

Table 23.3 Medications Used to Treat Hyperthyroidism

Medication	Indications	Dosing	Side effects affecting rehab	Other side effects
Thiourea medications				
Propylthiouracil	Used to inhibit thyroid hormone synthesis and peripheral conversion of thyroxine to tri-iodothyronine. First-line therapy for Graves' disease; used short term before surgical thymectomy or radioactive iodine ablation of the thyroid.	200-600 mg/day. Maximum dose of 1200 mg/day.	Cog: ++ S: ++ A: + Motor: +++ D: ++ Com: ++ F: +++	Common: Skin rash, urticaria, nausea, vomiting, epigastric distress, arthralgias, paresthesias, loss or changes of taste, myalgias, drowsiness, vertigo. Less common: Jaundice, liver failure, drug fever, interstitial pneumonitis, bone marrow suppression. Can use during pregnancy.
Methimazole (Tapazole)	Used to inhibit thyroid hormone synthesis and peripheral conversion of thyroxine to tri-iodothyronine. Alternative to propylthiouracil therapy for Graves' disease; used short term before surgical thymectomy or radioactive iodine ablation of the thyroid.	10-60 mg/day. Maximum dose of 120 mg/day.	Cog: ++ S: ++ A: 0 Motor: ++ D: ++ Com: + F: ++	Arthralgias, myalgias, paresthesias, nausea, vomiting, loss of taste perception, bone marrow suppression, hepatotoxicity, headache, drowsiness, vertigo, fever. Avoid in pregnancy.
Beta-adrenergic blocking agents				
Propranolol (Inderal)	Used as adjunctive therapy for managing symptoms such as tachycardia and hypertension; ameliorates action of thyroid hormone in tissues.	80-160 mg/day. Maximum dose of 480 mg/day.	Cog: +++ S: +++ A: ++ Motor: ++ D: ++ Com: + F: +++	Lipophilic; has higher incidence of effects on central nervous system, including hallucinations, decreased concentration, insomnia, nightmares, and depression. Other side effects: Nausea, diarrhea, bronchospasm, cold extremities, exacerbation of Raynaud's syndrome, bradycardia, heart block, orthostasis, fatigue, dizziness, alopecia, abnormal vision, hyperglycemia, hyperlipidemia, sexual dysfunction.
Nadolol (Corgard)	Used as adjunctive therapy for managing symptoms such as tachycardia and hypertension; ameliorates action of thyroid hormone in tissues.	80-160 mg/day. Maximum dose of 320 mg/day.	Cog: ++ S: ++ A: 0 Motor: ++ D: ++ Com: + F: ++	Nausea, diarrhea, bronchospasm, cold extremities, exacerbation of Raynaud's syndrome, bradycardia, heart block, orthostasis, fatigue, dizziness, alopecia, abnormal vision, hyperglycemia, hyperlipidemia, sexual dysfunction.
Compounds containing iodine				
Lugol's solution	Used to inhibit thyroxine and tri-iodothyronine release in preparation for surgery or in treatment of thyrotoxic crisis.	750 mg/day. Maximum dose of 750 mg/day.	Cog: ++ S: + A: + Motor: ++ D: ++ Com: + F: ++	Diarrhea, mild nausea, fever, vomiting, arrhythmia, confusion, tiredness, numbness, tingling, joint pain, weakness, metallic taste.
Potassium	Used to inhibit thyroxine and	10-300	Cog: ++	

From L. Carl, J. Gallo, and P. Johnson, 2014, *Practical Pharmacology in Rehabilitation: Effect of Medication on Therapy* (Champaign, IL: Human Kinetics).

Medication	Indications	Dosing	Side effects affecting rehab	Other side effects
iodide	tri-iodothyronine release in preparation for surgery or in treatment of thyrotoxic crisis.	mg/day. Maximum dose of 400 mg/day.	S: + A: + Motor: ++ D: ++ Com: + F: ++	
Glucocorticoids				
Glucocorticoids	Severe subacute thyroiditis and thyrotoxic crisis; ameliorates actions of thyroid hormone on tissues and exerts immunosuppression in treatment of Graves' disease.	Varies with steroid used.	Cog: + S: 0 A: + Motor: + D: + Com: 0 F: +	Personality changes, insomnia, euphoria, muscle weakness or wasting, thinning of the skin, glaucoma, hyperglycemia, cataracts, depression of immune function, lipodystrophy (e.g., moon facies, truncal obesity).
Ablation of thyroid gland				
Radioactive iodine (Iodine-131)	First-line therapy for Graves' disease; treatment of choice for recurrent thyrotoxicosis.	Maximum dose of 2-10 mCi/day.	Cog: ++ S: + A: + Motor: ++ D: ++ Com: + F: ++	Diarrhea, mild nausea, fever, vomiting, arrhythmia, confusion, tiredness, numbness, tingling, joint pain, weakness, metallic taste. Contraindicated in children, pregnant women, and those with ophthalmic disease.
Surgical removal of thyroid gland				
Thyroidectomy	Removal of thyroid gland.	N/A	N/A	Patients should be euthyroid before surgery.

Cog = cognition; S = sedation; A = agitation or mania; Motor = discoordination; D = dysphagia; Com = communication; F = falls; mCi = microcuries; N/A = not applicable.

The likelihood rating scale for encountering the side effects is as follows: 0 = Almost no probability of encountering side effects. + = Little likelihood of encountering side effects. +/++ = Low probability of encountering side effects; however, probability increases with increased dosage. ++ = Medium likelihood of encountering side effects. +++ = High likelihood of encountering side effects, particularly with high doses. ++++ = Highest likelihood of encountering side effects; best to avoid in at-risk patients.