naftillin (naf-sill-in)
Nalpen

Classification
Therapeutic: anti-infection
Pharmacologic: penicillinase resistant penicillins

Pregnancy Category B

Indications
Treatment of the following infections due to penicillinase-producing staphylococci: Respiratory tract infections, Sinusitis, Skin and skin structure infections, Bone and joint infections, Endocarditis, Bacteremia, Meningitis.

Action
Bind to bacterial cell wall, leading to cell death. Not inactivated by penicillinase enzymes. Therapeutic Effects: Bactericidal action.

Spectrum:
Active against most gram-positive aerobic cocci. Spectrum is notable for activity against: Penicillinase-producing strains of Staphylococcus aureus, Staphylococcus epidermidis. Not active against methicillin-resistant bacteria.

Pharmacokinetics
Absorption: Completely absorbed following IV administration; well absorbed from IM sites.
Distribution: Widely distributed, penetration into CSF is minimal but sufficient in the presence of inflamed meninges; cross the placenta and enter breast milk.
Protein Binding: 90% to albumin.
Metabolism and Excretion: Partially metabolized by the liver (60%), partially excreted unchanged by the kidneys.
Half-life: Neonates: 1– 5 hr; Children 1 mo – 14 yr: 0.75– 1.9 hr; Adults: 0.5– 1.5 hr (increased in renal impairment).

TIME/ACTION PROFILE
ROUTE ONSET PEAK DURATION
Nafcillin IM rapid end of infusion 4–6 hr
Nafcillin IV rapid end of infusion 4–6 hr

Contraindications/Precautions
Contraindicated in: Previous hypersensitivity to penicillins (cross-sensitivity exists with cephalosporins and other beta-lactam antibiotics).
Use Cautiously in: Severe renal or hepatic impairment.

Adverse Reactions/Side Effects
CNS: SEIZURES.
GI: PSEUDOMEMBRANOUS COLITIS, diarrhea, epigastric distress, nausea, vomiting. 4U: intestinal pseudomembranes. 6U: nausea, vomiting, diarrhea. 12U: pseudomembranes, bloody stools. Local: pain at IM site, phlebitis at IV site.
GU: interstitial nephritis.
Derm: rash, urticaria.
Hemat: eosinophilia, leukopenia.
Local: pain at IM site, phlebitis at IV site.
Misc: allergic reactions including ANAPHYLAXIS and SERUM SICKNESS, superinfection.

Interactions
Drug-Drug: Nafcillin may enhance effectiveness of oral contraceptives agents. Probenecid may increase renal excretion and blood levels of nafcillin (therapy may be combined for this purpose). Concurrent use with methotrexate may increase metabolism and risk of serious toxicity. Tetracyclines may increase effectiveness of oxacillin.

Route/Dosage
IM (Adults): 500 mg q 4– 6 hr.
IM, IV (Children and Infants): 50– 200 mg/kg/day divided q 4– 6 hr, maximum 12 g/day.
IM, IV (Neonates 0– 4 weeks, <2000 g): 50 mg/kg/day divided q 12 hr.
IM, IV (Neonates 1.2– 2 kg): 50 mg/kg/day divided q 12 hr for the first 7 days of life; then 75 mg/kg/day divided q 8 hr.
IM, IV (Neonates 2 kg): 75 mg/kg/day divided q 8 hr for the first 7 days of life; then 100 mg/kg/day divided q 6 hr.

NURSING IMPLICATIONS
Assessment
● Monitor for infection (vital signs, appearance of wound, sputum, urine, and stool; WBC at beginning of and throughout therapy).

Potential nursing interventions include most frequent:
Interactions = discontinued.
● Obtain a history before initiating therapy to determine previous use of and reactions to cephalosporins or other beta-lactam antibiotics. Persons with a negative history of penicillin sensitivity may still have an allergic response.

● Obtain specimens for culture and sensitivity prior to initiating therapy. First dose may be given before receiving results.

● Observe patient for signs and symptoms of anaphylaxis (rash, pruritus, laryngeal edema, wheezing, abdominal pain). Discontinue the drug and notify health care professional immediately if these occur. Keep epinephrine, antihistamines, and resuscitation equipment close by in the event of an anaphylactic reaction.

● Assess vein for signs of irritation and phlebitis. Change IV site every 48 hr to prevent phlebitis.

