

SODIUM CHLORIDE 20%

NEWBORN USE ONLY

2017

Alert	Osmolarity: Sodium chloride 20%: 6846 mOsm/L ¹ . High risk of extravasation if administered undiluted. Sodium supplementation is not always appropriate and fluid restriction may be appropriate in the management of hyponatraemia. Treatment should always be tailored to the cause.				
Indication	Treatment of hyponatraemia.				
Action	Sodium is the major cation in extracellular fluid.				
Drug Type	Sodium chloride 20% contains 200 g/L sodium chloride, equivalent to 3.4 mmol/mL of sodium.				
Trade Name	Sodium chloride 20%				
Presentation	Sodium chloride 20% – 10 mL ampoule. Can be used for both IV and oral routes. Refer to administration section.				
Dosage/Interval	<p><u>Severe hyponatraemia < 120 mmol/L or symptomatic hyponatraemia</u></p> <p>IV: CAUTION—CANNOT BE GIVEN UNDILUTED. REFER TO PREPARATION/DILUTION SECTION FOR DETAILS.</p> <p>Infuse sodium chloride at 0.4 mmol/kg/hour until symptoms abate or sodium \geq 120 mmol/L.</p> <p>Then infuse sodium chloride at 0.15 mmol/kg/hour for 48 hours or until desired sodium is achieved.</p> <p>Therapeutic goal is to increase sodium by 7 mmol/L/day.</p> <p><u>IV supplementation</u> Start at 2–4 mmol/kg/day and increase as required.</p> <p><u>Oral supplementation</u> Start at 2–4 mmol/kg/day (0.6–1.2 mL/kg/day) and increase as required, divided into 3–12 doses.</p>				
Route	IV, PO				
Maximum Dose					
Preparation/Dilution	<p>IV infusion: Draw up 6 mL (20 mmol sodium) of sodium chloride 20% and add 44 mL of WFI to make a final volume of 50 mL with a concentration of 0.4 mmol/mL. 1 mL/kg/hour = 0.4 mmol/kg/hour (9.6 mmol/kg/day).</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Infusion rate</th> <th style="text-align: center;">Prescribed amount</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1 mL/kg/hour = 0.4 mmol/kg/hour</td> <td style="text-align: center;">6 mL of sodium chloride 20% and make up to 50 mL of water for injection</td> </tr> </tbody> </table> <p style="text-align: center;">*1 mL/kg of 0.4 mmol/mL of sodium chloride will raise serum sodium by 0.8 mmol/L.²</p> <p>Oral: To be given mixed with feeds. Sodium chloride 20% oral solution (prepared in-house by pharmacy decanting 20% sodium chloride from IV ampoules into bottles for oral dosing).</p>	Infusion rate	Prescribed amount	1 mL/kg/hour = 0.4 mmol/kg/hour	6 mL of sodium chloride 20% and make up to 50 mL of water for injection
Infusion rate	Prescribed amount				
1 mL/kg/hour = 0.4 mmol/kg/hour	6 mL of sodium chloride 20% and make up to 50 mL of water for injection				
Administration	<p>IV: IV infusion. Must be diluted as above prior to IV infusion.</p> <p>Oral: Sodium chloride 20% – to be given mixed with feeds. Divide the daily oral dose into 3–12 doses, aiming for a small but practical volume.</p>				
Monitoring	<p>IV: Watch the local site for signs of extravasation. Oral: Watch for signs of gastric irritation. Monitor serum sodium as per clinical team’s recommendation.</p>				
Contraindications	Oral: Infants who are not taking any enteral nutrition, acute gastrointestinal illness including ileus, necrotising enterocolitis, intestinal obstruction.				

SODIUM CHLORIDE 20%

NEWBORN USE ONLY

2017

Precautions	Impaired renal function, cardiac insufficiency, pre-existing oedema with sodium retention.
Drug Interactions	No information.
Adverse Reactions	<p>Hypernatraemia, volume overload, congestive heart failure, respiratory distress</p> <p>Hyperchloraemia, hypercalciuria</p> <p>Disseminated intravascular coagulation (DIC) is associated with inadvertent injections of sodium chloride into blood vessels of the uterus or placenta due to hypernatraemic shock. Not reported in infants.</p> <p>Osmotic demyelinating syndrome.</p> <p>Fever</p> <p>IV site: Extravasation, phlebitis, venous thrombosis.</p> <p>Oral: Gastric irritation.</p>
Compatibility	<p>IV Fluids: Glucose 5%, glucose 10%, glucose 5% in sodium chloride 0.9%, glucose 5% in sodium chloride 0.45%, sodium chloride 0.9%, sodium chloride 0.45%.</p> <p>Y site: No information.</p>
Incompatibility	<p>IV Fluids: Fat emulsion.</p> <p>Y site: No information.</p> <p>Amino Acid solutions – No information.</p>
Stability	PO: Expiry 8 days from manufacture.
Storage	<p>IV: Store at room temperature, 20–25°C.</p> <p>PO: Refrigerate (2–8°C).</p>
Special Comments	<p>Osmolarity of undiluted hypertonic sodium chloride is >1000 mOsm/L, posing the risk of extravasation for peripheral IV solutions.^{3,4} So, local consensus was to bring the osmolarity of IV preparation to 2.4% sodium chloride that has 0.4 mmol/L of sodium and an estimated osmolarity of 855 mOsm/L.</p> <p>Total body water is traditionally calculated as weight x 0.6 in children. Greater total body water content in newborns should be considered and therefore should be calculated as weight x 0.75.^{2,5}</p>
Evidence summary	Refer to full version.
References	Refer to full version.

Original version Date: 06/09/2017	Author: NMF Consensus Group
Current Version number: 1.0	Version Date: 06/09/2017
Risk Rating: Medium	Due for Review: 06/09/2020
Approved by: JHCH CQ&PCC	Approval Date: 26/09/2017

Authors Contribution

Original author/s	Chris Wake, Srinivas Bolisetty
Pharmacy Review	Ushma Trivedi
Expert review	
Evidence Review	Timothy Schindler
Final content and editing review	Ian Whyte
Facilitator/s	Srinivas Bolisetty