

## PRODUCT INFORMATION

### GLUCOSE 5% FREEFLEX

#### Name of the medicine

Glucose

Chemical name alpha-D-(+)-glucopyranose.

$C_6H_{12}O_6$

CAS registry number: 14431-43-7

#### Description

Glucose 5% is a sterile isotonic solution of glucose 5% w/v in Water for Injections, containing no preservatives. pH 3.5 to 6.5.

#### Pharmacology

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 glucuronic acid, hyaluronates and chondroitin sulphates and can be converted to a pentose used for nucleic acid formation.

Glucose is metabolised to carbon dioxide and water thus providing water for body hydration as well as calories.

#### Indications

The solutions are indicated for intravenous fluid therapy designed to correct deficiencies in energy levels. Glucose 5% is also used to correct hydration levels. The solutions may also be used as solvents for intravenously administered drugs where compatibility has been established.

#### Contraindications

Glucose is contraindicated in the following:

- diabetic coma where blood sugar levels are excessively high
- glucose-galactose malabsorption syndrome
- anuria
- intraspinal or intracranial haemorrhage
- in dehydrated delirium tremens patients
- known allergy to corn (maize) and corn products

- patients at risk for ischaemic stroke
- use after an ischaemic stroke episode

### **Precautions**

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 cocarboxylase 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.

### **Use in Pregnancy**

Safety in pregnancy has not been established. Use only when clearly needed and potential benefits outweigh risk to the foetus.

### **Use in Children**

Glucose solutions, particularly hypertonic ones, should be used with care and under expert supervision in paediatric patients. Dosage should be adjusted accordingly. Use with caution in infants of diabetic mothers.

### **Interactions**

Parenteral fluids, especially those containing sodium ions, should be administered with caution to patients receiving corticosteroids or corticotrophin.

### **Adverse Reactions**

Glucose 5% 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 (see Precautions).

Vitamin B complex deficiency may occur with glucose administration.

### **Dosage and Administration**

Glucose 5% Injection may be administered intravenously via a peripheral vein. The maximum rate at which glucose can be administered without producing glycosuria is 0.5 g/kg/h.

The dose of glucose is dependent on the age, weight and fluid, electrolyte, glucose and acid-base balance of the patient.

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.

### **Overdosage**

Hyperglycaemia and glycosuria, if undetected, can lead to mental confusion, dehydration, hyperosmolar coma and death.

### **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.

**Presentation and storage conditions****Freeflex Bags – Store below 25°C**

Glucose 5% injection in Freeflex bags:

250mL AUST R 144672

500mL AUST R 29599

1000mL AUST R 47389

**Name and address of the sponsor**

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**Poison schedule of the medicine**

Australia: Nil

New Zealand: General Sales Medicine

**Date of Approval:** 9th May 2006

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