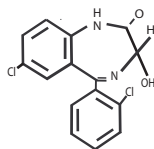


## LORAZEPAM TABLETS USP

### Rx only

Lorazepam, an anti-anxiety agent, has the chemical formula, 7-chloro-5-(o-chlorophenyl)-1,3-dihydro-3-hydroxy-2H-1,4-benzodiazepin-2-one. It has the following structural formula:



C<sub>15</sub>H<sub>10</sub>C<sub>12</sub>N<sub>2</sub>O<sub>2</sub>

M. W. 321.16

It is a nearly white powder almost insoluble in water.

Each tablet, for oral administration, contains either 0.5 mg, 1 mg, or 2 mg of lorazepam and has the following inactive ingredients: lactose monohydrate, magnesium stearate, microcrystalline cellulose, and low-substituted hydroxypropyl cellulose.

#### CLINICAL PHARMACOLOGY

Studies in healthy volunteers show that in single high doses lorazepam has a tranquilizing action on the central nervous system with no appreciable effect on the respiratory or cardiovascular systems.

Lorazepam is readily absorbed with an absolute bioavailability of 90 percent. Peak concentrations in plasma occur approximately 2 hours following administration. The peak plasma level of lorazepam from a 2 mg dose is approximately 20 ng/mL.

The mean half-life of unconjugated lorazepam in human plasma is about 12 hours and for its major metabolite, lorazepam glucuronide, about 18 hours. At clinically relevant concentrations, lorazepam is approximately 85% bound to plasma proteins. Lorazepam is rapidly conjugated at its 3-hydroxy group into lorazepam glucuronide which is then excreted in the urine. Lorazepam glucuronide has no demonstrable CNS activity in animals.

The plasma levels of lorazepam are proportional to the dose given. There is no evidence of accumulation of lorazepam on administration up to six months.

Studies comparing young and elderly subjects have shown that the pharmacokinetics of lorazepam remain unaltered with advancing age.

#### INDICATIONS AND USAGE

Lorazepam tablets are indicated for the management of anxiety disorders or for the short-term relief of the symptoms of anxiety or anxiety associated with depressive symptoms. Anxiety or tension associated with the stress of everyday life usually does not require treatment with an anxiolytic.

The effectiveness of lorazepam in long-term use, that is, more than 4 months, has not been assessed by systematic clinical studies. The physician should periodically reassess the usefulness of the drug for the individual patient.

#### CONTRAINDICATIONS

Lorazepam tablets are contraindicated in patients with known sensitivity to benzodiazepines or with acute narrow-angle glaucoma

#### WARNINGS

Lorazepam is not recommended for use in patients with a primary depressive disorder or psychosis. As with all patients on CNS-active drugs, patients receiving lorazepam should be warned not to operate dangerous machinery or motor vehicles and that their tolerance for alcohol and other CNS depressants will be diminished.

#### Physical and Psychological Dependence

Withdrawal symptoms, similar in character to those noted with barbiturates and alcohol (convulsions, tremor, abdominal and muscle cramps, vomiting, and sweating), have occurred following abrupt discontinuance of lorazepam. The more severe withdrawal symptoms have usually been limited to those patients who received excessive doses over an extended period of time. Generally, milder withdrawal symptoms (e.g., dysphoria and insomnia) have been reported following abrupt discontinuance of benzodiazepines taken continuously at therapeutic levels for several months. Consequently, after extended therapy, abrupt discontinuation should generally be avoided and a gradual dosage-tapering schedule followed. Addiction-prone individuals (such as drug addicts or alcoholics) should be under careful surveillance when receiving lorazepam or other psychotropic agents because of the predisposition of such patients to habituation and dependence.

#### PRECAUTIONS

In patients with depression accompanying anxiety, a possibility for suicide should be borne in mind.

For elderly or debilitated patients, the initial daily dosage should not exceed 2 mg in order to avoid oversedation.

The usual precautions for treating patients with impaired renal or hepatic function should be observed.

In patients where gastrointestinal or cardiovascular disorders coexist with anxiety, it should be noted that lorazepam has not been shown to be of significant benefit in treating the gastrointestinal or cardiovascular component.

Esophageal dilation occurred in rats treated with lorazepam for more than one year at 6 mg/kg/day. The no-effect dose was 1.25 mg/kg/day (approximately 6 times the maximum human therapeutic dose of 10 mg per day). The effect was reversible only when the treatment was withdrawn within two months of first observation of the phenomenon. The clinical significance of this is unknown. However, use of lorazepam for prolonged periods and in geriatric patients requires caution, and there should be frequent monitoring for symptoms of upper G.I. disease.

Safety and effectiveness of lorazepam in children of less than 12 years have not been established

#### Information for Patients

To assure the safe and effective use of lorazepam, patients should be informed that, since benzodiazepines may produce psychological and physical dependence, it is advisable that they consult with their physician before either increasing the dose or abruptly discontinuing this drug.

#### Essential Laboratory Tests

Some patients on lorazepam have developed leukopenia, and some have had elevations of LDH. As with other benzodiazepines, periodic blood counts and liver-function tests are recommended for patients on long-term therapy

#### Clinically Significant Drug Interactions

The benzodiazepines, including lorazepam, produce CNS depressant effects when administered with such medications as barbiturates or alcohol.

#### Carcinogenesis and Mutagenesis

No evidence of carcinogenic potential emerged in rats during an 18-month study with lorazepam. No studies regarding mutagenesis have been performed.

