

potassium iodide (KI, SSKI)

Pima, Thyro-Block

Pharmacologic classification: electrolyte

Therapeutic classification: antihyperthyroid drug, expectorant

Pregnancy risk category D

Available forms

Available by prescription only

Saturated solution (SSKI): 1 g/ml

Strong iodine solution (Lugol's solution): iodine 50 mg/ml and potassium iodide 100 mg/ml

Syrup: 325 mg/5 ml

Tablets: 130 mg

Indications and dosages

➤ **Expectorant.** *Adults:* 300 to 600 mg t.i.d. or q.i.d.

Children: 60 to 250 mg q.i.d.

➤ **Preoperative thyroidectomy.** *Adults and children:* 50 to 250 mg (or 1 to 5 drops) SSKI t.i.d.; or 0.1 to 0.3 ml (or 3 to 5 drops) Lugol's solution t.i.d.; give drug for 10 to 14 days before surgery.

➤ **Nuclear radiation protection.** *Adults and children:* 0.13 ml P.O. of SSKI (130 mg) immediately before or after initial exposure will block 90% of radioactive iodine. Same dosage given 3 to 4 hours after exposure will provide 50% block. Drug should be administered for up to 10 days under medical supervision.

Infants younger than age 1: Half the adult dosage.

➤ **To replenish iodine.** *Adults:* 5 to 10 mg/day.

Children: 1 mg/day.

➤ **Management of thyrotoxic crisis.** *Adults:* 500 mg P.O. q 4 hours (about 10 drops of a potassium iodide solution containing 1 g/ml). Or 1 ml of strong iodine solution P.O. t.i.d.

➤ **Cutaneous sporotrichosis** ◇. *Adults:* 65 to 325 mg P.O. t.i.d.

Pharmacodynamics

Expectorant action: Exact mechanism unknown. Thought to reduce viscosity of mucus by increasing respiratory tract secretions.

Antihyperthyroid action: Acts directly on the thyroid gland to inhibit synthesis and release of thyroid hormone.

Pharmacokinetics

Absorption: Absorption similar to iodinated amino acids.

Distribution: Distributed extracellularly.

Metabolism: No information available.

Excretion: Excreted by kidneys.

Route	Onset	Peak	Duration
P.O.	< 24 hr	10-15 days	Unknown

Contraindications and precautions

Contraindicated in patients with tuberculosis, acute bronchitis, iodide hypersensitivity, or hyperkalemia. Some formulations contain sulfites, which may precipitate allergic reactions in hypersensitive individuals.

Use cautiously in patients with hypocomplementemic vasculitis, goiter, or autoimmune thyroid disease.

Interactions

Drug-drug. *Drugs that contain potassium, potassium-sparing diuretics:*

May cause hyperkalemia and subsequent arrhythmia or cardiac arrest.

Avoid use together.

Lithium: Potentiates hypothyroid and goitrogenic effects of potassium iodide. Use together cautiously.

Adverse reactions

CNS: fever.

EENT: inflammation of salivary glands, periorbital edema.

GI: nausea, vomiting, stomach pain, diarrhea, burning mouth and throat, sore teeth and gums, *metallic taste*.

Skin: acneiform rash.

Other: *hypersensitivity reactions.*

Effects on lab test results

- May increase potassium levels.
- May alter thyroid function test results.

Overdose and treatment

Acute overdose is rare; angioedema, laryngeal edema, and cutaneous hemorrhages may occur.

Treat hyperkalemia immediately; salt and fluid intake help eliminate iodide. Iodism (chronic iodine poisoning) may follow prolonged use; symptoms include metallic taste, sore mouth, swollen eyelids, sneezing, skin eruptions, nausea, vomiting, epigastric pain, and diarrhea.

Special considerations

- Dilute with 6 oz (180 ml) of water, fruit juice, or broth to reduce GI distress and disguise strong, salty metallic taste; advise patient to use a straw to avoid tooth discoloration.

- Store in light-resistant container because exposure to light liberates traces of free iodine; if crystals develop in solution, dissolve them by placing container in warm water and carefully agitating it.

- Drug may cause flare-up of adolescent acne or other rash.

⚠️ ALERT Sudden withdrawal may precipitate thyroid storm.

- Maintain fluid intake when using drug as an expectorant; adequate hydration encourages optimal expectorant action.

- Monitor serum potassium levels before and during therapy; patients taking any diuretic, especially potassium-sparing diuretics, are at risk for hyperkalemia.

Breast-feeding patients

- Drug appears in breast milk. Avoid use in breast-feeding women because it may cause rash and thyroid suppression in infant.

Pediatric patients

- Strong iodine solution is used for treating Graves' disease in neonates (1 drop every 8 hours).

Geriatric patients

- Serum potassium determinations may be needed in elderly patients with renal dysfunction.

Patient education

- Enteric-coated tablets are seldom used because of reports of small-bowel lesions with possible obstruction, perforation, and hemorrhage; when prescribed, give tablet with small amount of water, and tell patient to swallow tablet whole (don't crush or chew) and follow with 8 oz (240 ml) of water or juice.

- Advise patient to drink all of solution prepared and to use a straw to avoid discoloring teeth.

- Review signs and symptoms of iodism with patient, and instruct patient to report such symptoms, especially abdominal pain, distention, nausea, vomiting, or GI bleeding.

- Caution patient not to use OTC drugs without medical approval; many preparations contain iodides and could potentiate drug. For the same reason, patient should report ingestion of iodized salt and shellfish.

Reactions may be *common*, uncommon, ***life-threatening***, or **COMMON AND LIFE THREATENING**.

- ◆ Canada only
- ◇ Unlabeled clinical use