Vitamin A (Retinol) Toxicity

Vitamin A, also called retinol, is an important vitamin that plays a role in a variety of functions throughout the body including vision and skin health. However toxic levels of vitamin A can accumulate in the body, commonly seen with the acne treatment isotretinoin, and lead to a variety of symptoms, including nausea, irritability, headaches, hair loss, blurry vision and arthralgias. Chronic vitamin A toxicity can cause hair loss, dry skin, fever, insomnia, hyperlipidemia, hepatotoxicity, anemia and diarrhea. Vitamin A is also teratogenic as toxic effects have been shown to significantly affect a developing fetus due to disruption of neural cell activity. Common teratogenic effects include cleft palate and cardiac abnormalities.



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Signs and Symptoms

Alopecia
Aloe-plant
Acute and chronic vitamin A consumption can cause hair loss in individuals, also known as alopecia.

Vision Changes
Delta Eyes
Vision changes, such as blurriness, are common symptoms of vitamin A toxicity.

Headache
Head-egg-lump
Headaches are a common symptom seen in both acute and chronic vitamin A toxicity.

Skin Changes
Changing into Skin-suit
Drying of the skin and mucous membranes is a common sign of chronic vitamin A consumption. Other skin changes include discoloration and a rash.

Hyperlipidemia
Hiker-lips
Hyperlipidemia involves abnormally elevated levels of lipids in the blood and can result from chronic vitamin A toxicity. Although the exact mechanism is poorly understood, the hyperlipidemia may result from damage to stellate cells in the liver which store both vitamin A and fat.

Hepatotoxicity
Liver with Toxic-green-glow
Vitamin A is largely stored in the fat storing cells of the liver and can undergo hypertrophy and hyperplasia as vitamin A storage increases. Hypertrophy of these cells can result in narrowing of the space of Disse, obstruction of sinusoidal blood flow, portal hypertension, and hepatocyte death and fibrosis. Vitamin A hepatotoxicity has been reported when individuals take doses exceeding 50,000 IU/day.

Arthralgias
King Arthur-algae
Excessive vitamin A consumption can lead to arthralgias, or joint pain. Muscle and bone pain can also be seen.

Teratogen
Tarantula-gem
Vitamin A is teratogenic as toxic effects have been shown to significantly affect a developing fetus due to disruption of neural cell activity. Due to the teratogenic effects, women on isotretinoin require two forms of birth control.

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Cleft palate

Cleft-cracked Plate

Cleft palate is a birth defect in which the two plates of the skull that form the roof of the mouth are not completely fused. Cleft palate can occur in infants whose mothers ingested large amounts of vitamin A during pregnancy.

Cardiac Abnormalities

Heart

Vitamin A is a teratogen, meaning it can cause birth defects when taken during pregnancy. Heart abnormalities are common in infants whose mothers ingested large amounts of vitamin A during pregnancy.

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