



**Table 2:** Drugs That May Alter T<sub>4</sub> and T<sub>3</sub> Serum Transport Without Affecting free T<sub>4</sub> Concentration (Euthyroidism) (cont'd)

Drugs That May Cause Protein-Binding Site Displacement	
Potential impact: Administration of these agents with levothyroxine results in an initial transient increase in FT <sub>4</sub> . Continued administration results in a decrease in serum T <sub>4</sub> and normal FT <sub>4</sub> and TSH concentrations and, therefore, patients are clinically euthyroid.	
Salicylates (> 2 g/day)	Salicylates inhibit binding of T <sub>4</sub> and T <sub>3</sub> to TBG and transthyretin. An initial increase in serum FT <sub>4</sub> is followed by return of FT <sub>4</sub> to normal levels with sustained therapeutic serum salicylate concentrations, although total-T <sub>4</sub> levels may decrease by as much as 30%.
Other drugs: Furosemide (> 80 mg IV) Heparin Hydantoins Non-Steroidal Anti-inflammatory Drugs - Fenamates - Phenylbutazone	

**Table 3:** Drugs That May Alter Hepatic Metabolism of T<sub>4</sub> (Hypothyroidism)

Potential impact: Stimulation of hepatic microsomal drug-metabolizing enzyme activity may cause increased hepatic degradation of levothyroxine, resulting in increased levothyroxine requirements.

Drug or Drug Class	
Carbamazepine Hydantoins	Phenytoin and carbamazepine reduce serum protein binding of levothyroxine, and total- and free- T <sub>4</sub> may be reduced by 20% to 40%, but most patients have normal serum TSH levels and are clinically euthyroid.
Other drugs: Phenobarbital Rifampin	

**Table 4:** Drugs That May Decrease Conversion of T<sub>4</sub> to T<sub>3</sub>

Potential impact: Administration of these enzyme inhibitors decreases the peripheral conversion of T<sub>4</sub> to T<sub>3</sub>, leading to decreased T<sub>3</sub> levels. However, serum T<sub>4</sub> levels are usually normal but may occasionally be slightly increased.

Drug or Drug Class	Effect
Beta-adrenergic antagonists (e.g., Propranolol > 160 mg/day)	In patients treated with large doses of propranolol (>160 mg/day), T <sub>3</sub> and T <sub>4</sub> levels change slightly, TSH levels remain normal, and patients are clinically euthyroid. It should be noted that actions of particular beta-adrenergic antagonists may be impaired when the hypothyroid patient is converted to the euthyroid state.
Glucocorticoids (e.g., Dexamethasone ≥ 4 mg/day)	Short-term administration of large doses of glucocorticoids may decrease serum T <sub>3</sub> concentrations by 30% with minimal change in serum T <sub>4</sub> levels. However, long-term glucocorticoid therapy may result in slightly decreased T <sub>3</sub> and T <sub>4</sub> levels due to decreased TBG production (see above).
Other drug: Amiodarone	

**13 NONCLINICAL TOXICOLOGY**

**13.1 Carcinogenesis, Mutagenesis, Impairment of Fertility**  
Animal studies have not been performed to evaluate the carcinogenic potential, mutagenic potential or effects on fertility of Levothyroxine Sodium for Injection.

**13.2 Animal Toxicology and Pharmacology**  
No animal toxicology studies have been conducted with Levothyroxine Sodium for Injection.

**14 CLINICAL STUDIES**  
No clinical studies have been conducted with Levothyroxine Sodium for Injection in patients with myxedema coma. However, data from published literature support the intravenous use of levothyroxine sodium for the treatment of myxedema coma.

**16 HOW SUPPLIED/STORAGE AND HANDLING**

**16.1 How Supplied**  
Levothyroxine Sodium for Injection is available in three dosage strengths.

Product Code	Unit of Sale	Strength	Reconstituted Concentration	Each
506107	NDC 63323-649-07 Individually Packaged	100 mcg per vial	20 mcg per mL	NDC 63323-649-07 Vial
506247	NDC 63323-647-10 Individually Packaged	200 mcg per vial	40 mcg per mL	NDC 63323-647-10 Vial
506248	NDC 63323-648-10 Individually Packaged	500 mcg per vial	100 mcg per mL	NDC 63323-648-10 Vial

**16.2 Storage and Handling**

Protect from light and store dry product at 20° to 25°C (68° to 77°F) [see USP Controlled Room Temperature]. Reconstituted drug product is preservative free. Discard any unused portion.

This container closure is not made with natural rubber latex.



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