with dicyclomine hydrochloride include cardiovascular and central nervous system symptoms [*see Warnings and Precautions (5.2, 5.3)*].

6.1 Clinical Trials Experience

Because clinical trials are conducted under widely varying conditions, adverse reaction rates observed in the clinical trials of a drug cannot be directly compared to rates in the clinical trials of another drug and may not reflect the rates observed in practice.

The data described below reflect exposure in controlled clinical trials involving over 100 patients treated for functional bowel/irritable bowel syndrome with dicyclomine hydrochloride at initial doses of 160 mg daily (40 mg four times a day).

In these trials most of the side effects were typically anticholinergic in nature and were reported by

61% of the patients. Table 1 presents adverse reactions (*MedDRA 13.0* preferred terms) by decreasing order of frequency in a side-by-side comparison with placebo.

Table 1: Adverse Reactions Experienced in Controlled Clinical Trials with Decreasing Order of Frequency

MedDRA Preferred Term	Dicyclomine Hydrochloride (40 mg four times a day) %	Placebo %
Dry Mouth	33	5
Dizziness	40	5
Vision Blurred	27	2
Nausea	14	6
Somnolence	9	1
Asthenia	7	1
Nervousness	6	2

Nine percent (9%) of patients were discontinued from dicyclomine hydrochloride because of one or more of these side effects (compared with 2% in the placebo group). In 41% of the patients with side effects, side effects disappeared or were tolerated at the 160 mg daily dose without reduction. A dose reduction from 160 mg daily to an average daily dose of 90 mg was required in 46% of the patients with side effects who then continued to experience a favorable clinical response; their side effects either disappeared or were tolerated.

6.2 Postmarketing Experience

The following adverse reactions, presented by system organ class in alphabetical order, have been identified during post approval use of dicyclomine hydrochloride. Because these reactions are reported voluntarily from a population of uncertain size, it is not always possible to reliably estimate their frequency or establish a causal relationship to drug exposure.

- Cardiac disorders:** palpitations, tachyarrhythmias
- Eye disorders:** cycloplegia, mydriasis, vision blurred
- Gastrointestinal disorders:** abdominal distension, abdominal pain, constipation, dry mouth, dyspepsia, nausea, vomiting

