niacin
(nye-a-sin)
Niacor, Niaspan, Nicobid, Nicolar, Nicotinex, nicotinic acid, Slo-Niacin, vitamin B3
niacinamide
(nye-a-sin-a-mide)
Classification
Therapeutic: lipid-lowering agents, vitamins
Pharmacologic: water soluble vitamins
Pregnancy Category: C

Indications
Treatment and prevention of niacin deficiency (pellagra). Adjunctive therapy in cer-
tain hyperlipidemias (niacin only).

Action
Required as coenzymes (for lipid metabolism, glycogenolysis, and tissue respira-
tion). Large doses decrease lipoprotein and triglyceride synthesis by inhibiting the
release of free fatty acids from adipose tissue and decreasing hepatic lipoprotein syn-
thesis (niacin only). Cause peripheral vasodilation in large doses (niacin only).

Therapeutic Effects:
Decreased blood lipids (niacin only). Supplementation in
deficiency states.

Pharmacokinetics
Absorption: Well absorbed following oral administration.
Distribution: Widely distributed following conversion to niacinamide. Enters
breast milk.
Metabolism and Excretion: Amounts required for metabolic processes are
converted to niacinamide. Large doses of niacin are excreted unchanged in the urine.
Half-life: 45 min.

TIME/ACTION PROFILE (effects on blood lipids)
ROUTE ONSET PEAK DURATION
PO (cholesterol) several days unknown unknown
PO (triglycerides) several hr unknown unknown

Contraindications/Precautions
Contraindicated in: Hypersensitivity to niacin; Some products may contain tar-
trazine and should be avoided in patients with known hypersensitivity; Alcohol intol-
erance (Nicotinex only).

Use Cautiously in:
Liver disease; Arterial bleeding; History of peptic ulcer disease; Gout; Glaucoma; Diabetes mellitus.

Adverse Reactions/Side Effects
Adverse reactions and side effects refer to doses used to treat hyperlipidemia
CNS:
dizziness, nervousness, panic.
EENT:
blurred vision, loss of central vision, propto-
sis, toxic amblyopia.
CV:
orthostatic hypotension.
GI:
HEPATOTOXICITY, GI upset, bloating, diarrhea, dry mouth, flatulence, heartburn, hunger pains, nausea, PUP.
Derm:
stinging or tingling of skin. Metabolic:
gluconeogenesis, hyperglycemia, hyperuricemia, MI, myocardial.

Interactions
Drug-Drug:
q risk of myopathy with concurrent use of HMG-CoA reductase in-
hibitors. Additive hypotension with antihypertensive agents. Large doses may
produce effects of probenecid.

Route/Dosage
PO (Adults and Children): Dietary supplement—10–20 mg/day.
Dietary deficiency—Up to 500 mg/day in divided doses. Hyperlipidemia—Niacin only—Immediate-release: 250 mg once daily. Dose every 2–7 days to desired response
(usual dose 1.5–2 g/day in 3 divided doses); after 2–3 mo, may 
2–4 wk to 1 g/4 wk intervals to q 3 times daily. Extended-release: 500 mg at bedtime for 4 wk; then 
then every 4 wk by 500 mg/day to maximum of 2 g/ day.
PO (Children 7–10 yr): Prevention of deficiency—15 mg/day.
PO (Children 6–8 yr): Prevention of deficiency—12 mg/day.
PO (Children birth–5 yr): Prevention of deficiency—5–9 mg/day.

NURSING IMPLICATIONS
Assessment
• Vitamin Deficiency: Assess patient for signs of niacin deficiency (pellagra—
dermatitis, exanthema, glossitis, anemia, nausea and vomiting, confusion, memory
loss, and delirium) prior to and periodically during therapy.

OPTIMAL indicates 10-frequent; underline indicates most frequent. Discontinued.
● Hyperlipidemia: Obtain a diet history, especially with regard to fat consumption.

● Lab Test Considerations: Monitor serum glucose and uric acid levels and hepatic function tests periodically during prolonged high-dose therapy. Notify health care professional if AST, ALT, or LDH becomes elevated. May require periodic determinations of prothrombin time and serum albumin.

● High-dose therapy may cause serum glucose and uric acid levels to increase.

● When niacin is used as a hypolipidemic agent, serum cholesterol and triglyceride levels should be monitored before and periodically during therapy.

Potential Nursing Diagnoses

Imbalanced nutrition: less than body requirements (indications)
Noncompliance (Patient/Family Teaching)

Implementation

● Because of infrequency of single B-vitamin deficiencies, combinations are commonly administered.

● PO: Administer with meals or milk to minimize GI irritation.

● Extended-release tablets and capsules should be swallowed whole, without breaking, crushing, or chewing. Use calibrated measuring device to ensure accurate dose of solution.

Patient/Family Teaching

● Advise patient to change positions slowly to minimize orthostatic hypotension.

● Instruct patients taking long-term OTC extended-release niacin to report signs of hepatotoxicity (darkening of urine, light gray–colored stools, loss of appetite, severe stomach pain, yellow eyes or skin) to health care professional.

● Emphasize the importance of follow-up examinations to evaluate progress.

● Vitamin Deficiency: Encourage patient to comply with dietary recommendations of health care professional. Explain that the best source of niacin is a well-balanced diet with foods from the four basic food groups.

● Foods high in niacin include meats, eggs, milk, and dairy products; little is lost during ordinary cooking.

Why was this drug prescribed for your patient?

● Foods high in niacin include meats, eggs, milk, and dairy products; little is lost during ordinary cooking.

● 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 may cause side effects.

● Hyperlipidemia: Advise patient that this medication should be used in conjunction with dietary restrictions (fat, cholesterol, carbohydrates, alcohol), exercise, and cessation of smoking.

Evaluation/Desired Outcomes

● Prevention and treatment of niacin deficiency.

● Decrease in serum cholesterol and triglyceride levels.

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