



NIACIN

Summary

Niacin is a B complex vitamin that is increasingly being used as part of a program to lower high lipid levels in the blood. Elevated lipid levels are a common side effect of anti-HIV therapy. The most common side effect of niacin is flushing of the face and upper body. To avoid niacin-related gastrointestinal problems, some people with HIV/AIDS (PHAs) take this supplement either with food or immediately after a meal. The dosage used is usually between 2 and 3 grams per day, however, it is important to start taking niacin at lower doses and then gradually build up to a higher dose over a period of weeks.

What is niacin?

Niacin is a vitamin also known as vitamin B₃. It is found naturally in grain products, beans, chicken and fish, usually in combination with other B vitamins (B complex vitamins). B complex vitamins, including niacin, are necessary to transform food into energy. The body uses niacin to help break down sugars and convert fats to a form that can be used for energy by the body's cells.

B complex vitamins are important to good health. Research shows that people living with HIV usually have adequate blood levels of niacin, even in countries where malnutrition is common; however, deficiencies in other B vitamins are more likely. At least one study suggests that taking supplements of B complex vitamins helps PHAs survive longer and in better health. Nicotinamide is the most common form of niacin used in such supplements because it is inexpensive and rarely causes side effects.

See the CATIE Supplement Sheet on B complex vitamins for details on these supplements, at www.catie.ca/supple-e.nsf.

Why do HIV positive people use niacin?

Niacin is a recommended treatment for dyslipidemia — higher-than-normal levels of fatty substances in the blood, such as cholesterol and triglycerides.

Dyslipidemia is part of the HIV lipodystrophy syndrome. PHAs with dyslipidemia typically have:

- very high levels of triglycerides
- higher-than-normal levels of LDL cholesterol (the bad or “Lousy cholesterol”)
- less-than-normal levels of HDL cholesterol (the good or “Healthy cholesterol”)

Having these abnormal lipid levels increases the risk of heart attack or stroke. The Canadian Working Group on Hypercholesterolemia and Other Dyslipidemias specifically recommends niacin alone or in combination with lipid-lowering drugs, such as statins, for people with elevated triglycerides or low HDL cholesterol.



In studies of HIV negative people, daily doses of 2–3 grams of niacin have been shown to do the following:

- lower LDL and total cholesterol by approximately 20%–30%
- lower triglycerides by 35%–55%
- increase HDL cholesterol by 20%–35%

There are no clinical trials comparing the safety and effectiveness of various treatments for dyslipidemia in PHAs. However, a recent paper reviewing the treatment options for PHAs with high lipid levels concluded that “niacin is a good agent for patients with mixed hyperlipidemia, particularly when triglycerides are elevated.” The paper also suggested that in cases where a single treatment was not enough to control lipid levels, niacin could be used in combination. Studies in HIV negative people have shown that niacin is safe and effective when combined with several classes of dyslipidemia drugs including statins and fibrates. However, before taking more niacin than is found in a B complex vitamin, PHAs should consult with a doctor to guard against the serious side effects discussed below.

Caution and concerns

1. Liver toxicity:

For PHAs considering niacin therapy, the possibility of liver toxicity is an important concern. Elevated liver enzymes are a sign of liver damage. Many PHAs already have some liver damage — either as a side effect of antiretroviral drugs or because they also have hepatitis B or C. Studies have shown an increase in liver enzymes in HIV negative people taking niacin to treat dyslipidemia. An increase is more likely to occur in people taking more than 3 grams of niacin a day or taking extended-release forms (see “Available forms and usage”). If you begin niacin therapy, a doctor should regularly monitor your liver enzymes.

2. Blood sugar problems:

Niacin can cause an increase in blood sugar and is usually not recommended for people with type 2 diabetes. PHAs who have experienced high blood sugar associated with protease

inhibitors should check with their doctor before taking niacin. Some researchers speculate that niacin may increase insulin resistance. Since lipodystrophy may be associated with increased insulin resistance, it is currently difficult to predict whether niacin would have any impact on the long-term development of lipodystrophy.

Side effects

The most common side effect of niacin is flushing of the face and upper body. This flushing may be associated with itching and a more lasting skin rash. Skin flushing occurs in up to 95% of people who take intermediate-release niacin, and in 65%–70% percent of people taking extended-release forms. This side effect usually decreases over time as the body learns to tolerate niacin. Flushing and itching may be reduced by breaking up your daily dose of niacin (taking it two or three times a day) and by starting with a low dose (250 mg) and increasing it gradually over a period of four to six weeks to up to a 2- or 3-gram dose. Taking an aspirin or ibuprofen 30 minutes before your morning dose may also help reduce this symptom (but is not advisable for those with stomach ulcers or low platelets).

Niacin is absorbed quickly in the gut and should always be taken with food or immediately after a meal. Niacin may also cause gastrointestinal side effects, such as:

- nausea
- stomach pain
- heartburn
- flatulence
- diarrhea

These side effects are evident in about 10% of people who take niacin for dyslipidemia.

Available forms and usage

There are at least four types of niacin currently available in Canada:

- nicotinamide



- inositol hexaniacinate (also known as inositol hexanicotinate or inositol nicotinate)
- immediate-release niacin (often just called niacin or rapid-release)
- extended-release (or time-released) niacin

Nicotinamide is inexpensive, and rarely causes flushing or liver toxicity. This is a useful and safe form for B complex supplements, however it is *not* effective at reducing cholesterol.

Inositol hexaniacinate also has few side effects but its effect on cholesterol is unclear. A few small studies suggested it did reduce cholesterol, although an Italian study showed no effect. More study is needed. It is generally more expensive than immediate-release niacin.

Immediate-release niacin is inexpensive and readily available. It has been shown to reduce LDL cholesterol and triglycerides in HIV negative people. One study suggests that it may be the most effective form to increase HDL. Note that this is the form that is most associated with flushing symptoms.

Extended-release niacin is also effective for dyslipidemia. Symptoms of flushing and gastrointestinal side effects are reduced with these formulas, however liver toxicity may be more common (at least with older versions). A new extended-release formula called Niaspan has just been approved for prescription use in the United States and may have less liver toxicity. It is not yet available in Canada. Extended-release products are generally the most expensive forms of niacin.

Dosage

Niacin is usually effective in doses between 2 and 3 grams per day. However, it is important to start taking niacin at lower doses and then gradually build up to a higher dose over a period of weeks. A starting dose may be anywhere from 250 to 500 mg daily. To avoid niacin-related gastrointestinal problems, some PHAs take this supplement either with food or immediately after a meal.

If you have been diagnosed with high lipid levels, this is a serious condition. Be sure to see your

doctor to have this treated. Changes to diet, an exercise program and quitting smoking are all part of reducing your risk of heart disease.

Credits

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