OVERDOSAGE

In rare instances, allergic skin reactions have been reported with liothyronine sodium injection (T3). Infarction occurred in approximately 2% of patients. The following events occurred and tachycardia (3%). Cardiopulmonary arrest, hypotension and myocardial infarction. Treatment of Overdosage:

Signs and Symptoms:

Treatment is symptomatic and supportive. Oxygen may be administered and ventilation restored in six to eight weeks after cessation of therapy following thyroid suppression. Treatment of Overdosage may result in symptoms resembling thyroid storm.

Other reported clinical experience has not identified differences in responses between the elderly and younger patients. In general, dose selection for an elderly patient should be based on age-related changes in hepatic, renal, or cardiac function, and of concomitant disease or drug therapy. This drug is known to be substantially excreted by the kidney, and the risk of toxic reactions to this drug may be greater in patients with impaired renal function. Because elderly patients are more likely to have decreased renal function, care should be taken in dose selection, and it may be useful to monitor renal function.

Pediatric Use

There is limited experience with liothyronine sodium injection (T3) in the pediatric population. Safety and effectiveness in pediatric patients have not been established.

ADVERSE REACTIONS

The most frequently reported adverse events were arrhythmia (6% of patients) and tachycardia (5%). Cardiopulmonary arrhythmia, hypertension and myocardial infarction occurred in approximately 2% of patients. The following events occurred in approximately 1% or fewer of patients: angina, congestive heart failure, fever, hypotension, phlebitis and twitching.

In rare instances, allergic skin reactions have been reported with liothyronine sodium tablets.

OVERDOSAGE

Dosage should be reduced or therapy temporarily discontinued if symptoms of overdosage appear. Treatment may be reversed at a lower dosage. In normal individuals, normal hypothalamic pituitary thyroid axis function is restored in six to eight weeks after cessation of therapy following thyroid suppression.

Treatment is symptomatic and supportive. Oxygen may be administered and ventilation maintained.

Cardiac glycosides may be indicated if congestive heart failure develops. Beta-adrenergic antagonists have been used advantageously in the treatment of increased sympathetic activity. Measures to control fever, hypopyrexia or fluid loss should be instituted if needed.

DOSAGE AND ADMINISTRATION

Adults

Myxedema coma is usually precipitated in the hypothyroid patient of long standing by intercurrent illness or drugs such as sedatives and anesthetics and should be considered a medical emergency. Therapy should be directed at the correction of electrolyte disturbances, possible infection, or other intercurrent illness in addition to the administration of intravenous liothyronine (T3). Simultaneous glucocorticosteroids are required.

Liothyronine sodium injection (T3) is for intravenous administration only. It should not be given intramuscularly or subcutaneously.

• Prompt administration of an adequate dose of intravenous liothyronine (T3) is important in determining clinical outcome.
• Initial and subsequent doses of liothyronine sodium injection (T3) should be based on continuous monitoring of the patient’s clinical status and response to therapy.
• Liothyronine sodium injection (T3) should normally be administered at least four hours and not more than 12 hours apart.
• Administration of at least 65 mcg/day of intravenous liothyronine (T3) in the initial days of therapy was associated with lower mortality.
• There is limited clinical experience with intravenous liothyronine (T3) at total daily doses exceeding 100 mcg/day.

No controlled clinical studies have been done with liothyronine sodium injection (T3). The following dosing guidelines have been derived from data analysis of myxedema coma/pseudo coma cases reported collected by SmithWaveliChemicalPharmaceuticals since 1963 and from scientific literature since 1956.

An initial intravenous liothyronine sodium injection (T3) dose ranging from 25 mcg to 50 mcg is recommended in the emergency treatment of myxedema coma/pseudo coma.

In patients with known or suspected cardiovascular disease, an initial dose of 10 mcg to 20 mcg is suggested (see WARNINGS).

However, both the initial dose and subsequent doses should be determined on the basis of continuous monitoring of the patient’s clinical condition and response to liothyronine sodium injection (T3) therapy. Normally at least four hours should be allowed between doses to adequately assess therapeutic response and no more than 12 hours should elapse between doses to avoid potential fluctuations in hormone levels.

Caution should be exercised in adjusting the dose due to the potential of large changes to precipitate adverse cardiovascular events. Review of the myxedema coma case reports indicates decreased mortality in patients receiving at least 65 mcg/day in the initial days of treatment. However, there is limited clinical experience at total daily doses above 100 mcg. See PRECAUTIONS: Drug Interactions for potential interactions between thyroid hormones and digitals and vasopressors.

Pediatric Use

There is limited experience with liothyronine sodium injection (T3) in the pediatric population. Safety and effectiveness in pediatric patients have not been established.

Switching to Oral Therapy

Oral therapy should be resumed as soon as the clinical situation has been stabilized and the patient is able to take oral medication. When switching a patient to liothyronine sodium injection (T3), discontinuous liothyronine sodium injection (T3) should be used in the dose range of 10 mcg to 20 mcg. Initiate oral therapy at a low dosage, and increase gradually according to the patient’s response.

