Thyroid hormones are synthetic chemicals that are used to treat thyroid conditions such as hypothyroidism. They contain levothyroxine (L-thyroxin) or liothyronine (T3). These hormones are often prescribed for people with hypothyroidism or hyperthyroidism.

**Contraindications**

These drugs are not recommended for use in pregnant or breastfeeding women or children under 12 years of age.

**Warnings**

These drugs may cause adverse effects such as swelling of the face, hands, or feet; peptic ulcer disease; and exacerbation of rheumatoid arthritis.

**Precautions**

These drugs should be taken with caution in patients with a history of hypertension, heart disease, or stroke.

**Drug/Laboratory Test Interactions**

These drugs may affect certain laboratory tests, including thyroid function tests.

**Drug Interactions**

These drugs may interact with other medications that affect thyroid function.

**Adverse Effects**

These drugs may cause adverse effects such as swelling of the face, hands, or feet; peptic ulcer disease; and exacerbation of rheumatoid arthritis.

**Dosage and Administration**

Dosage and administration information is provided for each of the drugs mentioned.
Geriatric Use—Clinical studies of liothyrone sodium did not include sufficient numbers of subjects aged 65 and over to determine whether they respond differently from younger subjects. Other reported clinical experience has not identified differences in response between the elderly and younger patients. In general, dose selection for an elderly patient should be cautious, usually starting at the low end of the dosing range, reflecting the greater frequency of decreased hepatic, renal, or cardiac function, and of concomitant disease or other 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—Pregnant mothers provide little or no thyroid hormone to the fetus. The incidence of congenital hypothyroidism is relatively high (1:4000) and the hypothyroid fetus would not derive any benefit from the small amount of hormone crossing the placental barrier. Routine determinations of serum T4 and/or T3 is strongly advised in neonates in view of the deleterious effects of thyroid deficiency on growth and development.

Treatment should be initiated immediately upon diagnosis and maintained for life, unless transient hypothyroidism is suspected, in which case, therapy may be interrupted for 2 to 8 weeks after the age of 2 years to reassess the condition. Cessation of therapy is justified in patients who have maintained a normal TSH during those 2 to 6 weeks.

ADVERSE REACTIONS

Adverse reactions, other than those indicative of hypothyroidism, because of the rapid overdosage, either initially or during the maintenance period are rare (see OVERDOSE). In rare instances, allergic skin reactions have been reported with Cytomel (liothyrone sodium) Tablets.

OVERDOSE

Signs and Symptoms—Headache, irritability, nervousness, sweating, tachycardia, dilated pupils, increased bowel motility and rectal irregularities. Angina pectoris or congestive heart failure may be induced or aggravated. Shock may also develop. Massive overdose may result in symptoms resembling thyroid storm. Chronic excessive dosage will produce the signs and symptoms of hypothyroidism.

Treatment Of Overdose—Dose should be reduced or therapy temporarily discontinued if signs and symptoms of overdosage appear. Treatment may be instituted at a lower dosage. In normal individuals, the normal hypothalamic-pituitary-thyroid axis function is restored in 6 to 8 weeks after thyroid suppression.

Treatment of acute massive thyroid hormone overdosage is aimed at reducing gastrointestinal absorption of the drugs and counteracting central and peripheral effects, mainly those of increased sympathetic activity. Vomiting may be induced initially if further gastrointestinal absorption can reasonably be prevented and barbiturates contraceptives such as coma, convulsions, or loss of the gagging reflex. Treatment is symptomatic and supportive. Oxygen may be administered and ventilation maintained. Cardiac glycosides may be indicated if congestive heart failure develops. Measures to control fever, hypoglycemia, or fluid loss should be instituted if needed. Antidromic agents, particularly propranolol, have been used advantageous in the treatment of increased sympathetic activity. Propranolol may be administered intravenously at a dosage of 1 to 3 mg over a 10-minute period or oral, 80 to 100 mg/day, especially when no contraindications exist for its use.

DOSAGE AND ADMINISTRATION

The dosage of Thyroid hormones is determined by the indication and must in every case be individualized according to patient response and laboratory findings.

Cytomel (liothyrone sodium) Tablets are intended for oral administration: once-a-day dosage is recommended. Although liothyrone sodium has a rapid onset, its metabolic effects persist for a few days following discontinuance.

Mild Hypothyroidism: Recommended starting dosage is 25 mcg daily. Daily dosage then may be increased by up to 25 mcg every 1 or 2 weeks. Usual maintenance dose is 25 to 75 mcg daily.

The rapid onset and dissipation of action of liothyrone sodium (T3) as compared with levothyroxine sodium (T4) has led some clinicians to prefer its use in patients who may be more susceptible to the untoward effects of thyroid medication. However, the wide swings in serum T3 levels that follow its administration and the possibility of more pronounced cardiovascular side effects tend to counterbalance the stated advantages.

Cytomel (liothyrone sodium) Tablets may be used in preference to levothyroxine (T4) during radiotrace scanning procedures, since induction of hypothyroidism in those cases is more abrupt and can be of shorter duration. It may also be preferred when impairment of peripheral conversion of T4 to T3 is suspected.

Myxedema: Recommended starting dosage is 5 mg daily. This may be increased by 5 to 10 mg daily every 1 or 2 weeks. When 25 mcg daily is reached, dosage may be increased by 5 to 25 mcg every 1 or 2 weeks until a satisfactory therapeutic response is attained. Usual maintenance dose is 50 to 100 mcg daily.

As with all preparations of L-thyroxine sodium, Cytomel Tablets should be employed only in those cases where it is felt the potential benefits are likely to outweigh the hazards of treatment.

Myxedema Coma: 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.

An intravenous preparation of liothyrone sodium is marketed by JONES PHARMA INCORPORATED, under the trade name Trofast® for use in myxedema coma/precama.