APPROVED PROFESSIONAL INFORMATION

SCHEDULING STATUS

S3

1. NAME OF THE MEDICINE

SODIUM CHLORIDE 0,9 % FRESENIUS

Solution for Infusion

2. QUALITATIVE AND QUANTITATIVE COMPOSITION

Each 50 mL contains 0,45 g sodium chloride

Each 100 mL contains 0,9 g sodium chloride

Each 200 mL contains 1,8 g sodium chloride

Each 500 mL contains 4,5 g sodium chloride

Each 1 000 mL contains 9,0 g sodium chloride

Electrolyte concentrations:

Sodium (Na^+): 154 mmol/L

Chloride (Cl^-): 154 mmol/L

Sugar free.

For the full list of excipients, see section 6.1.

3. PHARMACEUTICAL FORM

Solution for Infusion

Clear, colourless, sterile solution

4 CLINICAL PARTICULARS

4.1 Therapeutic indications

SODIUM CHLORIDE 0,9 % FRESENIUS solution for infusion is used in a wide range of clinical situations:

- Prevention of fluid and electrolyte deficits or imbalances
- Corrections of fluid and electrolyte deficits or imbalances.

4.2 Posology and method of administration

Posology

Dosage depends on the extent of electrolyte loss, which must be assessed by the attending doctor. When physiological conditions are re-established, dosage must be reduced.

Method of administration

Administered intravenously, using sterile equipment.

4.3 Contraindications

SODIUM CHLORIDE 0,9 % FRESENIUS is contraindicated in:

- Hypersensitivity to sodium chloride or to any of the excipients (see section 6.1).

4.4 Special warnings and precautions for use

- Use only if solution is clear and free from visible particles.
- Discontinue infusion if any adverse reactions occur.
- Check for adequate renal function and clinical signs of hydration.
- Sodium salts should be administered with caution to patients with hypertension, heart failure, peripheral or pulmonary oedema, impaired renal function or pre-eclampsia.
- Care should also be taken when administering sodium chloride intravenously to very young or elderly patients.

- In order to prevent osmotic demyelination syndrome from developing, the increase in serum sodium concentrations should not exceed 9 mmol/L/day. As a general recommendation, a rate of correction of 4 to 6 mmol/L/day is considered appropriate in the majority of cases, depending on the patient's conditions and associated risk factors. Clinical monitoring should include checks of the serum ionogram, water balance and the acid-base balance.
- If the rapid infusion of 0,9 % NaCl is required, the cardiovascular and respiratory status should be monitored closely.

Fluid balance/renal function

Use in patients with (severe) renal impairment.

Sodium chloride should be administered with particular caution to patients with or at risk of severe renal impairment. In such patients, administration of SODIUM CHLORIDE 0,9 % FRESENIUS may result in sodium retention. (See "Use in patients at risk for sodium retention, fluid overload and oedema" below for additional considerations).

Risk of fluid and/or solute overload and electrolyte disturbances

Depending on the volume and rate of infusion, intravenous administration of SODIUM CHLORIDE 0,9 % FRESENIUS can cause:

- Fluid and/or solute overload resulting in overhydration/hypervolemia and, for example, congested states, including central and peripheral oedema.
- Clinically relevant electrolyte disturbances and acid-base imbalance.

In general, the risk of dilutional states (retention of water relative to sodium) is inversely proportional to the electrolyte concentrations of SODIUM CHLORIDE 0,9 % FRESENIUS and its additions. Conversely, the risk of solute overload causing congested states (retention of solute relative to water) is directly proportional to the electrolyte concentrations of SODIUM CHLORIDE 0,9 % FRESENIUS and its additions.

Special clinical monitoring is required at the beginning of any intravenous infusion. Clinical evaluation and periodic laboratory determinations may be necessary to monitor changes in fluid balance, electrolyte concentrations, and acid-base balance during prolonged parenteral therapy or whenever the condition of the patient or the rate of administration warrants such evaluation.

