



CRRT USING LOW CONCENTRATION 18/0 CITRATE SOLUTION AND THE PRISMAX SYSTEM ORDER SET

PATIENT LABEL

Harmonized

Height: _____ cm Weight: _____ kg

No Known Allergies

Allergies: _____

Access site _____

For internal jugular or subclavian site: Ensure Chest X-ray has been ordered, performed and line position confirmed by MD prior to use

Patient Weight _____ kg

Initial Bloodwork (if not already done this hospital admission)

- Ionized calcium, Sodium, Ca, Glucose, HBsAg, Potassium, Total CO2, Chloride, Albumin, Phosphate, Magnesium, POCT ABG, Creatinine, Anion Gap, CBC, INR, PTT

Calcium Chloride Bolus

Give IV calcium chloride bolus(es) prior to starting CRRT if pre-CRRT ionized calcium is low, as per the nomogram below:

Table with 2 columns: Patient's Ionized Calcium and Calcium Chloride Bolus. Rows show calcium levels (Less than 0.76, 0.76-0.85, 0.86-0.95, 0.96-1.14, 1.15 or greater) and corresponding bolus instructions.

Notify nephrologist if the patient's ionized calcium remains less than 0.96 mmol/L and CRRT is not started within _____ hours

Practitioner, Nurse, Clerk signature and date/time fields.



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CRRT Setup

- Mode: Continuous Venovenous Hemodiafiltration (CVVHDF)
- Prismaflex Filter Set (**select one**)
 - ST150 (**default**) ST100 Other (specify): _____
 - (HF1400 (Polysulphone) can be considered for patients on ACE inhibitor in last 24 hours)
- Prime with one litre of 0.9% NaCl
- Re-prime with second litre of 0.9% NaCl
- Update most recent hematocrit in CRRT program at least once daily

Blood Flow Rate (BFR) pump

- Start blood flow rate at 150 mL/min. May adjust BFR from 130 to 180 mL/min prn to keep access pressures between -50 and -220 mmHg

Pre Blood Pump (PBP) anticoagulation solution (via PBP scale on Prismaflex, White)

- Low concentration 18/0 citrate (citrate=18, citric acid=0, Na=140, Cl=86) with a starting target citrate concentration of:
 - 3 mmol/L (**default**) OR 2 mmol/L (**liver failure precautions**)
 - OR Other _____ mmol/L
- Adjust the target citrate concentration based on the post-filter ionized calcium as per the *CRRT Low Concentration 18/0 Citrate Solution Infusion Protocol*

*****Note: the low concentration 18/0 citrate solution flow rate contributes to the CRRT dose at a correction factor of 80 – 90% (correction for pre-dilution)*****

Calcium Replacement

- 10% calcium chloride in 50 mL by syringe pump (labelled Calcium Chloride 5 grams – 680 mmol/L).
- Starting calcium compensation is:
 - 90% OR 100% (**default**) OR 110% OR Other _____ %
- Adjust as per the *CRRT Calcium Chloride Solution Infusion Protocol*

Practitioner: _____	Nurse: _____	Clerk: _____
Signature: _____	Signature: _____	Signature: _____
Date: _____ Time: _____	Date: _____ Time: _____	Date: _____ Time: _____



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CRRT Setup Continued...

Dialysate Solution via Dialysate Pump (Green)

- PrismOCAL B22 (default) (Bicarb=22, Ca=0, Na=140, Cl=119.5, Mg=0.75, lactate=0, glucose=0, K = 0)
 Add Potassium for final concentration of _____ mmol/L (usually 4 – 5 mmol/L)

OR

- PrismOCAL (Bicarb=32, lactate=3, Ca=0, Na=140, Cl=106, Mg=0.5, glucose=0, K = 0)
 Add Potassium for final concentration of _____ mmol/L (usually 4 – 5 mmol/L)

OR

Other (specify): _____

Dialysate Rate: _____ mL/hr (usually 10 mL/kg/hr rounded up to the nearest 50 mL/hr)

