Approved Professional Information for DEXTROSE 50 % FRESENIUS

SCHEDULING STATUS

S3

1. NAME OF THE MEDICINE

DEXTROSE 50 % FRESENIUS solution for infusion

2. QUALITATIVE AND QUANTITATIVE COMPOSITION

Each 50 ml contains 25,0 g dextrose (anhydrous) (as dextrose monohydrate).

Each 100 ml contains 50,0 g dextrose (anhydrous) (as dextrose monohydrate.)

Each 500 ml contains 250,0 g dextrose (anhydrous) (as dextrose monohydrate).

Excipient with known effect:

Contains sugar (dextrose).

For a full list of excipients, see section 6.1.

3. PHARMACEUTICAL FORM

Solution for infusion.

Clear, colourless to straw-coloured solution of anhydrous dextrose in water for injection.

4. CLINICAL PARTICULARS

4.1 Therapeutic indications

A blood volume expander for use in cases of shock and haemorrhage and to counteract dehydration.

4.2 Posology and method of administration

The amount required can be determined only by continued observation of the patient and repeated checking of the indicators (systemic arterial and venous pressures, urinary output, etc). Dosage may (where time permits) be estimated by measuring the concentration of one of the extracellular fluid constituents (e.g. serum protein) and taking the increment over the normal value as an indication of the water deficit.

DEXTROSE 50 % FRESENIUS should not be administered through the same infusion equipment as whole blood as haemodialysis and clumping can occur.

4.3 Contraindications

DEXTROSE 50 % FRESENIUS is contraindicated in patients with:

- hypersensitivity to the active substance or to any excipients listed in section 6.1, or known allergy to maize or maize products
- anuria
- intracranial or intraspinal haemorrhage
- delirium tremens where there is dehydration
- glucose-galactose malabsorption syndrome.

DEXTROSE 50 % FRESENIUS should be administered with care to patients with diabetes insipidus.

DEXTROSE 50 % FRESENIUS tolerance may be impaired in patients with renal failure.

4.4 Special warnings and precautions for use

It has been suggested that glucose (dextrose) solutions should not be used after acute ischaemic strokes as hyperglycaemia has been implicated in increasing cerebral ischaemic brain damage and in impairing recovery.

DEXTROSE 50 % FRESENIUS should be administered via a large central vein to minimise damage at the site of injection (see section 4.2).

DEXTROSE 50 % FRESENIUS should be used with caution in patients with overt or known subclinical diabetes mellitus, carbohydrate intolerance for any reason, severe undernutrition, thiamine (vitamin B1) deficiency, hypophosphataemia, haemodilution, sepsis, trauma, shock, metabolic acidosis or severe dehydration.

Rapid administration of DEXTROSE 50 % FRESENIUS may produce substantial hyperglycaemia and hyperosmolar syndrome; patients should be observed for signs of mental confusion and loss of consciousness, especially those patients with chronic uraemia or carbohydrate intolerance.

Prolonged use in parenteral nutrition may affect insulin production; therefore, blood and urine glucose should be monitored.

DEXTROSE 50 % FRESENIUS intravenous infusion is a hypertonic solution (*in vitro*, in a container). In the body, however, glucose-containing fluids can become extremely physiologically hypotonic due to rapid glucose metabolism (see sections 4.2 and 5.2).

Depending on the tonicity of the solution, the volume and rate of infusion and depending on a patient's underlying clinical condition and capability to metabolise glucose, intravenous administration of DEXTROSE 50 % FRESENIUS can cause electrolyte disturbances, most importantly hypo- or hyperosmotic hyponatraemia.

Hyponatraemia:

Patients with non-osmotic vasopressin release (e.g. in acute illness, pain, post-operative stress, infections, burns and central nervous system (CNS) disease), patients with heart-, liver- and kidney diseases and patients exposed to vasopressin agonists (see section 4.5) are at risk of acute hyponatraemia upon infusion of hypotonic fluids.

Acute hyponatraemia can lead to acute hyponatraemic encephalopathy (brain oedema) characterised by headache, nausea, seizures, lethargy and vomiting. Patients with brain oedema are at particular risk of severe, irreversible and life-threatening brain injury.

Children, women of childbearing potential and patients with reduced cerebral compliance (e.g. meningitis, intracranial bleeding and cerebral contusion) are at particular risk of the severe and life-threatening brain swelling caused by acute hyponatraemia.

Intravenous administration of DEXTROSE 50 % FRESENIUS may result in other electrolyte disturbances such as: hypokalaemia, hypophosphataemia and hypomagnesaemia (see sections 4.2 and 4.8).

4.5 Interaction with other medicines and other forms of interaction

DEXTROSE 50 % FRESENIUS should not be administered through the same infusion equipment as whole blood, as haemodialysis and clumping can occur.

Medicines increasing the vasopressin effect, listed below, lead to reduced renal electrolyte free water excretion and increase the risk of hospital- acquired hyponatraemia following inappropriately balanced treatment with IV fluids (see sections 4.2, 4.4 and 4.8):

- medicines stimulating vasopressin release, e.g. carbamazepine, vincristine, selective serotonin reuptake inhibitors, 3,4-methylenedioxy-*N*-methamphetamine, ifosfamide, antipsychotics, narcotics
- medicines potentiating vasopressin action, e.g. NSAIDs (nonsteroidal anti-inflammatory drugs), cyclophosphamide
- vasopressin analogues, e.g. desmopressin, oxytocin, vasopressin, terlipressin.