● Lab Test Considerations: May cause leukopenia and neutropenia, especially with prolonged therapy or hepatic impairment.

● May cause positive direct Coombs’ test result.

● May cause AST, ALT, LDH, and serum alkaline phosphatase concentrations.

Potential Nursing Diagnoses
Risk for infection (Indications) (Side Effects)
Noncompliance (Patient/Family Teaching)

Implementation
IV Administration

● IV, IM: To reconstitute, add 3.4 mL to each 1-g vial or 6.8 mL to each 2-g vial, for a concentration of 250 mg/mL. Stable for 2–7 days if refrigerated.

● Direct IV: Dilute reconstituted solution with 15–30 mL of sterile water, 0.45% NaCl, or 0.9% NaCl for injection. Rate: Administer over 5–10 min.

Intermittent Infusion: Diluent: Dilute with sterile water for injection, 0.9% NaCl, D5W, D5W/0.45% NaCl, D5W/0.9% NaCl. Concentration: 2–40 mg/mL. Stable for 24 hr at room temperature, 96 hr if refrigerated. Rate: Infuse over at least 30–60 min to avoid vein irritation.

● Y-Site Compatibility: acetoclyv, aferon, amnion, amphetamine, amphenec, apyrene, barbiturate, benzene, butorphanol, calcium gluconate, carboplatin, chlorpheniramine, clindamycin, clomipramine, cyclophosphamide, cytoxan, deferoxamine, desferrioxamine, dexamethasone, diltiazem, diphenhydramine, dobutamine, dopamine, droperidol, duloxetine, dexamethasone, etoposide, famotidine, fentanyl, fluconazole, fludarabine, furosamide, garamycin, gentamicin, glycoprotein, heparin, hydromorphone, hydrocortisone, idarubicin, indomethacin, isoproterenol, ketorolac, lidocaine, linezolid, lorazepam, magnesium sulphate, meperidine, metoprolol, metronidazole, morphine, multivitamin, naloxone, nicardipine, nitroglycerin, nitroprusside, norepinephrine, octreotide, palonosetron, pancuronium, pantoprazole, pentamidine, peroxybar, piperazine, phenergan, phenformin, phenylephrine, phytonadione, ptocyclop, propofol, propranolol, ranitidine, sodium bicarbonate, streptokinase, subliminal, te- roloning, tirofiban, tizanidine, thalidomide, ticarcillin/oxide, tigecycline, tolazoline, trichotomy, trimethoprim/sulfamethoxazole, tyc- cline, ticarvici, turoxine, tizanidine, trimethoprim, vancomycin, vencravine, vincristine, zidovudine, zoledronic acid.

● Y-Site Incompatibility: alemtuzumab, amphoteric B colloidal, ampicillin, amphotec, ampicillin, aphrodisiac, atracurium, azathioprine, caspofungin, chloramphenicol, doxorubicin, droperidol, epinephrine, esomeprazole, fentanyl, gemcitabine, haloperidol, hydralazine, idarubicin, imipenem, meropenem, metronidazole, minocycline, mycophenolate, mypragom, nitroglycerin, pentamidine, pentamidine, pentazocine, phenytoin, phenilephrine, phenytoin, piperazine, phenoxymethylpeni- penicillin, penicillin, pimecortin, piperazine, prochlorperazine, propofol, propranolol, ranitidine, sodium bicarbonate, streptokinase, subliminal, tio- roloning, tirofiban, tizanidine, thalidomide, ticarvici, trimethoprim/sulfamethoxazole, tyc- cline, ticarvici, turoxine, tizanidine, trimethoprim, vancomycin, vencravine, vincristine, zidovudine, zoledronic acid.

Patient/Family Teaching

● Instruct patient to take medication around the clock and to finish the drug completely as directed, even if feeling better. Missed doses should be taken as soon as remembered. Advise patient to share this medication may be dangerous.

● Advise patient to report signs of superinfection (black, furry overgrowth on the tongue, vaginal itching or discharge, loose or foul-smelling stools) and allergy.

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- Instruct patient to notify health care professional if fever and diarrhea develop, especially if stool contains blood, pus, or mucus. Advise patient not to treat diarrhea without consulting health care professional.
- Instruct patient to notify health care professional if symptoms do not improve.

Evaluation/Desired Outcomes
- Resolution of the signs and symptoms of infection. Length of time for complete resolution depends on the organism and site of infection.

Why was this drug prescribed for your patient?