### Tretinoin (oral) (tret-i-noyn)

**Classification**
Therapeutic: antineoplastics
Pharmacologic: retinoids

**Pregnancy Category** D

**Indications**
Induction of remission in acute promyelocytic leukemia in patients who cannot receive anthracyclines due to lack of response, intolerance, or the presence of a contraindication.

**Action**
Causes maturation of promyelocytes derived from the leukemic clone.

**Therapeutic Effects:** Repopulation with normal hematopoietic cells in patients who achieve remission.

**Pharmacokinetics**
- **Absorption:** Well absorbed following oral administration.
- **Distribution:** Crosses the placenta; remainder of distribution unknown.
- **Protein Binding:** 95%.
- **Metabolism and Excretion:** Metabolized by the liver; metabolites are renally excreted.
- **Half-life:** 0.5–2 hr.

**TIME/ACTION PROFILE (complete remission)**

<table>
<thead>
<tr>
<th>ROUTE</th>
<th>ONSET</th>
<th>PEAK</th>
<th>DURATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>PO</td>
<td>unknown</td>
<td>40–50 days</td>
<td>unknown</td>
</tr>
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</table>

**Contraindications/Precautions**
Contraindicated in: Hypersensitivity to tretinoin or parabens; OB, Lactation: Pregnancy or lactation.

**Use Cautiously in:** OB: Women of childbearing potential.

**Adverse Reactions/Side Effects**

- **CNS:** SEIZURES, anxiety, confusion, depression, dizziness, fatigue, headache, insomnia, malaise, psychoses, paresthesias, psychosis, tremor.
- **EENT:** Altered visual acuity, ocular disorders, visual disturbances, visual field defects, xerophtalmia.
- **Resp:** Asthma, bronchospasm, dyspnea, hyperventilation, laryngeal edema.
- **CV:** Cardiac failure, MI, stroke, chest discomfort, edema, hypertension, hypotension, peripheral edema.
- **GI:** Abdominal distention, abdominal pain, anorexia, constipation, diarrhea, dry mouth, flatulence, gastritis, gastrointestinal bleeding, nausea, vomiting.
- **GU:** Renal insufficiency, acute renal failure, decreased renal prostaglandin production.
- **Derm:** Alopecia, cellulitis, dry skin, facial edema, flushing, hypothyroidism, hypothermia, pruritus, rash, skin changes.
- **F and E:** Acidosis, fluid imbalance.
- **Hemat:** Disseminated intravascular coagulation, hemorrhage, hypohemoglobinemia.
- **Metab:** Weight gain, weight loss.
- **MS:** Bone inflammation, bone pain, myalgia.
- **Neuro:** Paresthesias.
- **Misc:** Fever, infections, pain, hypothermia.

**Interactions**
- **Drug-Drug:** Rifampin, corticosteroids, phenobarbital, and pentobarbital may metabolize and may affect effectiveness. Cimetidine, cyclosporine, diltiazem, erythromycin, ketoconazole, and verapamil may metabolize and may affect effectiveness.
- **Drug-Natural Products:** St. John’s wort may metabolize and may affect effectiveness.

**Route/Dosage**
- **PO (Adults):** 15 mg/m2/day in 2 divided doses; treatment should be continued for 30 days after a complete remission has been achieved or for a total of 90 days, whichever is first.

**NURSING IMPLICATIONS**

**Assessment**
- Monitor patient for retinoic acid–acute promyelocytic leukemia (RA-APL) syndrome (bone pain, discomfort or pain in chest, dyspnea, chest tightness, wheezing, weight gain, pulmonary infiltrates, pleural and/or pericardial effusions). May result in impaired myocardial contractility, hypotension, hypoxemia, and death due to multiorgan failure. Risk is increased if leukocytosis occurs during therapy. Treatment with high-dose continuous-infusion (10 mg/m2 IV every 12 hr for 3 days or until symptoms resolve) should be started at time of RA-APL syndrome. Discontinuation of tretinoin therapy is usually not necessary.

**Nursing Considerations**

- High Alert

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**Cautions and Interactions**

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**Nursing Considerations**

- High Alert
Lab Test Considerations: Monitor WBC frequently during therapy; may cause rapidly progressing leukocytosis. If WBC reaches >6 × 10^9/liter by Day 5, >10 × 10^9/liter by Day 10, or >15 × 10^9/liter by Day 20 of tretinoin therapy, immediate institution of full-dose chemotherapy, including an anthracycline if not contraindicated, may decrease risk of RA-APL syndrome and should be considered.

Monitor hepatic function tests frequently during therapy. Temporarily discontinue tretinoin therapy if levels are >5-times normal.

Monitor cholesterol and triglyceride concentrations frequently during therapy. May cause elevated levels.

Potential Nursing Diagnoses

Acute pain (Adverse Reactions)

Implementation

High Alert: Fatalities have occurred with chemotherapy agents. Before administering, clarify all ambiguous orders; double check single, dual, and course of therapy dose limits; have second practitioner independently double check order and dose calculations. Formulas should be administered only under the supervision of a pharmacist experienced in management of patients with acute leukemia, with monitoring facilities and supportive services available. Do not confuse tretinoin with isotretinoin.

Following remission with tretinoin, standard consolidation or maintenance chemotherapy should be administered, unless contraindicated.

PO: Administer daily doses with food at evenly spaced intervals.

Patient/Family Teaching

Instruct patient to take tretinoin with food as directed, for the full course of therapy, despite expected side effects (fever, headache, tiredness, weakness). Take missed doses as soon as possible; if just before next dose, consult with health care professional prior to taking dose.

Instruct patient to notify health care professional immediately if symptoms of RA-APL, pseudotumor cerebri (severe headache, nausea and vomiting, papilledema, vision problems), bronchial asthma, cardiac failure, convulsions, laryngeal edema, MI, or stroke occur.

Evaluation/Desired Outcomes

Induction of remission in patients with acute promyelocytic leukemia.

Why was this drug prescribed for your patient?