High volume infusions must be used under specific monitoring in patients with cardiac or pulmonary failure and in patients with non-osmotic vasopressin release (including SIADH), due to the risk of hospital-acquired hyponatraemia (see below).

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 (cerebral oedema) characterized by headache, nausea, seizures, lethargy, and vomiting. Patients with cerebral 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, cerebral confusion, and brain oedema) are at particular risk of the severe and life-threatening brain swelling caused by acute hyponatraemia.

Use in patients at risk for sodium retention, fluid overload and oedema.

SODIUM CHLORIDE 0,9 % FRESENIUS should be used with particular caution, if at all, in patients with or at risk for:

- Hypernatraemia. Rapidly correcting hypernatraemia once adaptation has occurred may lead to cerebral oedema, potentially resulting in seizures, permanent brain damage, or death.
- Hyperchloraemia
- Metabolic acidosis, which may be worsened by prolonged use of this product, especially in patients with renal impairment.
- Hypervolaemia. Congestive heart failure and pulmonary oedema may be precipitated, particularly in patients with cardiovascular disease.
- Iatrogenic hyperchloraemic metabolic acidosis (e.g., during intravenous volume resuscitation)
- Conditions that may cause sodium retention, fluid overload and oedema (central and peripheral), such as patients with:
  - primary hyperaldosteronism,
  - secondary hyperaldosteronism, associated with, for example:
    - hypertension
    - congestive heart failure
    - liver disease (including cirrhosis)
    - renal disease (including renal artery stenosis, nephrosclerosis) or pre-eclampsia.

Sodium chloride should also be used with particular caution, if at all, in patients in receipt of medicines that may increase the risk of sodium and fluid retention, such as corticosteroids (see section 4.5).

Infusion reactions

Symptoms of unknown aetiology which can appear to be hypersensitivity reactions have been reported very rarely in association with infusion of SODIUM CHLORIDE 0,9 % FRESENIUS. These have been characterized as hypotension, pyrexia, tremor, chills, urticaria, rash and pruritus. Stop the infusion immediately if signs or symptoms of these reactions develop.

Appropriate therapeutic countermeasures should be instituted as clinically indicated.

Specific patient groups

The consulting physician should be experienced in SODIUM CHLORIDE 0,9 % FRESENIUS use and safety in these special populations that are especially sensitive to rapid changes in serum sodium levels. Rapid correction of hyponatraemia and hypernatraemia is potentially dangerous (risk of serious neurologic complications). See section " *Hyponatraemia/hypernatraemia"* above.

Paediatric population

Premature or newborn babies may develop excess sodium levels due to immature kidney function. Therefore, repeated sodium chloride infusions should only be administered after serum sodium levels have been determined.

Geriatric population

When selecting the type of infusion solution and the volume/rate of infusion for a geriatric patient, consider that geriatric patients are generally more likely to have cardiac, renal, hepatic, and other diseases or concomitant medicine therapy.

4.5 Interaction with other medicines and other forms of interaction

Medicines leading to sodium retention.

The simultaneous use of sodium-retaining medicines (e.g. corticosteroids, nonsteroidal anti-inflammatory medicines) can lead to oedema (see section 4.4).

Medicines leading to an increased vasopressin effect.

The below listed medicines increase the vasopressin effect, leading to reduced renal electrolyte free water excretion and may increase the risk of hospital acquired hyponatraemia

following inappropriately balanced treatment with intravenous fluids (see sections 4.2, 4.4 and 4.8).

- Medicines stimulating vasopressin release include: Chlorpropamide, clofibrate, carbamazepine, vincristine, selective serotonin reuptake inhibitors, 3.4-methylenedioxy-N-methamphetamine, ifosfamide, antipsychotics, narcotics.
- Medicines potentiating vasopressin action include: Chlorpropamide, NSAIDs, cyclophosphamide.
- Vasopressin analogues include: Desmopressin, oxytocin, terlipressin

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

Caution is advised in patients treated with lithium. Renal sodium and lithium clearance may be increased during administration of SODIUM CHLORIDE 0,9 % FRESENIUS. Administration of SODIUM CHLORIDE 0,9 % FRESENIUS may result in decreased lithium levels.

