

Appendix 1. IV electrolyte repletion protocol for the surgical intensive care unit. Original French version © 2007 Centre hospitalier universitaire de Sherbrooke. Authors' translation (for purposes of publication). Reproduced with permission.



IV Electrolyte Replacement Protocol in Surgical Intensive Care Unit (SICU)

Date : _____ Hour : _____

- Exclusion criteria:**
- Serum creatinine > 1.36 mg/dl, CrCl < 40 mL/min or urinary output < 30 mL/h × 2 h before electrolyte repletion
 - Renal replacement therapy
 - Diabetic ketoacidosis
 - Weight < 45 kg
 - Age < 18 years

- Follow-up:**
- Serum concentration of creatinine, potassium, magnesium, phosphate and calcium every 24-48h.
 - Serum concentration 6h after potassium repletion.
 - Serum concentration every 24h after magnesium, phosphate and calcium repletion.

Potassium (K) notify Md if pH > 7.45

| Serum concentration mmol/L | Peripheral IV line ^a | Central IV line ^b |
|--|------------------------------------|-----------------------------------|
| 3.1 to 3.5 | 40meq KCl / 200mL in water over 2h | 40meqKCl / 100mL in water over 2h |
| 2.5 to 3.0 | 60meq KCl / 300mL in water over 3h | 60meqKCl / 150mL in water over 3h |
| <2.5 notify Md , Check Mg serum concentration | 80meq KCl / 400mL in water over 4h | 80meqKCl / 200mL in water over 4h |

Use prepacked K 20meq / 100mL for peripheral line^a or 20meq / 50mL for central line^b

Magnesium (Mg)

| Serum concentration mmol/L | Peripheral IV line or central IV line |
|----------------------------|---|
| 0.55 to 0.8 | 4g Mg sulfate / 100mL of _____ (NaCl 0.9% or D5%) over 4h |
| 0.40 to 0.54 | 6g Mg sulfate / 250mL of _____ (NaCl 0.9% or D5%) over 4h |
| < 0.40 notify Md | 8g Mg sulfate / 250mL of _____ (NaCl 0.9% or D5%) over 4h |

Phosphate (PO₄)

| Serum concentration mmol/L | Peripheral IV line or central IV line |
|----------------------------|--|
| 0.60 to 0.89 | 15mmol Na phosphate /100mL of _____ (NaCl 0.9% or D5%) over 2h |
| 0.40 to 0.59 | 30mmol Na phosphate /100mL of _____ (NaCl 0.9% or D5%) over 4h |
| < 0.40 notify Md | 45mmol Na phosphate /250mL of _____ (NaCl 0.9% or D5%) over 6h |

Calcium (Ca) Notify Md if phosphate > 2 mmol/L or pH > 7.45

| Serum concentration ionized Ca mmol/L | Peripheral IV line or central IV line |
|---------------------------------------|---|
| 0.80 to 0.99 | 2g Ca gluconate in 100mL of _____ (NaCl 0.9% or D5%) over 2 h (= 180mg of elementary Ca or 20ml) |
| 0.60 to 0.79 notify Md | 3g Ca gluconate in 250 mL of _____ (NaCl 0.9% or D5%) over 3 h (= 270mg of elementary Ca or 30ml) |
| < 0.60 notify Md | 4g Ca gluconate in 250 mL of _____ (NaCl 0.9% or D5%) over 4 h (= 360mg of elementary Ca or 40 ml) |

Check Mg serum concentration
 Ca and PO₄ follow-up in 6h

Md Name: _____ Signature: _____ Lic: _____

Pharmacist Name: _____ Signature: _____ Lic: _____

Supplementary material for Couture J, Létourneau A, Dubuc A, Williamson D. Evaluation of an electrolyte repletion protocol for cardiac surgery intensive care patients. *Can J Hosp Pharm.* 2013;66(2):96-103.