Vitamin B3 - Niacin (Nicotinic Acid)

Niacin (nicotinic acid) plays a role as both a vitamin and a medicine. As a medicine, nicotinic acid works to decrease triglycerides and low-density lipoproteins (LDL) while also increasing high-density lipoproteins (HDL). As a vitamin, niacin is only indicated to treat nicotinic acid deficiency. Niacin (nicotinic acid) can be used to treat dyslipidemia, pellagra, dermatitis, diarrhea, and dementia. Side effects include flushing, GI distress and liver toxicity.



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Mechanism

Decreases Triglycerides
Down-arrow Triceratops
Niacin interferes with triglyceride production in the liver, causing triglyceride levels to decrease within the first four days of drug therapy.

Decreases LDL
Down-arrow Ladybug-devil
Because Niacin interferes with triglyceride production in the liver, production of very low-density lipoproteins (VLDL) also decreases. LDLs are by-products of VLDLs; therefore, LDL levels will also begin to decrease after three to five weeks of taking niacin.

Increases HDL
Up-arrow Hot-dog-angel
Niacin works to increase HDL levels, also known as “good cholesterol.” The mechanism of action is unclear.

Indications

Dyslipidemia
Disc-lips
Elevated cholesterol and/or triglyceride levels, also called dyslipidemia, can be treated using high doses of niacin.

Pellagra
Pelican
Niacin deficiency, also called pellagra, is a vitamin deficiency that can lead to rough skin or photosensitive dermatitis. Patients with this condition may experience scaling or cracking of the skin, diarrhea, memory loss, dementia, and possibly death.

Diarrhea
Toilet
Gastrointestinal complications, such as diarrhea and abdominal pain may also occur in patients with pellagra.

Dermatitis
Dermatologist Examining Rash
Patients with pellagra develop dermatitis, and may notice scaling or cracking of the skin, especially in areas that are exposed to sunlight.

Dementia
Demented-D-man
Niacin deficiency can have a negative effect on the central nervous system, causing symptoms such as irritability, insomnia, memory loss, and dementia.

Side Effects

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Flushing

Flashlight

In high doses, nicotinic acid can cause vasodilation that leads to flushing or reddening of the skin. This side effect can be prevented by taking aspirin before taking niacin or taking an extended-release form of the niacin.

GI Distress

GI with Flare-gun

Gastrointestinal complications such as diarrhea and abdominal pain can be a side effect of niacin therapy.

Hepatotoxicity

Liver with Toxic-green-glow

Niacin may cause liver toxicity. Patients should have their liver enzyme levels checked before and during niacin therapy to monitor for toxicity.

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