Summary of Product Characteristics

1 NAME OF THE MEDICINAL PRODUCT

Sodium Chloride 0.18% w/v Glucose 4%w/v Solution for infusion

2 QUALITATIVE AND QUANTITATIVE COMPOSITION

0.18% w/v sodium chloride and 4% w/v anhydrous glucose (as glucose monohydrate).
Active component
Sodium chloride
Glucose monohydrate

Per 500ml	Per 1000ml
0.9g Na+ 15 mmol C1- 15 mmol	1.8g Na+ 30 mmol C1- 30 mmol
22.0g equivalent to 20.0g anhydrous 111 mmol	44.0g equivalent to 40.0g anhydrous 222 mmol

For a full list of excipients, see section 6.1.

3 PHARMACEUTICAL FORM

Solution for Infusion
Sterile non-pyrogenic infusion solution, colourless to faintly straw-coloured without visible particles.
pH 3.5 - 6.5
Osmolality: 290mOsm/kg H_2O (approx).

4 CLINICAL PARTICULARS

4.1 Therapeutic indications

For use in prophylactic and replacement therapy requiring the use of glucose and sodium chloride.
Paediatric Population
This product should only be used in paediatric specialist settings (such as renal, hepatic and cardiac units, high dependency units and intensive care units) for intravenous fluid therapy requiring the use of 0.18% sodium chloride and 4% glucose to maintain fluid and electrolyte balance.

4.2 Posology and method of administration

Posology
The volume of glucose sodium chloride solution needed to replenish fluid deficits varies with age, body weight, complementary treatment and severity of the clinical condition. The dose and rate of administration are typically between 500ml and 3000ml per 24 hours but are subject to clinical and laboratory assessment in each case.

Paediatric Population
Use of 0.18% sodium chloride and 4% glucose should be restricted to specialist paediatric settings such as renal, hepatic and cardiac units, high dependency units and intensive care units.
The dosage depends on the age, weight, clinical and biological (acid-base balance) conditions of the patient, concomitant therapy and should be determined by the consulting specialist.
Monitoring: Adequate urine flow must be ensured and careful monitoring of fluid balance, plasma and urinary electrolyte concentrations are essential.

Fluid balance, serum glucose, serum sodium and other electrolytes may need to be monitored before and during administration, especially in patients with increased non-osmotic vasopressin release (syndrome of inappropriate antidiuretic hormone secretion, SIADH) and in patients co-medicated with vasopressin agonist drugs due to the risk of hyponatraemia.

Monitoring of serum sodium is particularly important for physiologically hypotonic fluids. Sodium Chloride 0.18%w/v Glucose 4%w/v Solution for Infusion may become extremely hypotonic after administration due to glucose metabolization in the body (see sections 4.4, 4.5 and 4.8).
Method of administration
For intravenous infusion under medical supervision.
Single use only.

4.3 Contraindications

Administer with caution to patients with conditions of impaired sodium control such as congestive heart failure, severe renal insufficiency, cardio-pulmonary disease, cirrhosis of the liver, or to patients receiving salt steroids.
The solution must not be used in cases of:

- routine rehydration or fluid maintenance therapy
- hyperhydration states
- dehydration with hyponatraemia
- acute ischaemic stroke
- head trauma (first 24 hours)

Paediatric Population
This product should not be used in children except in paediatric specialist settings (such as renal, hepatic and cardiac units, high dependency units and intensive care units) under expert medical supervision.

