

Nursing Service Guidelines (General) Electrolyte Infusion Guidelines

Title: ELECTROLYTE INFUSION GUIDELINES
Registered Nurse (RN)

Responsibility:

Purpose: To provide the RN with infusion guidelines of electrolytes for safe administration that prevents complications.

Specific Notes: The adult electrolyte infusion guidelines serve as suggested rates for intravenous electrolyte infusions. Endorsed by the Pharmacy and Therapeutics Committee, the guidelines include recommendations for patients in both ICU and non-ICU settings. Rates faster or slower than those suggested may be indicated in specific patient situations, under the direct supervision of a physician.

ADULT ICU ELECTROLYTE INFUSION GUIDELINES



	Calcium (Ca)	Magnesium (Mg)	Phosphate (PO ₄)	Potassium (K)
Standard Infusion rate	Gluconate or Chloride: 1 gm over 60 min. ¹	Peripheral: 2 gm/hr Central: 2 gm/hr	Central or Peripheral: 15-30 mMol/6 hrs. ³	Peripheral: 10 mEq/hr ⁴ Central: 20 mEq/hr ⁴
Maximum rate	Gluconate: 1 gm over 5 min. ¹ Chloride: 1 gm over 10 min. ¹	Peripheral: 2 gm/hr Central: 2 gm/hr Emergency: 1 gm/7 min. ² (150 mg/min)	Peripheral: 15mmol/2 hrs Central: 15 mmol/hr. ³	Peripheral: 10 mEq/hr ⁴ Central: 40 mEq/hr ⁴
Standard Concentration	Gluconate: 1-2 gm/100 mL NS Chloride: 1-2 gm/100 mL D5W	1 gm/100 mL D5W 2 gm/50 ml SW *for central line administration only	3-30 mmol/250 mL D5W	Peripheral: 10 mEq/100 mL Central: 20 mEq/50 mL
Maximum Concentration	Gluconate: 1 gm/50 ml D5W or NS ¹ Chloride: 1 gm/50 ml D5W or NS ¹	1 gm in 10 ml D5W or NS ²	Peripheral: 6mmol/100ml Central: 24 mmol/100ml	Peripheral: 10 mEq/50 mL ⁴ Central: 20 mEq/50 mL ⁴

ADULT NON-ICU ELECTROLYTE INFUSION GUIDELINES

	Calcium (Ca)	Magnesium (Mg)	Phosphate (PO ₄)	Potassium (K)
Standard Infusion rate	Gluconate or Chloride: 1 gm over 60 min. ¹	1 gm/hr ²	Central or Peripheral: 15 mMol/6 hrs. ³	Peripheral: 10 mEq/hr ⁴ Central: 10-20 mEq/hr ⁴
Maximum rate	Gluconate or Chloride: 1 gm/10 min. ¹	2 gm/hr ² *via central line only; patient must have cardiac monitoring	Peripheral: 15mmol/2 hrs Central: 15 mmol/hr. *must be in cardiac monitored bed	Peripheral: 10 mEq/hr ⁴ Central: 20 mEq/hr ⁴
Maximum Intravenous Dose		20 gm/24 hrs ² Eclampsia: 40 gm/ 24 hrs ²		
Standard Concentration	Gluconate: 1gm/100 mL NS Chloride: 1gm/100 mL D5W	1 gm/100 mL D5W 2 gm/50 ml SW *for central line administration only	3-15 mMol/250 mL D5W	Peripheral: 10 mEq/100 mL Central: 20 mEq/50 mL
Maximum Concentration	Gluconate: 1gm in 50 mL D5W or NS ¹ Chloride: 1gm in 50 mL D5W or NS ¹	1 gm in 10 mL D5W or NS ²¹	Peripheral: 6mmol/100ml Central: 24 mmol/100ml	Peripheral: 10 mEq/50 mL ⁴ Central: 20 mEq/50 mL ⁴

INJECTABLE ELECTROLYTE PRODUCTS 6

	Vial Concentration	Administration Tips
Calcium (Ca)	Chloride 1 gm/10 mL (10%) 1 mL = 27 mg Ca = 1.36 mEq Ca Gluconate 1 gm/10 mL (10%)	Do not administer calcium gluconate faster than 200mg/min. Do not administer calcium chloride faster than 100mg/min except in emergency

	Vial Concentration	Administration Tips
	1 mL = 9.3 mg Ca = 0.46 mEq Ca	<p>situations.</p> <p>Gluconate salt is less irritating, yet contains less Ca per mL than chloride salt</p> <p>Administer via central line if possible to help minimize irritation</p> <p>Calcium chloride cannot be given IM or SC because severe tissue necrosis may occur</p> <p>Rapid administration may cause bradycardia, hypotension and vasodilation. Infiltration of IV calcium may cause severe tissue necrosis and sloughing</p>
Magnesium (Mg)	Sulfate 1 gm/2 mL (50%) 1 gm = 8.12 mEq Mg	<p>Rapid magnesium infusion should be reserved for emergencies or severe symptoms of hypomagnesemia. Retention of magnesium is improved with slower infusion.</p> <p>Must dilute with 3 to 8ml of NS for a 10-20% solution prior to IV infusion of any kind</p> <p>Administration of higher doses requires ECG monitoring; cases involving potentially lethal ventricular arrhythmias may require higher doses under close medical supervision</p> <p>Administration guidelines differ when used in obstetrical patients for tocolysis</p>
		
		

TREATMENT OF PHLEBITIS

	Method of Choice for IV irritation (pain)	Dose and Administration
Calcium (Ca)	1) Stop infusion until pain subsides 2) Slowing the infusion rate upon restart 3) Increasing the dilution 4) Using a large bore vein	2) Peripheral: Dilution to 2-10% ¹
Magnesium (Mg)	1) Slowing the infusion rate 2) Increasing the dilution 3) Using a large bore vein	

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Phosphate (PO₄)	1) Slowing the infusion rate 2) Increasing the dilution 3) Using a large bore vein	
Potassium (K)	1) Slowing the infusion rate 2) Increasing the dilution 3) Using a large bore vein	

Resources: Pharmacy & Therapeutics Committee

Approved: 8/2009

Reviewed: 9/27/2012, 3/14, 2/17

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Reviewed by: Nursing Service Policy and Standards Committee 7/17, 7/2020

References:

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3. *Potassium/Sodium Phosphate*. [Lexicomp](#). Accessed 6/19/2020 from UpToDate.com
4. *Potassium Chloride*. [Lexicomp](#). Accessed 6/19/2020 from UpToDate.com
5. *Lexi-Comp Drug Information Handbook 2008-2009*; pp.250-251; 1269-1270.
6. *Electrolytes*. Global RPh. Accessed 6/8/09 from www.globalrph.com