#### Pregnancy

Reproductive studies in animals were performed in mice, rats, and two strains of rabbits. Occasional anomalies (reduction of tarsals, tibia, metatarsals, malrotated limbs, gastroschisis, malformed skull, and microphthalmia) were seen in drug-treated rabbits without relationship to dosage. Although all of these anomalies were not present in the concurrent control groups, they have been reported to occur randomly in historical controls. At doses of 40 mg/kg and higher, there was evidence of fetal resorption and increased fetal loss in rabbits which was not seen at lower doses.

The clinical significance of the above findings is not known. However, an increased risk of congenital malformations associated with the use of minor tranquilizers (chloridiazepoxide, diazepam, and meprobamate) during the first trimester of pregnancy has been suggested in several studies. Because the use of these drugs is rarely a matter of urgency, the use of lorazepam during this period should almost always be avoided. The possibility that a woman of childbearing potential may be pregnant at the time of institution of therapy should be considered. Patients should be advised that if they become pregnant, they should communicate with their physician about the desirability of discontinuing the drug.

In humans, blood levels obtained from umbilical cord blood indicate placental transfer of lorazepam and lorazepam glucuronide.

#### Nursing Mothers

It is not known whether oral lorazepam is excreted in human milk like the other benzodiazepine tranquilizers. As a general rule, nursing should not be undertaken while a patient is on a drug, since many drugs are excreted in human milk.

#### ADVERSE REACTIONS

Adverse reactions, if they occur, are usually observed at the beginning of therapy and generally disappear on continued medication or upon decreasing the dose. In a sample of about 3,500 anxious patients, the most frequent adverse reaction to lorazepam is sedation (15.9%), followed by dizziness (6.9%), weakness (4.2%), and unsteadiness (3.4%). Less frequent adverse reactions are disorientation, depression, nausea, change in appetite, headache, sleep disturbance, agitation, dermatological symptoms, eye function disturbance, together with various gastrointestinal symptoms and autonomic manifestations. The incidence of sedation and unsteadiness increased with age.

Small decreases in blood pressure have been noted but are not clinically significant, probably being related to the relief of anxiety produced by lorazepam.

Transient amnesia or memory impairment has been reported in association with the use of benzodiazepines.

#### OVERDOSAGE

In the management of overdosage with any drug, it should be borne in mind that multiple agents may have been taken.

#### Symptoms

Overdosage of benzodiazepines is usually manifested by varying degrees of central nervous system depression ranging from drowsiness to coma. In mild cases, symptoms include drowsiness, mental confusion and lethargy. In more serious cases, and especially when other drugs or alcohol were ingested, symptoms may include ataxia, hypotonia, hypotension, hypnotic state, stage one (1) to three (3) coma, and very rarely, death.

#### Management

Induced vomiting and/or gastric lavage should be undertaken, followed by general supportive care, monitoring of vital signs, and close observation of the patient.

Hypotension, though unlikely, usually may be controlled with norepinephrine bitartrate injection. The value of dialysis has not been adequately determined for lorazepam. The benzodiazepine antagonist flumazenil may be used in hospitalized patients as an adjunct to, not as a substitute for, proper management of benzodiazepine overdose.

**The prescriber should be aware of a risk of seizure in association with flumazenil treatment, particularly in long-term benzodiazepine users and in cyclic antidepressant overdose.** The complete flumazenil package insert including **CONTRAINDICATIONS, WARNINGS, and PRECAUTIONS** should be consulted prior to use.

#### DOSAGE AND ADMINISTRATION

Lorazepam is administered orally. For optimal results, dose, frequency of administration, and duration of therapy should be individualized according to patient response. To facilitate this, 0.5 mg, 1 mg, and 2 mg tablets are available.

The usual range is 2 to 6 mg/day given in divided doses, the largest dose being taken before bedtime, but the daily dosage may vary from 1 to 10 mg/day.

For anxiety, most patients require an initial dose of 2 to 3 mg/day given b.i.d. or t.i.d.

For insomnia due to anxiety or transient situational stress, a single daily dose of 2 to 4 mg may be given, usually at bedtime.

For elderly or debilitated patients, an initial dosage of 1 to 2 mg/day in divided doses is recommended, to be adjusted as needed and tolerated.

The dosage of lorazepam should be increased gradually when needed to help avoid adverse effects. When higher dosage is indicated, the evening dose should be increased before the daytime doses.

#### HOW SUPPLIED

Lorazepam Tablets are available as white, round, biconvex, unscored tablets, debossed "L" on one side and "L" on the other side, containing 0.5 mg lorazepam USP packaged in bottles of 100, 500 and 1000 tablets.

Lorazepam Tablets are available as white, round, biconvex, scored tablets, debossed "L" and "1" on one side and "4821" on the other side, containing 1 mg lorazepam USP packaged in bottles of 100, 500 and 1000 tablets.

Lorazepam Tablets are available as white, round, biconvex, scored tablets, debossed "L" and "2" on one side and "4822" on the other side, containing 2 mg lorazepam USP packaged in bottles of 100, 500 and 1000 tablets.

PHARMACIST: Dispense in a tight, light-resistant container as defined in the USP. Use child-resistant closure (as required).

Store at 20° to 25°C (68° to 77°F) [See USP Controlled Room Temperature].

KEEP TIGHTLY CLOSED

Manufactured in India by:

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