Low-dose regimen for prevention of postoperative deep venous thrombosis and pulmonary embolism in patients undergoing major abdominothoracic surgery or who, for other reasons, are at risk of developing thromboembolic disease (see DOSAGE AND ADMINISTRATION).

Prevention of clotting in arterial and cardiac surgery:

Prophylaxis and treatment of peripheral arterial embolism.

Treatment of acute and chronic consumptive coagulopathies (disseminated intravascular coagulation):

Coagulation Testing

Heparin sodium is administered in therapeutic amounts, its dosage should be reduced at sites of active bleeding, or if heparin is not the drug of choice (see OVERDOSAGE).

Thromboctopenia

Thromboctopenia has been reported to occur in patients receiving heparin with a reported incidence of up to 10%. Platelet counts should be obtained at baseline and periodically during heparin administration. Mild thromboctopenia (count greater than 100,000/mm^3) may be stable or reversible even if heparin is continued. However, thromboctopenia of any degree should be monitored closely. If the count falls below 100,000/mm^3 or if recurrent thrombosis develops (see Heparin-Induced Thrombocytopenia (HIT) (With or Without Thrombosis)), the heparin product should be discontinued and, if necessary, an alternative anticoagulant administered.

Heparin-Induced Thrombocytopenia (HIT) (With or Without Thrombosis)

HIT involves a cascade mediated reaction resulting from irreversible aggregation of platelets. HIT may progress to the development of venous and arterial thromboses, a condition referred to as HIT with thrombosis. Thrombotic events may also be the initial presentation of HIT. These serious thrombotic events include deep vein thrombosis, pulmonary embolism, cerebral vein thrombosis, limb ischemia, stroke, myocardial infarction, mesenteric infarction, mesenteric ischemia, skin necrosis, gangrene of the extremities that may lead to amputation, and fatal outcomes.

Once HIT (with or without thrombosis) is diagnosed or strongly suspected, all heparin sources (including heparin flushes) should be discontinued and an alternative anticoagulant used. Future use of heparin sodium, especially within 3 to 6 months following the diagnosis of HIT (with or without thrombosis), and while patients test positive for HIT antibodies, should be avoided.

Intravenous nitroglycerin administered to heparinized patients may result in a decrease of the partial thromboplastin time with subsequent rebound effect upon discontinuation of nitroglycerin. Careful monitoring of partial thromboplastin time and adjustment of heparin dosage are recommended during coadministration of heparin and intravenous nitroglycerin.

Drug/Laboratory Tests Interactions

Hyperglycemia

Significant elevations of serum glucose (SOG) (≥300 mg/dL) have occurred in a high percentage of patients (and healthy subjects) who have received heparin. Since amylase/creatine determinations are important in the differential diagnosis of myocardial infarction, liver disease and pulmonary emboli, increases that might be caused by drugs (like heparin) should be interpreted with caution.

Carcinogenesis, Mutagenesis, Impairment of Fertility

No long-term studies in animals have been performed to evaluate carcinogenic potential of heparin. Also, no reproduction studies in animals have been performed concerning mutagenicity or impairment of fertility.

Pregnancy

Category C

There are no adequate and well-controlled studies on heparin use in pregnant women. In the absence of data from adequate controlled studies in pregnant patients, it is preferable to avoid the use of heparin sodium injection during maternal pregnancy.

Fetal Medication Errors

Fatal medication errors and intransigent maternal coagulopathies have occurred in pediatric patients due to medication errors in which 1 mL Heparin Sodium Injection was confused with “catheter lock flush” vials (see ADVERSE REACTIONS, Hypersensitivity).

Drug/Laboratory Tests Interactions

Hyperglycemia

Significant elevations of serum glucose (SOG) (≥300 mg/dL) have occurred in a high percentage of patients (and healthy subjects) who have received heparin. Since amylase/creatine determinations are important in the differential diagnosis of myocardial infarction, liver disease and pulmonary emboli, increases that might be caused by drugs (like heparin) should be interpreted with caution.

Carcinogenesis, Mutagenesis, Impairment of Fertility

No long-term studies in animals have been performed to evaluate carcinogenic potential of heparin. Also, no reproduction studies in animals have been performed concerning mutagenicity or impairment of fertility.

Pregnancy

Category C

There are no adequate and well-controlled studies on heparin use in pregnant women. In the absence of data from adequate controlled studies in pregnant patients, it is preferable to avoid the use of heparin sodium injection during maternal pregnancy.

Fetal Medication Errors

Fatal medication errors and intransigent maternal coagulopathies have occurred in pediatric patients due to medication errors in which 1 mL Heparin Sodium Injection was confused with “catheter lock flush” vials (see ADVERSE REACTIONS, Hypersensitivity).

