



Ipratropium

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OVERVIEW

Introduction

Ipratropium is a synthetic anticholinergic agent that is used as an inhalant for treatment of acute bronchospasm due to chronic bronchitis and emphysema. Ipratropium has not been implicated in causing liver enzyme elevations or clinically apparent acute liver injury.

Background

Ipratropium (ip" ra troe' pee um) is a synthetic quaternary ammonium anticholinergic which inhibits the muscarinic actions of acetylcholine on autonomic nerve endings, decreasing bronchial smooth muscle contractions and alleviating bronchospasm in patients with chronic obstructive pulmonary disease (COPD). Ipratropium has potent activity against muscarinic acetylcholine type 3 (M3) receptors which are found in bronchial smooth muscle. Its quaternary ammonium structure decreases its ability to cross lipid membranes such as the blood brain barrier. Ipratropium was approved for use in the United States in 1986 as a respiratory inhalant and indications include maintenance treatment of bronchospasm associated with chronic bronchitis and emphysema. Ipratropium is available in various formulations generically and under the brand names Atrovent and Combivent for use as an inhalant. The typical dose in adults is 1 inhalation 3 to 4 times daily. The common side effects of parasympathetic stimulation (such as dryness of the mouth and eyes, decreased sweating, visual blurring, constipation, urinary retention, impotence, tachycardia and palpitations, anxiety and restlessness) are uncommon in patients treated with ipratropium by inhaler. Ipratropium use can cause paradoxical bronchospasm. Anticholinergic agents can precipitate acute narrow angle glaucoma and acute urinary retention.

Hepatotoxicity

Like other anticholinergic agents, ipratropium has not been linked to episodes of liver enzyme elevations or clinically apparent liver injury. A major reason for its safety may relate to its low systemic absorption when administered by inhaler.

References on the safety and potential hepatotoxicity of anticholinergics are given together after the Overview section on Anticholinergic Agents.

Drug Class: [Anticholinergic Agents](#)

PRODUCT INFORMATION

REPRESENTATIVE TRADE NAMES

Ipratropium – Generic, Atrovent®

DRUG CLASS

Anticholinergic Agents

COMPLETE LABELING

Product labeling at DailyMed, National Library of Medicine, NIH

CHEMICAL FORMULA AND STRUCTURE

DRUG	CAS REGISTRY NUMBER	MOLECULAR FORMULA	STRUCTURE
Ipratropium	66985-17-9	C ₂₀ -H ₃₀ -Br-N-O ₃ .x-H ₂ O	