thyroid (thye-royd)
Armour Thyroid, Westhroid

Classification
Therapeutic: Hormones
Pharmacologic: Thyroid preparations

Pregnancy Category A

Indications
Thyroid supplementation in hypothyroidism. Treatment or suppression of euthyroid goiters and thyroid cancer. Diagnostic agent for suppression tests to differentiate mild hyperthyroidism from thyroid gland autonomy.

Action
Replacement of or supplementation to endogenous thyroid hormones. Principal effect is increasing metabolic rate of body tissues: Promote gluconeogenesis, Increase utilization and mobilization of glycogen stores, Stimulate protein synthesis, Promote cell growth and differentiation, Aid in the development of the brain and CNS. Contains T3 (triiodothyronine) and T4 (thyroxine) activity.

Therapeutic Effects:
Replacement in deficiency states with restoration of normal hormonal balance.

Pharmacokinetics
Absorption: Levothyroxine is variably (50–80%) absorbed from the GI tract. Liothyronine is well absorbed.
Distribution: Distributed into most body tissues. Thyroid hormones do not readily cross the placenta; minimal amounts enter breast milk.
Metabolism and Excretion: Metabolized by the liver and other tissues. Thyroid hormone undergoes enterohepatic recirculation and is excreted in the feces via the bile.
Half-life: T3 (liothyronine)—1–2 days; T4 (thyroxine)—6–7 days.

Contraindications/Precautions
Contraindicated in: Hypersensitivity; Recent MI; Hyperthyroidism.
Use Cautiously in: Cardiovascular disease (initiate therapy with lower doses); Severe renal insufficiency; Uncorrected adrenocortical disorders; Geri: Geriatric patients are extremely sensitive to thyroid hormones; initial dosage should be half.

Adverse Reactions/Side Effects

Interactions
Drug-Drug: Bile acid sequestrants reduce absorption of orally administered thyroid preparations. Alters the effectiveness of warfarin (INR will q with thyroid hormone supplementation). May q requirement for insulin or oral hypoglycemic agents in diabetics. Concurrent estrogen therapy may q thyroid replacement requirements.
Drug-Food: Foods or supplements containing high amounts of calcium, iron, magnesium, or zinc may bind thyroid hormones and prevent complete absorption.

Route/Dosage
Each 1 gr 60 mg and is equivalent to approximately 100 mcg of levothyroxine (T4) or 25 mcg of liothyronine (T3).

Thyroid
PO (Adults and Children): Hypothyroidism—60 mg/day; q 4 wk br; usual maintenance dose is 60–120 mg/day. Myxedema/hypothyroidism with cardiovascular disease—15 mg/day initially; q by 30 mg/day q 2 wk, then may q by 30–60 mg q 2 wk; usual maintenance dose is 60–120 mg/day.
PO (Geriatric Patients): q by 15–30 mg initially, may double dose q6–8 hr until desired effect is obtained.
NURSING IMPLICATIONS

Assessment

● Assess apical pulse and BP prior to and periodically during therapy. Assess for tachyarrhythmias and chest pain.

● Pedi: Monitor height, weight, and psychomotor development.

● Lab Test Considerations: Monitor thyroid function studies prior to and during therapy.

● Toxicity and Overdose: Overdose is manifested as hyperthyroidism (tachycardia, diaphoresis, nervousness, insomnia, diaphoresis, tremors, weight loss). Usual treatment is to withhold dose for 2–6 days. Acute overdose is treated by induction of emesis or gastric lavage, followed by activated charcoal. Symptomatic overstimulation may be controlled by anticholinergic drugs (e.g., propranolol), such as propranolol. Oxygen and supportive measures to control symptoms such as fever are administered.

Potential Nursing Diagnoses

Deficient knowledge, related to medication regimen (Patient/Family Teaching)

Implementation

● Administer as a single dose, preferably before breakfast, to prevent insomnia.

● Initial dose is low, especially in geriatric and cardiac patients. Dose is increased gradually, based on thyroid function tests.

● For patients with difficulty swallowing, tablets can be crushed and placed in 5–10 mL of water and administered immediately via dropper or spoon; do not store suspension.

Patient/Family Teaching

● Instruct the patient to take medication as directed at the same time each day. Take missed doses as soon as remembered unless almost time for next dose. If more than 2–3 doses are missed, notify health care provider. Do not discontinue without consulting health care professional.

● Explain to patient that medication does not cure hypothyroidism; it provides a thyroid hormone supplement. Therapy is lifelong.

● Advise patient to notify health care professional if headache, nervousness, diarrhea, excessive sweating, heat intolerance, chest pain, increased pulse rate, palpitations, weight loss, or any unusual symptoms occur.

● Caution patients to avoid taking other medications concurrently with thyroid preparations unless instructed by health care professional.

● Instruct patient to inform health care professional of thyroid therapy.

● Emphasize importance of follow-up exams to monitor effectiveness of therapy. Thyroid function tests are performed at least yearly.

● Pedi: Discuss with parents the need for routine follow-up studies to ensure correct development. Inform parents that partial hair loss may be experienced by children on thyroid therapy. This is usually temporary.

Evaluation/Desired Outcomes

● Resolution of symptoms of hypothyroidism and normalization of hormone levels.

Why was this drug prescribed for your patient?