4.6 Fertility, pregnancy, and lactation

Pregnancy

There are no data from the use of SODIUM CHLORIDE 0,9 % FRESENIUS in pregnant women. Similarly, animal studies are insufficient with respect to reproductive toxicity.

Given that the concentrations of sodium and chloride are similar to those, found in the human body, no harmful effects are to be expected when the product is used correctly. SODIUM CHLORIDE 0,9 % FRESENIUS may therefore be used as stated.

SODIUM CHLORIDE 0,9 % FRESENIUS should be administrated with special caution for pregnant women during labour particularly as to serum-sodium if administered in combination with oxytocin (see sections 4.4, 4.5 and 4.8).

Caution must be exercised, however, in the event of eclampsia (see section 4.4).

When SODIUM CHLORIDE 0,9 % FRESENIUS is used in combination with another medicine, the nature of the other medicine and its use during pregnancy and lactation has to be considered separately.

Lactation

Sodium chloride is excreted in human milk. Given that the concentrations of sodium and chloride are similar to those found in the human body, no harmful effects are to be expected when the product is used correctly.

SODIUM CHLORIDE 0,9 % FRESENIUS may be used during lactation if required.

Fertility

No data are available.

4.7 Effects on ability to drive and use machines.

SODIUM CHLORIDE 0,9 % FRESENIUS has no or negligible influence on the ability to drive and use machines.

4.8 Undesirable effects

Tabulated summary of adverse reactions

MedDRA System Organ Class	**Adverse Reactions**
Metabolism and nutrition disorders	*Not known:* Hospital acquired hyponatraemia*
Nervous system disorders	*Not known:* Tremor, acute hyponatraemic encephalopathy*
Vascular disorders	*Not known:* Hypotension

MedDRA System Organ Class	**Adverse Reactions**
Skin and subcutaneous tissue disorders	*Not known:* Urticaria, rash, pruritus
General disorders and administration site conditions	*Not known:* Infusion site reactions, such as: • Infusion site erythema • Vein irritation, infusion site streaking, burning sensation. • Local pain or reaction, infusion site urticaria • Infection at the site of infusion • Venous thrombosis or phlebitis extending from the site of infusion, extravasation and hypervolemia. • Pyrexia • Chills

*Hospital acquired hyponatraemia may cause irreversible brain injury and death, due to development of acute hyponatraemic encephalopathy, frequency unknown.

Description of selected adverse reactions

Continued infusion may lead to dilutional hyponatraemia and expanded extracellular volume. Convulsions can result from iatrogenically induced hypernatraemia.

General adverse effects of sodium excess are described in section 4.9.

Reporting of suspected adverse reactions

Reporting suspected adverse reactions after authorisation of the medicine is important. It allows continued monitoring of the benefit/risk balance of the medicine. Healthcare providers are requested to report any suspected adverse drug reactions to SAHPRA via the Med Safety

APP (Medsafety X SAHPRA) and eReporting platform (who-umc.org) found on SAHPRA website.

Healthcare 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

Symptoms

Excessive administration of SODIUM CHLORIDE 0,9 % FRESENIUS may cause hypernatremia, hyperchloremia, hyperhydration, acute volume overload, oedema, serum hyperosmolality and hyperchloremic acidosis.

In patients with chronic hyponatraemia, a rapid rise in the serum sodium concentration can lead to osmotic demyelination syndrome (see section 4.4).

The first signs of overdose may be thirst, confusion, sweating, headache, weakness, drowsiness or tachycardia. Hypertension or hypotension, respiratory failure or coma may occur in the event of severe hypernatremia.

