ASCORBIC ACID INJECTION- Fact Sheet

Ascorbic acid is a water-soluble vitamin found in fruits and vegetables such as citrus fruits and green peppers. It occurs as a white or slightly yellow crystal or powder with a slight acidic taste. It is an antiscorbutic product. On exposure to air and light it gradually darkens. In the dry state it is reasonably stable in air, but in solution it rapidly oxidizes. Ascorbic acid is a free radical, an antioxidant scavenger, and plays a major role in oxidation-reduction reactions. Ascorbic acid is a cofactor for enzymes involved in the biosynthesis of collagen (essential for tissue maintenance and repair), carnitine, and neurotransmitters. Humans cannot synthesize ascorbic acid endogenously and a lack of dietary intake can lead to scurvy. Vitamin C is most frequently used as a nutritional supplement. It also is used as an adjunct treatment of idiopathic methemoglobinemia and with deferoxamine in the treatment of chronic iron toxicity. Ascorbic acid has been used for a variety of ailments including the common cold, gum infections, acne, depression, fertility, and cancer; however, these claims have not been substantiated and vitamin C is not recommended for these purposes. Ascorbic acid was approved by the FDA in 1939.

Contraindications: Ascorbic acid should not be ingested 48—72 hours before amine-dependent stool occult blood tests are conducted because false negatives may occur.

Chronic, excessive doses of ascorbic acid can cause an increase in its own metabolism, which can cause scurvy if normal and supplemental intake are significantly reduced or discontinued. Large doses can also increase the likelihood of oxalate stones in the urinary tract in patients with a history of nephrolithiasis, hyperoxaluria, or oxalosis.

Large IV or oral doses of ascorbic acid have caused hemolytic anemia in some patients with G6PD deficiency (glucose-6-phosphate dehydrogenase deficiency).

High doses of ascorbic acid may interfere with urinary glucose determinations using the glucose oxidase method. Patients with diabetes mellitus should be made aware of the possibility of falsely decreased glucose concentrations with these tests.

Ascorbic acid may increase the risk of iron toxicity in patients with hemochromatosis, therefore, patients with hemochromatosis should limit their intake of ascorbic acid to no more than 500 mg/day. Rarely, ingestion of large quantities of ascorbic acid have been associated with fatal cardiac arrhythmias in patients with iron overload.

Patients with anemia (e.g., sideroblastic anemia, thalassemia) may experience decreased iron absorption during high dose ascorbic acid therapy. High doses of ascorbic acid may precipitate a crisis in patients with sickle cell anemia.

General Administration Information

Injectable Administration
Absorption and utilization of ascorbic acid is reported to be best from the IM route; this is the preferred route of administration for the parenteral product. However, the parenteral product may also be given subcutaneously (SC) or intravenously (IV after dilution) if needed. Intravenous administration results in higher drug concentrations,[20] but a higher percentage of drug is excreted in the urine than when the drug is given IM or SC. Visually inspect parenteral

products for particulate matter and discoloration prior to administration whenever solution and container permit. Excessively rapid intravenous administration of sodium ascorbate should be avoided; temporary faintness or dizziness may result. Do not allow to stand at room temperature before use to prevent excessive pressure buildup. Ampules may have pressure build-up during storage; take care when withdrawing and/or relieve pressure by first inserting sterile empty syringe into vial thus allowing pressure to equilibrate. When using dispensing vials use aseptic technique. Dispense entire contents in aliquots under a laminar flow hood without delay or within 4 hours after entry or discard remaining content after first withdrawal. Prepare stoppers with a suitable antiseptic solution. Do not use unless solution is clear and seal is intact.

Intravenous Administration
Dilute in a compatible diluent prior to administration. Compatible diluents include Dextrose 5%, Dextrose 10%, 0.9% Sodium Chloride (Normal Saline or NS), 0.45% Sodium Chloride (half-Normal Saline), Lactated Ringer's (LR), Dextrose/Saline combinations or Dextrose/LR solutions. For intermittent IV infusion: Add to a large volume of diluent and infuse slowly (manufacturer recommendations). A faster rate of infusion and less diluent have been used in clinical trials. A pharmacokinetic modeling study reported the administration of intravenous vitamin C (doses up to 1.25 gram IV) at a rate of 250 mg/min IV to healthy volunteers.[20] Another study reported the infusion of 3 g of vitamin C infused IV over 10 minutes (rate: 300 mg/min IV) without deleterious effects on monitoring parameters such as the ECG.[21] For continuous IV infusion: When used for the reduction of fluid resuscitation requirements in severely burned patients, a 25 mg/mL concentration was compounded in LR solution and administered at a rate of 66 mg/kg/hr.[22]

Intramuscular Administration
Inject deeply into a large muscle. Aspirate prior to injection to avoid injection into a blood vessel.

Subcutaneous Administration
Inject subcutaneously taking care not to inject intradermal.

How should I store this medicine? Store between 32°F to 38°F (2°C to 8°C). Keep all medicines out of the reach of children. Throw away any unused medicine after the expiration date. Do not flush unused medications or pour down a sink or drain. Prepare stoppers with a suitable antiseptic wipe. Do not use unless solution is clear and seal is intact. Throw away any medicine after the beyond use date. Do not flush unused medications or pour down a sink or drain.