triamcinolone (systemic)  (trye-am-sin-oh-lone)

Classification
Therapeutic: anti-inflammatories (steroidal) (intermediate-acting), immunosuppressants

Pregnancy Category C

Indications
Used systemically and locally in a wide variety of chronic diseases including: inflammatory, allergic, hematologic, neoplastic, autoimmune disorders. Suitable for alternate-day dosing in the management of chronic illness. Replacement therapy in adrenal insufficiency.

Action
In pharmacologic doses, suppresses inflammation and the normal immune response. Has numerous intense metabolic effects (see Adverse Reactions and Side Effects). Suppresses adrenal function at chronic doses of 4 mg/day. Has negligible mineralocorticoid activity.

Therapeutic Effects: Suppression of inflammation and modification of the normal immune response. Replacement therapy in adrenal insufficiency.

Pharmacokinetics
Absorption: Well absorbed following oral administration. Acetonide salt is slowly but completely absorbed following IM administration. Absorption of hexacetonide salt from local sites (intra-articular, intralesional) is slow but complete.

Distribution: Widely distributed, crosses the placenta, and probably enters breast milk.

Metabolism and Excretion: Metabolized mostly by the liver.

Half-life: 2–5 hr (plasma), 18–36 hr (tissue).

TIME/ACTION PROFILE (anti-inflammatory activity)

<table>
<thead>
<tr>
<th>ROUTE</th>
<th>ONSET</th>
<th>PEAK</th>
<th>DURATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>IM (acetonide)</td>
<td>24–48 hr</td>
<td>unknown</td>
<td>1–6 wk</td>
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Contraindications/Precautions
Contraindicated in: Active untreated infections (may be used in patients being treated for tuberculosis meningitis); Lactation: Avoid chronic use; Some products contain tartrazine; avoid in patients with known hypersensitivity; Pedi: Avoid use of products containing benzyl alcohol in neonates.

Use Cautiously in: Chronic treatment (will lead to adrenal suppression; use lowest possible dose for shortest time); Pedi: Chronic use will result in growth, no lowest possible dose for shortest time; Hypothyroidism; Gastrointestinal ulcers; Stress (surgery, infections); supplemental doses may be needed; Potential infections may mask signs (fever, inflammation); Traumatic brain injury (high doses may be associated with seizures); OB: safety not established.

Adverse Reactions/Side Effects
Adverse reactions/side effects are much more common with high-dose/long-term therapy

CNS: depression, euphoria, headache, intracranial pressure (children only), intracranial hypertension, myasthenia, vertigo.

EENT: cataracts, intraocular pressure.

CV: hypertension.

GI: peptic ulceration, anorexia, nausea, vomiting.

Derm: acne, wound healing, ecchymoses, fragility, hirsutism, petechiae.

Endo: adrenal suppression, hyperglycemia.

F and E: fluid retention (long-term high doses), hypokalemia, hypokalemic alkalosis.

Hemat: thrombophlebitis, thromboembolism.

Metab: weight gain, weight loss.

MS: muscle wasting, osteoporosis, avascular necrosis of joints, muscle pain.

Misc: anaphylaxis, cushingoid appearance (moon face, buffalo hump), susceptibility to infection.

Interactions
Drug-Drug: Additive hypokalemia with thiazide and loop diuretics, amphotericin B, hypokalemic agents; Phenethyllamine, phenobarbital, and rifampin stimulate metabolism; Oral contraceptives may decrease effectiveness; Oral contraceptives may decrease risk of adverse GI effects with NSAIDs (including aspirin). At chronic doses that suppress adrenal function, may decrease the antibody response to and the risk of adverse reactions from live-virus vaccines.

Route/Dosage

IM (Adults): Triamcinolone acetonide—40–80 mg q 4 wk.

Intra-articular (Adults): Triamcinolone acetonide—2–20 mg q 3–4 wk (dose depends on size of joint to be injected, amount of inflammation, and amount of fluid present).
IM (Children): Triamcinolone acetonide—40 mg q 4 wk or 30–200 mcg/kg (1–6.25 mg/m²) q 1–7 days.

