



Bonus Monographs



Nalidixic acid

(nah-lih-**DICKS**-ick
AH-sid)

PREGNANCY CATEGORY: B

CLASSIFICATION(S):

Urinary anti-infective

Rx: NegGram

ACTION/KINETICS

Thought to inhibit the DNA synthesis, probably by interfering with DNA polymerization. Is either bacteriostatic or bactericidal. Rapidly absorbed from the GI tract. **Peak plasma concentration:** 20–40 mcg/mL after 1–2 hr; **peak urine levels:** 150–200 mcg/mL after 3–4 hr. **t_{1/2}, plasma:** 1.5 hr (increased to 21 hr in anuric clients); **t_{1/2}, urine:** 6 hr. Metabolized in the liver to hydroxynalidixic acid (comparable activity to nalidixic acid) and inactive compounds which are rapidly excreted. Extensively protein bound.

Sensitivity determinations are recommended before and periodically during prolonged administration of nalidixic acid. Renal and liver function tests are advisable if course of therapy exceeds 2 weeks.

USES

Acute and chronic UTIs caused by susceptible gram-negative organisms, including *Escherichia coli*, *Proteus*, *Enterobacter*, and *Klebsiella*.

CONTRAINDICATIONS

Lactation. Use in infants less than 3 months of age.

SPECIAL CONCERNS

Use with caution in prepubertal children, clients with liver disease, severe-

ly impaired kidney function, epilepsy, and severe cerebral arteriosclerosis.

SIDE EFFECTS

GI: N&V, diarrhea, abdominal pain.

CNS: Drowsiness, headache, dizziness, weakness, vertigo, toxic psychoses, intracranial hypertension, **seizures (rare)**. Also, increased intracranial pressure with bulging anterior fontanel, papilledema, and headache; sixth cranial nerve palsy in children and infants.

Allergic: Photosensitivity (e.g., erythema, painful bullae on exposed skin), skin rashes, arthralgia (joint swelling and stiffness), pruritus, urticaria, angioedema, eosinophilia, anaphylaxis (rare). **Hematologic:** Leukopenia, thrombocytopenia, **hemolytic anemia** (especially in clients with G6PD deficiency).

Ophthalmic: Reversible subjective visual disturbances, including overbrightness of lights, difficulty in focusing, changes in color perception, double vision, decreased visual acuity. **Other:** Metabolic acidosis, cholestatic jaundice, cholestasis, paresthesia.

LABORATORY TEST CONSIDERATIONS

False + for urinary glucose with Benedict's solution, Fehling's solution, or Clinitest Reagent tablets. Falsely elevated 17-ketosteroids.

OD OVERDOSE MANAGEMENT

Symptoms: Toxic psychoses, convulsions, increased intracranial pressure, nausea, vomiting, lethargy, metabolic acidosis. **Treatment:** Gastric lavage if the overdose is identified early. If absorption has occurred, fluid administration is increased with supportive measures. In severe cases, use of anti-convulsants may be necessary.

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DRUG INTERACTIONS

Antacids, oral / ↓ Nalidixic acid effect
R/T ↓ GI tract absorption
Anticoagulants, oral / ↑ Anticoagulant
effect R/T ↓ plasma protein binding
Nitrofurantoin / ↓ Effect of nalidixic
acid

HOW SUPPLIED

Suspension: 250 mg/5 mL; *Tablet*: 250
mg, 500 mg, 1 g

DOSAGE

• ORAL SUSPENSION, TABLETS

Adults: initially, 1 g q.i.d. for 1–2
weeks; **maintenance**, if necessary, 0.5 g
q 6 hr. Maximum daily dose: 4 g. **Children, 3 months to 12 years, initial**:
55 mg/kg/day in four equally divided
doses; **maintenance**: 33 mg/kg/day.

NURSING CONSIDERATIONS

SEE ALSO *GENERAL NURSING CON-
SIDERATIONS FOR ANTI-INFECTIVES.*

ADMINISTRATION/STORAGE

Underdosage (less than 4 g/day) may
lead to emergence of bacterial resis-
tance.

ASSESSMENT

1. Note indications for therapy, charac-
teristics of S&S, and other agents tri-
aled.
2. Obtain CBC, urine culture, liver and
renal function studies; note any dys-
function.
3. Assess for adverse CNS effects (sei-
zures, psychosis, severe headaches, ↑
ICP); withhold drug.

CLIENT/FAMILY TEACHING

1. Take 1 hr before meals, on an emp-
ty stomach. If GI upset occurs, may be
taken with food. Drink at least 2–3
L/day of water. Avoid antacids for 2 hr
before and after dose.
2. Do not perform tasks that require
mental alertness; may cause drowsi-
ness, confusion, blurred vision, and
dizziness.
3. Avoid prolonged exposure to sun-
light or ultraviolet light; wear protective
clothing and sunscreen if exposed.
Photosensitivity may remain for 3
months following therapy.

OUTCOMES/EVALUATE

Negative urine cultures; symptomatic
improvement (↓ dysuria, ↓ frequency)