If L-thyroxine rather than liothyronine sodium is used in initiating oral therapy, the physician should bear in mind that there is a delay of several days in the onset of L-thyroxine activity and that intravenous therapy should be discontinued gradually.

HOW SUPPLIED

Liothyronine sodium injection (T3) is supplied in a single vial carton containing a 1mL vial at a concentration of 10 mcg/mL (base). NDC number 39822–0151–1.

Store between 2°C – 8°C (36°F – 46°F).
from the thyroid gland, it is now well-established that approximately 80% of circulating T3 is derived from peripheral conversion of T4, the most potent thyroid hormone. T3 binds to specific nuclear receptor(s) to initiate hormonal, metabolic effects. T3 is the prohormone which is deiodinated to T3 for hormone activity.

Thyroid hormone preparations belong to two categories: (1) natural hormonal preparations derived from animal thyroid, and (2) synthetic preparations. Natural preparations include desiccated thyroid and thyroxin. Desiccated thyroid is derived from enzymatically inactivated thyroid gland. Both hormones are stored in the thyroid cells as thyroglobulin and released into the circulation. The major source of T3 has been shown to be peripheral deiodination of T4. Bound T3 is bound less firmly to T3 in the serum, enters peripheral tissues more readily, and binds to specific nuclear receptors to initiate hormonal biological effects. The prohormone which is deiodinated to T3 for hormone activity.

Thyroid hormones are natural or synthetic preparations containing tetraiodothyronine (T4), levothyroxine (T4), or triiodothyronine (T3). Liothyronine sodium injection (T3) contains liothyronine (L-triiodothyronine or L-T3), a synthetic form of natural thyroid hormone, as the sodium salt. The structural and empirical formulas and molecular weight of liothyronine sodium are given below.

**Liothyronine Sodium**

**INDICATIONS AND USAGE**

Liothyronine sodium injection (T3) in amber glass vials contains, in sterile water for injection USP.

The clinical features of myxedema coma include depression of the cardiovascular, respiratory, gastrointestinal, and central nervous systems, impaired diuresis, and hypothermia. Administration of thyroid hormones reverses or attenuates these conditions. Thyroid hormones increase heart rate, ventricular contractility, and cardiac output, as well as decrease total systemic vascular resistance. They also increase the rate and depth of respiration, motility of the gastrointestinal tract, rapidity of coagulation, and vasopressor responsiveness. These effects are produced, at least in part, by markedly increasing the basal metabolic rate, as well as the number and activity of mitochondria in almost all cells of the body.

**Pharmacokinetics**

Since liothyronine sodium (T3) is not firmly bound to serum protein, it is readily available to body tissues. Liothyronine sodium has a rapid onset of action which permits quick dosage adjustment and facilitates control of the effects of overdosage, should they occur.

The higher affinity of levothyroxine (T4) as compared to triiodothyronine (T3) for both thyro-binding globulin and thyroid-binding prealbumin partially explains the faster depletion of T4 after prolonged hypothyroidism. However, levothyroxine (T4) binds to T4 binding globulin and levothyroxine (T4) becomes irreversible in minute amounts of free hormone, the latter accounting for the metabolic activity. T3 is deiodinated from T4.

A single dose of liothyronine administered intravenously produces a detectable rise in serum T3 within an hour to two hours and a maximum therapeutic response within two days.

However, no pharmacokinetic studies have been performed with intravenous liothyronine (T3) in myxedema coma or precoma patients.

**DOSAGE AND ADMINISTRATION**

The structural and empirical formulas and molecular weight of liothyronine sodium are given below.

Liothyronine Sodium

**CONTRAINDICATIONS**

Thyroid hormone preparations are generally contraindicated in patients with documented allergy to any of the active or excipients of the preparation. T3 is also contraindicated in patients with a known or suspected cardiovascular disease.

**SIDE EFFECTS**

The clinical features of myxedema coma include depression of the cardiovascular, respiratory, gastrointestinal, and central nervous systems, impaired diuresis, and hypothermia. Administration of thyroid hormones reverses or attenuates these conditions. Thyroid hormones increase heart rate, ventricular contractility, and cardiac output, as well as decrease total systemic vascular resistance. They also increase the rate and depth of respiration, motility of the gastrointestinal tract, rapidity of coagulation, and vasopressor responsiveness. These effects are produced, at least in part, by markedly increasing the basal metabolic rate, as well as the number and activity of mitochondria in almost all cells of the body.

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**DOSAGE AND ADMINISTRATION**

Liothyronine sodium injection (T3) is indicated in the treatment of myxedema coma or precoma patients.

Liothyronine sodium injection (T3) can be used in patients allergic to desiccated thyroid or thyroid extract derived from porcine or bovine sources.

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