4.4 Special warnings and precautions for use

The solution must be administered with caution to diabetics, patients with peripheral or pulmonary oedema, hypertension, pre-eclampsia.
The pathophysiological response to dehydration, to electrolyte loss and to glucose sodium chloride infusion will vary with the age of the patient being treated and this should be taken into account during rehydration therapy. Fluid replacement therapy should be administered with caution to very young and elderly patients.
Prior to and during infusion, serum and/or urinary electrolytes and glucose should be monitored to assess the nature and severity of fluid depletion and electrolyte imbalance. Close monitoring of patients with diabetes mellitus, and in patients with renal failure, is necessary during glucose infusion.
Paediatric Population
Intravenous fluid therapy should be closely monitored in the paediatric population as they may have impaired ability to regulate fluids and electrolytes. Adequate urine flow must be ensured and careful monitoring of fluid balance, plasma and urinary electrolyte concentrations are essential.
Glucose intravenous infusions are usually isotonic solutions. In the body, however, glucose containing fluids can become extremely physiologically hypotonic due to rapid glucose metabolization (see section 4.2).
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 metabolize glucose, intravenous administration of glucose 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 CNS diseases), patients with heart-, liver- and kidney diseases and patients exposed to vasopressin agonists (see section 4.5) are at particular risk of acute hyponatraemia upon infusion of hypotonic fluids.
Acute hyponatraemia can lead to acute hyponatraemic encephalopathy (brain oedema) characterized 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 in the fertile age 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.
The infusion of hypotonic fluids together with the non-osmotic secretion of ADH (in pain, anxiety, the post-operative state, nausea, vomiting, pyrexia, sepsis, reduced circulating volume, respiratory disorders, CNS infections, and metabolic and endocrine disorders) may result in hyponatraemia. Hyponatraemia can lead to headache, nausea, seizures, lethargy, coma, cerebral oedema and death, therefore acute symptomatic hyponatraemic encephalopathy is considered a medical emergency.
Glucose infusions are incompatible with blood for transfusion as haemolysis or clumping can occur; do not administer through the same infusion equipment as blood or blood components for transfusion (either before, during or after their administration).
Do not use unless solution is clear and the container undamaged. Thorough and careful aseptic mixing of any additives is mandatory (see section 6.6, Special precautions for disposal and other handling).

4.5 Interaction with other medicinal products and other forms of interaction

Drugs leading to an increased vasopressin effect

The below listed drugs increase the vasopressin effect, leading to reduced renal electrolyte free water excretion and increase the risk of hospital acquired hyponatraemia following inappropriately balanced treatment with i.v. fluids (see sections 4.2, 4.4 and 4.8).

- Drugs stimulating vasopressin release, e.g.:

Chlorpropamide, clofibrate, carbamazepine, vincristine, selective serotonin reuptake inhibitors, 3.4-methylenedioxy-N-methamphetamine, ifosfamide, antipsychotics, narcotics

- Drugs potentiating vasopressin action, e.g.:

Chlorpropamide, NSAIDs, cyclophosphamide

- Vasopressin analogues, e.g.:

Desmopressin, oxytocin, vasopressin, terlipressin

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

Check compatibility of medicinal products with glucose sodium chloride solution before administration with the solution. The slightly acidic pH of the solution should be taken into account. See section 6.2 Incompatibilities.

4.6 Fertility, pregnancy and lactation

It is important to avoid maternal hyperglycaemia during intravenous glucose infusion in the perinatal period in view of the possibility of inducing neonatal hypoglycaemia.

Sodium Chloride 0.18%w/v Glucose 4%w/v Solution for Infusion should be administrated with special caution for 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

Not relevant.

4.8 Undesirable effects

Blood and lymphatic system disorders.

Not known: Infusion of glucose sodium chloride solution may lead to fluid and electrolyte imbalances such as hypokalaemia, hypomagnesaemia and hypophosphataemia. Hypokalaemia may complicate glucose infusions, especially when combined with insulin in the treatment of diabetic ketoacidosis. Other adverse effects may be sodium retention, oedema.

Cardiac disorders:

Not known: Hypertension, tachycardia.

Gastrointestinal disorders:

Not known: Gastrointestinal effects.

General disorders and administration site conditions:

Not known: Prolonged intravenous infusion may lead to venous irritation and thrombophlebitis at the infusion site.

Metabolism and nutrition disorders:

Post Marketing Adverse reactions: severe hyponatraemia, which could lead to death, has been reported.

Not known: hospital acquired hyponatraemia*.

Nervous system disorders:

Not known: hyponatraemic encephalopathy *.

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

In the event of adverse reaction, stop infusion immediately.