Treatment

Depending on the severity of the symptoms, immediate stopping of the infusion and administration of diuretics whilst constantly monitoring serum electrolytes, and correction of electrolyte and acid-base imbalances.

Dialysis may be required in the event of major overdosage or oliguria or anuria.

5. PHARMACOLOGICAL PROPERTIES

5.1. Pharmacodynamic properties

A 24 Mineral substitutes, electrolytes

ATC code: B05B B01

Mechanism of action

Sodium is the primary cation in the extracellular space and, together with various anions, regulates the size of the latter. Sodium is one of the major mediators of bioelectric processes within the body.

Chloride is the main osmotically active anion in the extracellular space.

A rise in the serum chloride concentration leads to increased renal bicarbonate excretion.

An acidifying effect is therefore induced through the administration of chloride.

Pharmacodynamic properties

The sodium content and fluid metabolism in the body are closely connected. Each deviation in plasma sodium from the physiological concentration simultaneously affects the body's fluid status.

Independently of serum osmolality, a rise in the sodium content within the body also means a drop in free body water.

An 0,9 % solution of sodium chloride has the same osmolarity as plasma. Administration of this solution leads primarily to filling of the interstitial space, which represents roughly 2/3 of the whole extracellular space. Only 1/3 of the volume administered remains in the intravasal space. The haemodynamic effect of the solution is therefore only short-lasting.

5.2. Pharmacokinetic properties

Absorption

As the solution is administered as an intravenous infusion, the bioavailability of the solution is 100 %.

Distribution

The body's total sodium content is approximately 80 mmol/kg (5600 mmol), of which 300 mmol can be found in intracellular fluid in a concentration of 2 mmol/L and 2500 mmol of which are bound in bones.

Approximately 2 mol can be found in extracellular fluid in a concentration of 135 – 145 mmol/L (3,1 - 3,3 g/L).

The total chloride content in the body is approximately 33 mmol/kg bodyweight. Serum chloride ranges from 98 to 108 mmol/L.

Biotransformation

Although sodium and chloride are absorbed, distributed and excreted, they are not metabolised in the strict sense.

The kidneys are the main regulators of sodium and fluid balance. Together with hormonal control mechanisms (renin-angiotensin-aldosterone system, antidiuretic hormone) and with the hypothetical natriuretic hormone, they are chiefly responsible for keeping the volume of the extracellular space constant and for its fluid composition.

Chloride is exchanged for hydrogen carbonate in the tubule system and, in this way, is involved in the regulation of the acid-base balance.

Elimination

Sodium and chloride are excreted via sweat, urine and the gastrointestinal tract.

6 PHARMACEUTICAL PARTICULARS

6.1 List of excipients

Water for injection

Hydrochloric acid (pH adjustment)

Sodium hydroxide (pH adjustment)

6.2 Incompatibilities

Additives may be incompatible.

6.3 Shelf life

24 months

6.4 Special precautions for storage

Store at or below 25 ºC.

6.5 Nature and contents of container

1 or 50 or 60 x 50 mL *free***flex** (non-PVC) bags

1 or 40 or 50 x 100 mL flexible *free***flex** (non-PVC)

1 or 30 or 40 x 200 mL flexible *free***flex** (non-PVC)

1 or 18 or 20 x 500 mL flexible *free***flex** (non-PVC)

1 or 12 x 1 000 mL flexible *free***flex** (non-PVC)

500 mL and 1 000 mL polyethylene bottles

Not all packs and pack sizes may be marketed.

6.6 Special precautions for disposal and other handling

The containers are intended for single use only. After administration, the container and any remaining solution are to be discarded.

Do not use if the solution is not clear and colourless, and free from visible particles, or if the container and its closure show any visible signs of damage.

7. HOLDER OF CERTIFICATE OF REGISTRATION / MANUFACTURER

Fresenius Kabi Manufacturing SA (Pty) Ltd

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8. REGISTRATION NUMBER

C/24/219

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1 August 1972

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28 August 2025.

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