TACROLIMUS (topical) (tak-roe-lim-us)

**Indications**
Moderate to severe atopic dermatitis in non-immunosuppressed patients who do not respond to or cannot tolerate conventional therapies.

**Action**
Inhibits T-lymphocyte activation. Therapeutic Effects: Improvement in signs/symptoms of atopic dermatitis.

**Pharmacokinetics**

- **Absorption:** Minimal following topical use.
- **Distribution:** Crosses the placenta and enters breast milk.
- **Protein Binding:** 99%
- **Metabolism and Excretion:** 99% metabolized by the liver; 1% excreted unchanged in the urine.
- **Half-life:** Healthy volunteers—21.2 hr.

**TIME/ACTION PROFILE (immunosuppression)**

<table>
<thead>
<tr>
<th>ROUTE</th>
<th>ONSET</th>
<th>PEAK</th>
<th>DURATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topical†</td>
<td>unknown</td>
<td>1–2 wk</td>
<td>unknown</td>
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†Improvement in atopic dermatitis

**Contraindications/Precautions**

- **Contraindicated in:** Hypersensitivity to tacrolimus or any component of the ointment; Weaknesses and compromised immune system; Malignant or pre-malignant skin conditions; Severe diabetes; Severe renal or liver impairment; Use only in infrequent short bursts, not continuously, and in the minimum dose possible to decrease risk of developing skin cancer.
- **Use Cautiously in:** Exposure to sunlight/UV light (may increase risk of malignant skin changes); Superficial skin infections; OB: Hyperkalemia and renal impairment may occur in the newborn; use only if benefit to mother justifies risk to the fetus.

**Adverse Reactions/Side Effects**

- **CNS: head ache.
- **EENT: sinusitis.
- **Resp: cough, pharyngitis.
- **Derm: erythema, pruritus, skin infection, acne, folliculitis, rash, localized burning.
- **Misc: flu-like symptoms, fever, risk of lymphoma/skin cancer.

**Interactions**

- **Drug-Drug:** Use cautiously with aminoglycosides, amphotericin B, cisplatin, cyclosporine (allow 24 hr to pass after stopping cyclosporine before starting tacrolimus). Concurrent use of potassium-sparing diuretics, ACE inhibitors, or angiotensin II receptor antagonists may increase risk of hyperkalemia. The following drugs may increase tacrolimus blood levels: aminoglycosides, amphotericin B, cyclosporine, calcium channel blockers, chloramphenicol, conivaptan, clarithromycin, cyclosporine, danazol, erythromycin, fosamprenavir, fosfomycin, nefazodone, metoclopramide, pancreatin inhibitors, and voriconazole. Phenobarbital, phenytoin, caspofungin, sirolimus, carbamazepine, and rifamycins may decrease tacrolimus blood levels.

**Vaccinations** may be less effective if given concurrently with tacrolimus (avoid use of live-virus vaccines).

**Route/Dosage**

- **Topical (Adults):** Apply 0.03% or 0.1% ointment twice daily. Discontinue when signs/symptoms of atopic dermatitis resolve.
- **Topical (Children 2–15 yr):** Apply 0.03% ointment twice daily. Discontinue when signs/symptoms of atopic dermatitis resolve.

**NURSING IMPLICATIONS**

- **Assessment:**
  - **Atopic Dermatitis:** Assess skin lesions prior to and periodically during therapy. Use only for short time, not continuously, and in the minimum dose possible to decrease risk of developing skin cancer.

**Potential Nursing Diagnoses**

- Risk for infection (Adverse Reactions)

** Implementation**

- **General Implication:** Staphylococcal and streptococcal skin infections are common. Use only in infrequent short bursts, not continuously, and in the minimum dose possible to decrease risk of developing skin cancer.
Implementation

- Do not use continuously for a long time.

- **Topical:** Wash their hands before applying. Apply a thin layer of ointment twice daily to affected skin. Use smallest amount of ointment needed to control the signs and symptoms of eczema. Do not cover treated area with bandages, dressings or wraps. If not treating areas on hands, wash hands with soap and water after applying to remove any ointment on the hands.

Patient/Family Teaching

- Instruct apply ointment as directed. Advise patient to read the Medication Guide prior to starting and with each Rx renewal; new information may be available.

- Advise patient not to bathe, shower, or swim right after applying; may wash off ointment. May use moisturizers with ointment. Instruct patient to check with health care professional first about products to use. If moisturizers are used, apply moisturizer after application of ointment.

- Advise patient to contact health care professional if their symptoms do not improve after 6 wk of treatment, if their symptoms get worse, or if they develop a skin infection.

- Instruct patient to use ointment only on areas of skin with atopic dermatitis.

- Advise patient to stop using the ointment when the signs/symptoms of atopic dermatitis (itching, rash, redness) go away.

- Advise patient to limit sun exposure during therapy.

- Advise patient to contact health care professional if their symptoms do not improve after 6 wk of treatment, if their symptoms get worse, or if they develop a skin infection.

- Instruct patient to use ointment only on areas of skin with atopic dermatitis.

- Advise patient to stop using the ointment when the signs/symptoms of atopic dermatitis (itching, rash, redness) go away.

- Advise patient to limit sun exposure during therapy.

- Advise patient of the risk of using topical tacrolimus during pregnancy.

- Inform patient of the risk of lymphoma or skin cancer with topical tacrolimus therapy.

Evaluation/Desired Outcomes

- Management of atopic dermatitis.

Why was this drug prescribed for your patient?