Clinical Pharmacology

Heparin inhibits reactions that lead to the clotting of blood and the formation of fibrin clots both in vitro and in vivo. Heparin acts at multiple sites in the normal coagulation system. Small amounts of heparin in combination with antithrombin III (heparin cofactor) can inhibit thrombosis by inactivating procoagulant Factor X and inhibiting the conversion of prothrombin to thrombin. Once active thrombosis has developed, larger doses of heparin can inhibit thrombosis, thereby prolonging the clotting time by inactivating thrombin (see ANTICOAGULANT ACTION).

INFORMATION FORTHE PATIENT

Patients must be instructed that the drug is given parenterally and that the standard dose is administered using a disposable, calibrated syringe. The patient should be instructed that the drug should not be admixed with other medications. Heparin is stored in a glass ampule with Samurai (a preservative and stabilizer). Multiple medications can be added to the Heparin Sodium Injection vial, thereby resulting in a heterogeneous mixture of substances. In addition, any medication added to the heparin sodium injection vial should be used immediately to avoid significant degradation of the Heparin Sodium Injection vial.

Heparin Sodium Injection is available in different concentrations. The concentrations are as follows:

1,000 USP units/mL
5,000 USP units/mL
10,000 USP units/mL
5,000 USP units/mL
10,000 USP units/mL

Examine all Heparin Sodium Injection vials to ensure the correct dosage is being administered.

INFORMATION FOR THE PATIENT

Patients must be instructed that the drug is given parenterally and that the standard dose is administered using a disposable, calibrated syringe. The patient should be instructed that the drug should not be admixed with other medications. Heparin is stored in a glass ampule with Samurai (a preservative and stabilizer). Multiple medications can be added to the Heparin Sodium Injection vial, thereby resulting in a heterogeneous mixture of substances. In addition, any medication added to the heparin sodium injection vial should be used immediately to avoid significant degradation of the Heparin Sodium Injection vial.

Heparin Sodium Injection is available in different concentrations. The concentrations are as follows:

1,000 USP units/mL
5,000 USP units/mL
10,000 USP units/mL
5,000 USP units/mL
10,000 USP units/mL

Examine all Heparin Sodium Injection vials to ensure the correct dosage is being administered.

INFORMATION FOR THE PATIENT

Patients must be instructed that the drug is given parenterally and that the standard dose is administered using a disposable, calibrated syringe. The patient should be instructed that the drug should not be admixed with other medications. Heparin is stored in a glass ampule with Samurai (a preservative and stabilizer). Multiple medications can be added to the Heparin Sodium Injection vial, thereby resulting in a heterogeneous mixture of substances. In addition, any medication added to the heparin sodium injection vial should be used immediately to avoid significant degradation of the Heparin Sodium Injection vial.

Heparin Sodium Injection is available in different concentrations. The concentrations are as follows:

1,000 USP units/mL
5,000 USP units/mL
10,000 USP units/mL
5,000 USP units/mL
10,000 USP units/mL

Examine all Heparin Sodium Injection vials to ensure the correct dosage is being administered.

INFORMATION FOR THE PATIENT

Patients must be instructed that the drug is given parenterally and that the standard dose is administered using a disposable, calibrated syringe. The patient should be instructed that the drug should not be admixed with other medications. Heparin is stored in a glass ampule with Samurai (a preservative and stabilizer). Multiple medications can be added to the Heparin Sodium Injection vial, thereby resulting in a heterogeneous mixture of substances. In addition, any medication added to the heparin sodium injection vial should be used immediately to avoid significant degradation of the Heparin Sodium Injection vial.

Heparin Sodium Injection is available in different concentrations. The concentrations are as follows:

1,000 USP units/mL
5,000 USP units/mL
10,000 USP units/mL
5,000 USP units/mL
10,000 USP units/mL

Examine all Heparin Sodium Injection vials to ensure the correct dosage is being administered.

INFORMATION FOR THE PATIENT

Patients must be instructed that the drug is given parenterally and that the standard dose is administered using a disposable, calibrated syringe. The patient should be instructed that the drug should not be admixed with other medications. Heparin is stored in a glass ampule with Samurai (a preservative and stabilizer). Multiple medications can be added to the Heparin Sodium Injection vial, thereby resulting in a heterogeneous mixture of substances. In addition, any medication added to the heparin sodium injection vial should be used immediately to avoid significant degradation of the Heparin Sodium Injection vial.

Heparin Sodium Injection is available in different concentrations. The concentrations are as follows:

1,000 USP units/mL
5,000 USP units/mL
10,000 USP units/mL
5,000 USP units/mL
10,000 USP units/mL

Examine all Heparin Sodium Injection vials to ensure the correct dosage is being administered.

INFORMATION FOR THE PATIENT

Patients must be instructed that the drug is given parenterally and that the standard dose is administered using a disposable, calibrated syringe. The patient should be instructed that the drug should not be admixed with other medications. Heparin is stored in a glass ampule with Samurai (a preservative and stabilizer). Multiple medications can be added to the Heparin Sodium Injection vial, thereby resulting in a heterogeneous mixture of substances. In addition, any medication added to the heparin sodium injection vial should be used immediately to avoid significant degradation of the Heparin Sodium Injection vial.

