Nafcillin for injection, USP is a semisynthetic antibiotic penicillin derived from the penicillin G nucleus in which the 2-amino group is replaced by a 2-(2-acetamido)pentyl side chain. Its chemical formula is C_{21}H_{21}N_{2}NaO_{5}S·H_{2}O with a molecular weight of 454.48. It is a white to pale yellow free-flowing powder, which is soluble in water but practically insoluble in alcohol. From the standpoint of bacteriology, the formula of nafcillin sodium is as follows:

\[ \text{C}_{21}\text{H}_{21}\text{N}_{2}\text{NaO}_{5}\text{S}·\text{H}_{2}\text{O} \]

Nafcillin for injection, USP Pharmacy Bulk Package is supplied as a dry powder in bottles containing nafcillin sodium and is intended for intravenous use. Each vial of Nafcillin for Injection contains 30 mg of nafcillin sodium. Each 30 mg vial contains 33 mg of sodium chloride per milliliter. Each vial should be reconstituted with 1 mL of sterile water for injection. Each Pharmacy Bulk Package bottle contains nafcillin sodium, as the monohydrate (30 mg of nafcillin sodium per 33 mg sodium chloride), in 1 mL of sterile water for injection. A Pharmacy Bulk Package is a container of sterile dosage form which contains or holds a large number of single-dose containers. Each single-dose container contains nafcillin sodium. Nafcillin Sodium contains many single doses. The contents are intended for use in a pharmacy admixture program and are restricted to the preparation of admixtures for intravenous use. Further dilution is required for administration to patients. Finally, solutions prepared from Nafcillin Sodium contain many single doses. The contents are intended for use in a pharmacy admixture program and are restricted to the preparation of solutions for intravenous use. Further dilution is required for administration to patients.

Classification:

Nafcillin is indicated in the treatment of infections caused by penicillinase-producing staphylococci which have demonstrated susceptibility to the drug. Nafcillin is indicated in the treatment of infections caused by many strains of beta-lactamase-producing staphylococci. Nafcillin should not be used in infections caused by organisms susceptible to newer agents, such as cephalosporins and cephamycins.

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Periodic assessment of organ system function including renal, hepatic, and hematopoietic should be made during prolonged therapy with nafcillin. When blood cell and differential cell counts should be obtained prior to initiation of therapy and at intervals thereafter to detect any unexpected and unusual leukopenia and thrombocytopenia, and cyanogranulocytes should be determined prior to therapy.

Nafcillin is rarely associated with renal dysfunction, but creatinine clearance should be followed in patients with pre-existing renal disease or in those receiving concurrent nephrotoxic agents.

Special senses
Nafcillin is not known to be ototoxic when used as directed.

Gastrointestinal Reactions
Pseudomembranous colitis has been reported with the use of nafcillin. The onset of pseudomembranous colitis symptoms may occur during or after antibiotic treatment (see WARNINGS). In such cases, it is thought that the patients may have had prior exposure to enterococci or other Clostridium species. A significant mortality rate has been reported to result in sulfonamide-resistant or cephalosporin-resistant strains of Clostridium difficile. If these symptoms occur, nafcillin should be discontinued.

Drug/Laboratory Test Interactions
Nafcillin in the urine can cause a false-positive urine protein reaction for protein when the urine is tested for protein using a sulfonamide-reagent test. This reaction will disappear if nafcillin is replaced by another antibiotic.

Neurotoxic reactions similar to those observed with penicillin G could occur on administration of nafcillin. Manifestations of this reaction may subsequently with the administration of nafcillin. The liver/biliary tract is the principal route of nafcillin elimination. Because of the potential for hepatic injury, nafcillin should be used with caution in patients with hepatic dysfunction, and aminoglycoside antibiotics may require a larger dosage. The aminoglycoside dosage should be reduced and serum levels monitored in patients with renal failure. Periodic assessment of organ system function including renal, hepatic, and hematopoietic should be made during prolonged therapy.

Drug Interactions
Thrombolytic and antithrombotic agents, or warfarin, may result in exaggerated anticoagulant effects, with a corresponding increased risk of bleeding. The prothrombin time should be monitored and the dosage of warfarin adjusted to maintain the hemorrhage risk.

Neurotoxic reactions similar to those observed with penicillin G may arise with nafcillin. For patients with hepatic insufficiency and renal failure, measurement of sulfonamide levels should be made to ensure adequate sulfonamide levels. Sulfonamide levels may also be useful in differentiating the causes of anuria and oliguria. The usual dosage for adults is 500 mg every 4 hours. For severe infections, 1 g every 4 hours is recommended. Administer slowly over at least 30 minutes to minimize the risk of vein irritation and extravasation. Nafcillin when administered concomitantly with cyclosporine has been reported to result in subtherapeutic cyclosporine levels. These levels may be restored following discontinuation of the use of a syringe and needle is not recommended as it may cause leakage. Use of a woolen thread should be avoided. The injection site should be monitored for sloughing at the injection site.

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Studies on reconstitution (nafcillin) in rats and mice reveal no fetal or maternal abnormalities before conception and continuously throughout weaning (see use in pregnancy).

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