NURSING IMPLICATIONS
Assessment
● This drug is indicated for many conditions. Assess involved systems prior to and periodically throughout therapy.
● Assess for signs of adrenal insufficiency (hypotension, weight loss, weakness, anorexia, fever, vomiting, diarrhea, hemorrhage, confusion, myopathy) prior to and periodically throughout therapy.
● Monitor intake and output and daily weights. Observe for peripheral edema, steady weight gain, rales/crackles, or dyspnea. Notify health care professional if these occur.
● Evaluate growth in children periodically.
● Lab Test Considerations: Monitor serum electrolytes and glucose. May cause hyperglycemia, especially in persons with diabetes. May cause hypokalemia. Patients on prolonged therapy should routinely have hematologic values, serum electrolytes, and serum and urine glucose evaluated. May [WBC counts. May cause hyperglycemia, especially in persons with diabetes. May increase serum potassium and calcium and decrease serum sodium concentrations.
● Urine tests: Proteinuria, no proteinuria.
● May ↑ serum cholesterol and lipid values. May ↑ serum potassium and calcium and ↓ serum sodium concentrations.
● May ↓ serum cholesterol and lipid values. May ↓ intake of thyroid 123I or 131I.
● Suppresses reactions to allergy skin tests.
● Periodic adrenal function tests may be ordered to assess degree of hypothalamic-pituitary-adrenal axis suppression in systemic and chronic topical therapy.

Potential Nursing Diagnoses
Risk for infection (Side Effects)
Disturbed body image (Side Effects)
Implementation
● PO: If dose is ordered daily or every other day, administer in the morning to coincide with the body's normal secretion of cortisol.
● PO: Administer will depend on minimum GI irritation.
● IM: Shake suspension well before drawing up. IM doses should not be administered when rapid effect is desirable. Do not dilute with other solutions or adrenocorticosteroids if used. Do not administer suspensions IV.

Patient/Family Teaching
● Instruct patient on correct technique of medication administration. Advise patient to take medication as directed. Take missed doses as soon as remembered unless almost time for next dose. Do not double doses. Stopping the medication suddenly may result in adrenal insufficiency (anorexia, nausea, weakness, fatigue, diarrhea, hypotension, hypertension). If these signs appear, notify health care professional immediately. This can be life-threatening.
● Glucocorticoids cause immunosuppression and may mask symptoms of infection. Instruct patient to avoid people with known contagious illnesses and to report possible infections immediately.
● Caution patient to avoid vaccinations without first consulting health care professional.
● Review side effects with patient. Instruct patient to inform health care professional promptly if severe abdominal pain or tarry stools occur. Patient should also report unusual swelling, weight gain, tenderness, loose stools, bruising, oral ulcers, vision disturbances, or behavior changes.
● Advise patient to notify health care professional of medication regimen prior to treatment or surgery.
● Discuss possible effects on body image. Explore coping mechanisms.
● Instruct patient to inform health care professional of symptoms of underlying disease return or worsen. Instruct patient to stop medication and notify health care professional immediately if signs of anaphylaxis (rash, hives, difficulty breathing, swelling, lips or throat) occur.
● Advise female patient to notify health care professional if pregnancy is planned or suspected or if breast feeding.
● Advise patient to carry identification describing disease process and medication regimen in the event of emergency in which patient cannot relate medical history.
● Instruct patient to eat a diet high in protein, calcium, and potassium, and low in sodium and carbohydrates. Alcohol should be avoided during therapy.

CONTINUED
Evaluation/Desired Outcomes

- Decrease in presenting symptoms with minimal systemic side effects.
- Suppression of the inflammatory and immune responses in autoimmune disorders, allergic reactions, and neoplasms.
- Management of symptoms in adrenal insufficiency.

Why was this drug prescribed for your patient?