Heparin Sodium Injection is available in different concentrations. The concentrations are as follows:

1,000 USP units/mL
5,000 USP units/mL
10,000 USP units/mL
5,000 USP units/mL
10,000 USP units/mL

Examine all Heparin Sodium Injection vials to ensure the correct dosage is being administered.

INFORMATION FOR THE PATIENT

Patients must be instructed that the drug is given parenterally and that the standard dose is administered using a disposable, calibrated syringe. The patient should be instructed that the drug should not be admixed with other medications. Heparin is stored in a glass ampule with Samurai (a preservative and stabilizer). Multiple medications can be added to the Heparin Sodium Injection vial, thereby resulting in a heterogeneous mixture of substances. In addition, any medication added to the heparin sodium injection vial should be used immediately to avoid significant degradation of the Heparin Sodium Injection vial.

Heparin Sodium Injection is available in different concentrations. The concentrations are as follows:

1,000 USP units/mL
5,000 USP units/mL
10,000 USP units/mL
5,000 USP units/mL
10,000 USP units/mL

Examine all Heparin Sodium Injection vials to ensure the correct dosage is being administered.
Benzyl Alcohol Toxicity

Use preservation of Heparin Sodium Injection in neonates and infants. The preservation benzyl alcohol has been associated with serious adverse events and death in pediatric patients. The “gasping syndrome” (characterized by central nervous system depression, metabolic acidosis, gasping respirations, and high levels of benzyl alcohol and its metabolites found in the blood and urine) has been associated with benzyl alcohol doses >99 mg/kg/day in neonates and low-birth weight infants. Additional symptoms may include gradual neurological deterioration, seizures, intraventricular hemorrhage, hematological abnormalities, skin breakdown, hepatic and renal failure, hypotension, bradycardia, and cardiovascular collapse.

Although normal therapeutic doses of this product deliver amounts of benzyl alcohol that are substantially lower than those reported in association with the “gasping syndrome”, the minimum amount of benzyl alcohol at which toxicity may occur is not known. Premature and low-birth weight infants may be more likely to develop toxicity. Practitioners administering this and other medications containing benzyl alcohol should consider the combined daily metabolic load of benzyl alcohol from all sources.

Geriatric Use

A higher incidence of bleeding has been reported in patients over 60 years of age, especially women (see PRECAUTIONS, General). Clinical studies indicate that lower doses of heparin may be indicated in these patients (see CLINICAL PHARMACOLOGY and DOSAGE AND ADMINISTRATION).

ADVERSE REACTIONS

Hemorrhage

Hemorrhage is the chief complication that may result from heparin therapy (see WARNINGS). An overly prolonged clotting time or minor bleeding during therapy can usually be controlled by withholding the drug (see OVERDOSE). It should be appreciated that gastrointestinal or urinary tract bleeding during anticoagulant therapy may indicate the presence of an underlying occult lesion. Bleeding can occur at any site but certain hemorrhagic complications may be difficult to detect:

1. Adrenal hemorrhage, with resultant acute adrenal insufficiency, has occurred during anticoagulant therapy. Therefore, such treatment should be discontinued in patients who develop signs of acute adrenal insufficiency.
2. Hemorrhage into a deep vein in an acute state may result in the patient’s death.
3. Ovarian (corpus luteum) hemorrhage developed in a number of women of reproductive age receiving short- or long-term anticoagulant therapy. This complication, if unrecognized, may be fatal.
4. Retroperitoneal hemorrhage.

Thrombocytopenia, Heparin-Induced Thrombocytopenia (HIT) (With or Without Thrombosis). Delayed Onset of HIT (With or Without Thrombosis).

See WARNINGS. No adequate and well-controlled studies on heparin use in pediatric patients. Pediatric Use

There are no adequate and well controlled studies on heparin use in pediatric patients. The use of heparin in neonates and infants should be based on the weighing of the anticipated benefit of the drug against the recognized risks of heparin therapy in this age group (see WARNINGS, Benzyl Alcohol Toxicity and PRECAUTIONS, Pediatric Use).

DOSAGE AND ADMINISTRATION

Parenteral drug products should be inspected visually for particulate matter and discoloration prior to administration. Whenever solution and container permit, slight discoloration does not alter potency.

Do not use if solution is cloudy or if there is precipitation, or if the vial or rubber stopper is damaged or discolored. Store at controlled room temperature 20° to 25°C (68° to 77°F). To report SUSPECTED ADVERSE REACTIONS, contact Sagent Pharmaceuticals, Inc. at 1-866-662-1161 or FDA at 1-800-FDA-1088 or www.fda.gov/medwatch.

REFERENCES


SANGE®
Made in India ©2016 Sagent Pharmaceuticals, Inc.
PSI11-02333-04 Revised: January 2016