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NLM Citation: LiverTox: Clinical and Research Information on Drug-Induced Liver Injury [Internet]. Bethesda (MD): National Institute of Diabetes and Digestive and Kidney Diseases; 2012-. Levorphanol. [Updated 2019 Apr 25].
Bookshelf URL: https://www.ncbi.nlm.nih.gov/books/

Levorphanol

Updated: April 25, 2019.

OVERVIEW

Introduction

Levorphanol is a synthetic opioid which is used as a narcotic analgesic for moderate-to-severe pain or as a preoperative medication. Levorphanol has not been linked to serum enzyme elevations during therapy or to clinically apparent liver injury.

Background

Levorphanol (lee vor' fa nol) is a fully synthetic opioid that has full agonist activity to the μ type opiate receptors which are found in the central nervous system, but also in the heart, lungs, intestine and skin. Levorphanol also has activity against the κ and δ opioid receptors. Engagement of the opiate receptors results in inhibition of intracellular adenylate cyclase, decrease in calcium influx, and hyperpolarization of neurons with suppression of action potentials. These actions lead to typical analgesic effects of the opioids. Levorphanol is similar to morphine in effect, but is 4 to 8 times as potent and somewhat longer acting. Levorphanol is the levo-rotatory version of morphinan, the parent drug and prototype of many opioids and inhibitors of the NMDA receptor (morphinans). Levorphanol was first approved for use in the United States in 1953. Indications are for moderate-to-severe pain that is that is not responsive to nonnarcotic analgesia and for perioperative sedation and analgesia. It is available in tablets of 2 mg and as a solution for intravenous or intramuscular injection in concentrations of 2 mg/mL generically and under the brand name Levo-dromoran. Typical doses are 2 mg orally every 6 to 8 hours and 1 to 2 mg parenterally every 3 to 6 hours, as needed. Side effects include sedation, respiratory depression, confusion, euphoria, agitation, itching, sweating, abdominal bloating, nausea, vomiting and constipation, adverse effects which are typical of the opioids. Levorphanol is a controlled substance and is classified as a Schedule II drug, indicating that it has medical usefulness, but also a high potential for physical and psychological dependency and abuse.

Hepatotoxicity

Like most opioid analgesics, levorphanol has not been linked to serum enzyme elevations during therapy or to instances of idiosyncratic, clinically apparent liver injury.

References on the safety and potential hepatotoxicity of levorphanol are given in the 0verview section of the Opioids, last updated April 2019.

Drug Class: Opioids

PRODUCT INFORMATION

REPRESENTATIVE TRADE NAMES

Levorphanol – Generic, Levo-Dromoran®

DRUG CLASS

Opioids

COMPLETE LABELING

Product labeling at DailyMed, National Library of Medicine, NIH

CHEMICAL FORMULA AND STRUCTURE

DRUG	CAS REGISTRY NO.	MOLECULAR FORMULA	STRUCTURE
Levorphanol	77-07-6	C17-H23-N-O