Other medicines increasing the risk of hyponatraemia also include diuretics in general and antiepileptics such as oxcarbazepine.

4.6 Fertility, pregnancy and lactation

Safety in pregnancy and lactation has not been established.

Intravenous DEXTROSE 50 % FRESENIUS may result in fetal insulin production, with an associated risk of rebound hypoglycaemia in the neonate. Infusions of glucose administered during a Caesarean section and labour should not exceed 5 – 10 g dextrose/hour.

DEXTROSE 50 % FRESENIUS should be administered with special caution to pregnant women during labour, particularly if administered in combination with oxytocin, due to the risk of hyponatraemia (see sections 4.4, 4.5 and 4.8).

4.7 Effects on ability to drive and use machines

There is no information on the effects of DEXTROSE 50 % FRESENIUS on the ability to drive a vehicle or operate heavy machinery.

4.8 Undesirable effects

Prolonged or rapid intravenous administration of hyperosmotic solutions of glucose may lead to dehydration and glycosuria as a consequence of the induced hyperglycaemia.

System organ class (SOC)	Adverse reaction (MedDRA term)	Frequency
Metabolism and nutrition disorders	Hospital-acquired hyponatraemia*, hyperglycaemia**, hypokalaemia, hypophosphataemia, hypomagnesaemia, fluid and electrolyte imbalance	Not known***
Nervous system disorders	Hyponatraemic encephalopathy*	Not known
General disorders and administration site conditions	Pain at the injection site, vein irritation, venous thrombosis, phlebitis	Not known

* Hospital-acquired hyponatraemia may cause irreversible brain injury and death due to development of acute hyponatraemic encephalopathy (see sections 4.2 and 4.4).

** Hyperglycaemia (possibly indicated by mental confusion or loss of consciousness) and glycosuria may occur as a result of the rate of administration or metabolic insufficiency. If undetected and untreated hyperglycaemia can lead to dehydration, hyperosmolar coma and death.

*** Frequency unknown cannot be estimated from the available data.

The administration of DEXTROSE 50 % FRESENIUS without adequate levels of thiamine may precipitate overt deficiency states, e.g. Wernicke's encephalopathy. Sodium retention, oedema, pulmonary oedema and congestive heart failure may be induced in patients with severe undernutrition.

Reporting of suspected adverse reactions

Reporting suspected adverse reactions after authorisation of DEXTROSE 50 % FRESENIUS is important. It allows continued monitoring of the benefit/risk balance of DEXTROSE 50 % FRESENIUS. Health care providers are asked to report any suspected adverse reactions to

SAHPRA via the "**6.04 Adverse Drug Reactions Reporting Form**", found online under SAHPRA's publications: https://www.sahpra.org.za/Publications/Index/8.

Health care providers are asked to report any suspected adverse drug reactions to the Holder of the Certificate of Registration at the following email address: safety.fksa@fresenius-kabi.com and to the relevant medicine's regulatory authority in the country where the product is marketed.

4.9 Overdose

Overdose of DEXTROSE 50 % FRESENIUS may lead to hyperglycaemia and glycosuria, leading to dehydration, hyperosmolar coma and death. See sections 4.4 and 4.8. In these cases DEXTROSE 50 % FRESENIUS must be withdrawn.

5. PHARMACOLOGICAL PROPERTIES

5.1 Pharmacodynamic properties

Category and class: A 24 Mineral substitutes, electrolytes and trace elements.

Pharmacotherapeutic group: Carbohydrate containing solution for parenteral nutrition.

ATC code: B05BA03.

Solutions of dextrose in water supply "free" water, which can be used to make up water deficits or can be used for renal excretion of metabolites. Hyperosmotic dextrose solutions for parenteral nutrition are given by central venous catheter to minimise reactions. Similar solutions are given by intravenous injection to provide temporary relief from the symptoms of cerebral oedema and for hypoglycaemic coma, but such solutions are liable to cause venous thrombosis at the site of injection. Concentrated solutions have been used for the injection treatment of varicose veins, but

recanalisation and pulmonary embolism are likely to occur. Dextrose may be used to adjust the osmotic pressure of dialysis fluids and injections.

The metabolism of glucose is an energy source for the body.

5.2 Pharmacokinetic properties

Dextrose is rapidly metabolised into carbon dioxide and water.

6. PHARMACEUTICAL PARTICULARS

6.1 List of excipients

Hydrochloric acid (for pH-adjustment)

Water for injection.

6.2 Incompatibilities

DEXTROSE 50 % FRESENIUS should not be administered concomitantly with blood through the same infusion set, because of the possibilities of agglomeration.

6.3 Shelf life

24 months.

6.4 Special precautions for storage

Store in a dry place, at or below 25 °C.

Protect from light.

6.5 Nature and contents of container

50 ml filled in 50 ml PVC/Freeflex bag

50 ml filled in 100 ml PVC/Freeflex bag

100 ml filled in 100 ml PVC/Freeflex bag

500 ml filled in 500 ml PVC/Freeflex bag

500 ml filled in 1 000 ml PVC/Freeflex bag.

Not all pack sizes may be marketed.

6.6 Special precautions for disposal

No special requirements.

7. HOLDER OF CERTIFICATE OF REGISTRATION

Fresenius Kabi Manufacturing SA (Pty) Ltd

6 Gibaud Road

Korsten 6020

Gqeberha

South Africa

8. REGISTRATION NUMBER

L/24/196

9. DATE OF FIRST AUTHORISATION

30 January 1979

10. DATE OF REVISION OF THE TEXT

13 May 2022