Reporting of suspected adverse reactions
Reporting suspected adverse reactions after authorization of the medicinal product is important. It allows continued monitoring of the benefit/risk balance of the medicinal product. Healthcare professionals are asked to report any suspected adverse reactions via the national reporting system:
For United Kingdom
Yellow Card Scheme
Website: www.mhra.gov.uk/yellowcard

For Ireland
HPRA Pharmacovigilance
Earlsfort Terrace
IRL - Dublin 2
Tel: +353 1 6764971
Fax: +353 1 6762517
Website: www.hpra.ie
E-mail: medsafety@hpra.ie

4.9 Overdose

Overdosage may lead to fluid overload, electrolyte imbalance and possibly hyperglycaemia. Hyperglycaemia may need to be treated with insulin and fluid overload with a diuretic. Electrolyte disturbances may need to be treated with either sodium-free or sodium containing intravenous fluids.
In paediatric patients, hyponatraemia may be a consequence of overdose and needs urgent specialist treatment.

5 PHARMACOLOGICAL PROPERTIES

5.1 Pharmacodynamic properties

Pharmacotherapeutic group: Solutions affecting the electrolyte balance -electrolytes with carbohydrates, ATC code: B05BB02

Sodium Chloride 0.18%w/v Glucose 4%w/v Solution for Infusion is a sterile non-pyrogenic solution. Glucose is a physiological carbohydrate, a simple and easily assimilatable source of energy. In parenteral nutrition glucose allows intracellular rehydration and also serves as an alternative energy source to protein and lipid catabolism. Sodium and chloride contribute to acid-base balance. Sodium is the principal cation in extracellular fluid and is the main osmotic component in control of blood volume.

5.2 Pharmacokinetic properties

Glucose can be utilized immediately, metabolized by glycolysis or the pentose phosphate pathway into carbon dioxide and water, with the release of energy, or stored in liver and muscle. Normal blood concentration is approximately 0.80g/l.Glucose is normally filtered by the glomerules but total reabsorption by the proximal tubule occurs at concentrations below 1.8g/l. The maximum rate of glucose utilization is estimated to be about 500 – 800mg per kg body-weight per hour.
Sodium is principally distributed into extracellular fluid (44%), skeleton (47%) and intracellular fluid (8%). Half life is 11 – 13 days. Excretion is predominantly by renal filtration and reabsorption by the proximal tubule, with a small quantity excreted by faeces, sweat and saliva. The pharmacokinetics of chloride are linked to those of sodium.

5.3 Preclinical safety data

Non-clinical data reveal no special hazard for humans based on conventional studies of safety, pharmacology, repeated dose toxicity, genotoxicity, carcinogenic potential, toxicity to reproduction and development.

6 PHARMACEUTICAL PARTICULARS

6.1 List of excipients

Water for Injections

6.2 Incompatibilities

In the absence of compatibility studies this medicinal product must not be mixed with other medicinal products.
Confirm additive compatibility before use. The extent of incompatibility can vary with concentration of additive, the delay between addition of additive and infusion, conditions of storage after addition of additive, and duration of infusion.

6.3 Shelf life

2 years.
After opening overwrap: Use immediately on removal from overwrap.

6.4 Special precautions for storage

Do not store above 25°C. Do not freeze. Store in the original package to prevent moisture loss.

6.5 Nature and contents of container

COSINUS^{PVC} flexible PVC bags containing 500ml or 1000ml solution, with an infusion site and polycarbonate-latex injection site for addition of medicinal products. Bags are individually overwrapped in transparent polypropylene laminate.

Not all pack sizes may be marketed.

6.6 Special precautions for disposal and other handling

Do not use unless the solution is clear and the container undamaged.
Discard any unused solution. Do not reconnect partially used bags.
The space between the bag and the overwrap is not guaranteed sterile.
Any unused product should be disposed of in accordance with local requirements.
Remove the bag from the plastic overwrapping. Remove the twist-off protector of the infusion site and connect by clamping to the administration set.

Addition of medicinal products: Confirm additive compatibility before addition through the injection port. Clean the injection site using antiseptic solution. Carefully introduce the sterile needle into the sterile chamber in the latex injection site, attach the needle to the container with the medicinal product, introduce the needle through the second latex membrane into the bag and inject the medicine. Carefully withdraw the needle. Mix thoroughly with the solution. Use immediately.

7 MARKETING AUTHORISATION HOLDER

Carelide
Rue Michel Raillard
59420 Mouvaux
France

8 MARKETING AUTHORISATION NUMBER

PA22859/003/001

9 DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION

Date of first authorisation: 03 December 2001

Date of last renewal: 19 August 2010

10 DATE OF REVISION OF THE TEXT

October 2022