Vitamin A (vye-ta-min A)

Aquasol A

Classification: Vitamin (fat-soluble)

Pregnancy Category A (oral), X (parenteral, or doses > RDA)

Indications
Treatment and prevention of deficiency states. Prevention of vitamin A deficiency in patients who have impaired absorption or are taking bile acid sequestrants.

Action
Serves as a cofactor in many biochemical processes. Necessary for growth, bone development, vision, reproduction, integrity of mucosal and epithelial surfaces, and formation of visual pigment. Therapeutic Effects: Resolution of deficiency signs.

Pharmacokinetics
Absorption: GI absorption requires bile acids, fat, lipase, and protein. Aqueous preparations are absorbed more readily than emulsions.

Distribution: Stored primarily in the liver (2-yr supply); small amounts stored in kidneys and lungs. Does not cross the placenta but enters breast milk.

Metabolism and Excretion: Mostly metabolized by the liver.

Half-life: Unknown.

TIME/ACTION PROFILE
ROUTE ONSET PEAK DURATION
PO unknown unknown unknown
IM unknown unknown unknown

Contraindications/Precautions
Contraindicated in: Hypervitaminosis A; Malabsorption (oral products); Hypercalcemia; Hyperlipidemia; Hypervitaminosis A syndrome.

Use Cautiously in: Lactation (supplements to infant necessary); Pregnancy (avoid amounts greater than RDA); Severely impaired renal function.

Adverse Reactions/Side Effects
Misc: Hypervitaminosis A syndrome.

Interactions
Drug-Drug: Cholestyramine, colestipol, and mineral oil decrease absorption of vitamin A. Oral contraceptives increase plasma levels of vitamin A.

Route/Dosage

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<th>Route</th>
<th>Dose</th>
<th>Duration</th>
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<tbody>
<tr>
<td>IM</td>
<td>10000 units/day for 3 days, then 5000 units/day for 2 weeks with additional follow-up oral therapy of 10,000–20,000 units/day.</td>
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<tr>
<td>IM</td>
<td>7500–15,000 units/day for 10 days with additional follow-up oral therapy of 5000–10,000 units/day.</td>
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Lab Test Considerations: Chronic toxicity may cause increased blood glucose, calcium, BUN, cholesterol, and triglyceride levels.

Plasma vitamin A and carotene levels may be evaluated prior to therapy to determine vitamin A deficiency.

With high doses, erythrocyte and leukocyte counts may be decreased, and erythrocyte sedimentation rate (ESR) and prothrombin time (PT) may be increased.

**Potential Nursing Diagnoses**

Imbalanced nutrition: less than body requirements (Indications)

**Implementation**

- PO: Administer with or after meals.
- Solution may be dropped directly into mouth or mixed with cereal, fruit juice, or other food. Use calibrated dropper supplied by manufacturer to measure solution accurately.
- IM: Parenteral administration is indicated only when oral administration is not possible (because of malabsorption, NPO status, vomiting, or severe ocular damage).
- Do not administer vitamin A intramuscularly because of the risk of anaphylactic shock and death.

**Patient/Family Teaching**

- Instruct patient to take medication as directed. If a dose is missed, it should be omitted, as fat-soluble vitamins are stored in the body for long periods.
- Encourage patient to comply with diet recommendations of health care professional. Explain that the best source of vitamins is a well-balanced diet with foods from the four basic food groups.
- Foods high in vitamin A include liver, fish liver oils, egg yolks, yellow-orange fruits and vegetables, dark green leafy vegetables, whole milk, vitamin A–fortified skim milk, butter, and margarine. Ordinary cooking does not destroy vitamin A, but frozen foods lose 5–10% during storage for 12 mo.
- Patients self-medicating with vitamin supplements should be cautioned not to exceed RDA. The effectiveness of megadoses for treatment of various medical conditions is unproved, and this may cause side effects and toxicity.
- Review symptoms of hypervitaminosis A syndrome (headaches, bulging fontanelles in infants, irritability, yellow-orange discoloration of skin, drying and desquamation of skin and lips, hair loss, anorexia, vomiting, joint and bone pain). Instruct patient to report these symptoms promptly to health care professional.
- Advise patient that mineral oil may interfere with the absorption of fat-soluble vitamins and should not be used concurrently.
- Emphasize the importance of follow-up exams to evaluate progress. Ophthalmologic exams may be required prior to and periodically throughout therapy.

**Evaluation/Desired Outcomes**

- Prevention of or decrease in the symptoms of vitamin A deficiency.

Why was this drug prescribed for your patient?