Glucose Intravenous Infusion BP
5% w/v

Composition: Each 100ml contains: Anhydrous Glucose BP 5.0g. Water for Injection BP q.s. Calories / Lit.: 170 KCal.

Pharmacological category: Improvers of blood volume and electrolyte changes. Parenteral nutrition solutions.

Pharmacological action: Glucose is a monosaccharide that provides the principal source of energy for the body. It is also involved in many additional areas of protein and fat metabolism. Glucose is stored in the body as fat and in the muscles and liver as glycogen. When a rapid rise in blood sugar is required, glycogen quickly liberates glucose. However, when this supply is insufficient the body mobilises its fat stores to release energy. Glucose also has a protein sparing function in the body. In the absence of glucose, energy can be produced from oxidation of deaminated amino acid fractions. Glucose is the probable source of gluconic acid, hyaluronates and chondroitin sulphates and can be converted to a pentose used for nucleic acid formation. Glucose reduces protein catabolism and provides energy to the tissues more demanding, for example the central nervous system and heart.

Pharmacokinetics: Glucose is metabolized via pyruvic or lactic acid to carbon dioxide and water with the release of energy. The pharmacokinetics of the additive will depend on the nature of the drug used.

Therapeutic indications: The solution is indicated for intravenous fluid therapy designed to correct deficiencies in energy levels. The solution may also be used as a solvent for intravenously administered drugs where compatibility has been established. Glucose Intravenous Infusion BP 5% w/v is indicated in diabetic ketoacidosis as a source of carbohydrate on parenteral nutrition in patients unable to feed orally and in conditions of dehydration, particularly those produced by vomiting, diarrhea, fistulas, bleeding, shock, hyperhidrosis, hyperventilation, polyuria and diabetes insipidus, among other situations.

Contraindications: Glucose is contraindicated in Diabetic coma where blood sugar levels are excessively high, Glucose-galactose malabsorption syndrome, Anuria, Intraspinal or intracranial haemorrhage, Dehydrated delirium tremens patients, Known allergy to corn (maize) and corn products, Patients at risk for ischaemic stroke and use after an ischaemic stroke episode.

Dosage & directions for use: The concentration and dosage of glucose solution for intravenous use is determined by several factors including the age, weight, and clinical condition of the patient. Serum-glucose concentrations may need to be carefully monitored. The recommended dosage for treatment of carbohydrate and fluid depletion is: Adults: 500ml to 3 Liters / 24h. For babies and children: 0-10 kg body weight: 100ml/kg /24 h. 10-20 kg body weight: 1000ml + 50ml/kg over 10 kg / 24 h. 20 kg body weight: 1500ml + 20 ml/kg over 20 kg / 24 h. The infusion rate depends on the patient's clinical condition. Infusion rate should not exceed the patient's glucose oxidation capacities in order to avoid hyperglycaemia. Therefore, the maximum dose ranges from 5mg/kg/min for adults to 10-18mg/kg/min for babies and children depending on the age and the total body mass. The recommended dosage when used as a vehicle or diluent ranges from 50 to 250ml per dose of medicinal product to be administered. When Glucose Intravenous Infusion BP 5% w/v is used as a diluent for injectable preparations of other drugs, the dosage and the infusion rate will be principally dictated by the nature and the dose regimen of the prescribed drug. Administration: The solution is for administration by intravenous infusion (peripheral or central vein). When the solution is used for dilution and delivery of therapeutic additives for administration by intravenous infusion, the direction for use with additive therapeutic substances will dictate the appropriate volumes for each therapy. Solutions containing glucose should not be administered through the same lines as those containing whole blood due to the risk of haemolysis and clumping. It does not contain antimicrobials. For use in one patient, on one occasion only. Residue should be discarded. Care should be taken with intravenous administration and injection technique to avoid injection site reactions and infections.

Adverse reactions: Glucose Intravenous Infusion BP 5% w/v Injection is iso-osmotic with blood and may be administered intravenously via a peripheral vein. Local reactions such as phlebitis or venous thrombosis and extravasation may occur. A fever response and infection at the site of injection may also occur due to contamination of the solution or poor techniques of administration. Hyperglycaemia and glucosuria may occur if glucose is administered at a rate greater than 0.5 g/kg/h. Disruption of the fluid and acid-base balance and dilution of electrolyte concentrations may occur during prolonged usage, resulting in oedema, hypokalaemia, hypomagnesaemia and hypophosphataemia. Vitamin B complex deficiency may occur with glucose administration. The nature of the additive will determine the likelihood of any other undesirable effects. Discontinue use should adverse drug reaction occur.

Warnings & precautions for use in special populations: Glucose solutions should be used with caution in patients with overt or known subclinical diabetes mellitus, or with carbohydrate intolerance. Intravenous administration of glucose solutions, especially as infusions, may cause fluid overload and a resultant dilution of serum electrolytes and possible peripheral and pulmonary oedema. Prolonged therapy should be monitored for changes in fluid balance, electrolyte concentration and acid/base balance. Hyperglycaemia and glucosuria may occur as a result of an over rapid rate of infusion or metabolic insufficiency. Blood and urine glucose should be monitored regularly. Glucose solutions should not be infused concomitantly through the same intravenous set as blood as agglomeration or haemolysis may occur. Prolonged parenteral administration of glucose may affect insulin production. To avoid this it may be necessary to add insulin to the infusion. A review of the patient's oral hypoglycaemic or insulin requirements may be necessary. Avoid use after an ischaemic stroke episode as under this condition the induced lactic acidosis aggravates the recovery of the brain damage tissue. Thiamine diphosphate co-carboxylase is an essential coenzyme in carbohydrate metabolism, therefore patients having thiamine deficiency should be treated cautiously with glucose injection. This is particularly important in patients who chronically abuse alcohol as this may precipitate an overt deficiency syndrome, e.g. Wernicke's encephalopathy. Additives may be incompatible with glucose. Do not administer such preparations unless the solution is clear. Do not store solutions containing additives unless compatibility has been proven. While some incompatibilities are readily observed, one must be aware that subtle physical, chemical and pharmacological incompatibilities can occur. The medical literature, the package insert and other available sources of information should be reviewed for a thorough understanding of possible incompatibility problems. In particular, the product information document of any added medication should be checked for any incompatibility with the glucose injection. Pregnancy and Lactation: Safety in pregnancy has not been established. Use only when clearly needed and potential benefits outweigh risk to the foetus.

Drug interactions: Parenteral fluids, especially those containing sodium ions, should be administered with caution to patients receiving corticosteroids or Corticotrophin.

Symptoms of over dosage & its treatment: Symptoms - Prolonged administration or rapid infusion of large volumes of Glucose Intravenous Infusion BP 5% w/v solution may cause hyperosmolality, dehydration, hyperglycaemia, hyperglycosuria, and osmotic diuresis (due to the hyperglycaemia). Prolonged administration or rapid infusion may create a fluid infusion with oedema or water intoxication (with hyponatremia). The signs and symptoms of over infusion will be related to the nature of the additive being used. Treatment - Appropriate treatment may include decreasing the infusion rate of glucose and administration of insulin. Fluid overload and biochemical imbalance resulting from overdosage and glucose solution should be treated with appropriate corrective therapy.

Storage conditions: Do not store above 30°C. Protect from sunlight. Keep out of reach of children.

Presentation: Pack of 500ml.