Replacement Solution via Replacement Pump (Purple)

- PrismOCAL (default) (Bicarb=32, lactate=3, Ca=0, Na=140, Cl=106, Mg=0.5, glucose=0, K = 0)
 Add Potassium for final concentration of _____ mmol/L (usually 4 – 5 mmol/L)

OR

- PrismOCAL B22 (Bicarb=22, Ca=0, Na=140, Cl=119.5, Mg=0.75, lactate=0, glucose=0, K = 0)
 Add Potassium for final concentration of _____ mmol/L (usually 4 – 5 mmol/L)

OR

Other (specify): _____

Replacement Rate: _____ mL/hr (usually 6 mL/kg/hr when using a citrate target of 3 mmol/L (default) or 11 mL/kg/hr when using a citrate target of 2 mmol/L (liver failure precautions) rounded up to the nearest 50 mL/hr)

Practitioner: _____ Nurse: _____ Clerk: _____
Signature: _____ Signature: _____ Signature: _____
Date: _____ Time: _____ Date: _____ Time: _____ Date: _____ Time: _____



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CRRT Setup Continued...

Other CRRT Parameters

- If Filtration Fraction (UFR% post of BFR) exceeds 45%, notify nephrologist
- If prescribed CRRT dose is under 25 mL/kg/hr, notify nephrologist within the next 8 hours

Desired Fluid Loss per Hour (select one)

*****Note: Patient fluid removal rate PFRR = desired net fluid loss/hr ordered by physician + (intake – output) *****

- Maintain neutral balance (zero net fluid loss/hour)
- 25 mL per hour net (i.e. -600 mL/24 hours net)
- 50 mL per hour net (i.e. -1,200 mL/24 hours net)
- 100 mL per hour net (i.e. -2,400 mL/24 hours net)
- Other (specify): remove _____ mL per hour net
- Fixed Fluid removal rate: _____ mL/hour
- Calculate the patient fluid removal rate hourly
- If patient has increase in inotrope requirements, RN to contact nephrologist and/or intensivist to assess fluid removal rate
- Fluid boluses are not to be included in fluid removal calculation
- Blood Warmer
 - Initial temperature: Off **OR** 37°C (default) **OR** Other (specify): _____ (range 35 - 38°C)
 - Nurse to adjust to maintain patient normothermic unless ordered otherwise
 - Hold blood warmer if patient's temperature is greater than 38°C or patient is being actively cooled.
- In acute emergency **OR** severe hypotension **OR** cardiac arrest, re-transfuse patient, stop machine, clamp access and return pressure ports, disconnect patient
- If filter clots causing the patient to be prematurely disconnected from the Prismaflex, reconnect the patient as soon as possible

Practitioner: _____	Nurse: _____	Clerk: _____
Signature: _____	Signature: _____	Signature: _____
Date: _____ Time: _____	Date: _____ Time: _____	Date: _____ Time: _____



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Secondary Bloodwork

q12h bloodwork: Ionized Calcium, Calcium, Sodium, Chloride, Potassium, Total CO₂, Anion Gap, Albumin, Phosphate, Magnesium, Point of Care Arterial Blood Gases (POCTABG), Creatinine, Urea, CBC, INR, PTT, Glucose, Post-filter Ionized Calcium

Terminating Treatment & Care of Catheter

Sodium Citrate 4% as per lumen volumes to lock catheter lines

OR

0.9% NaCl as per lumen volumes to lock catheter lines

Other Orders

- When CRRT is initiated and terminated, notify Pharmacist to review medication dosing
- When CRRT is initiated, stop the calcium replacement protocol and magnesium replacement protocol from the *Electrolyte Replacement Protocol in Critically Ill Adults* if ordered
- When CRRT is initiated, start the *CRRT Magnesium Protocol*
- Once CRRT is terminated, resume the calcium replacement protocol and magnesium replacement protocol from the *Electrolyte Replacement Protocol in Critically Ill Adults* if previously ordered
- When CRRT is terminated, stop CRRT lab work and resume lab work as per critical care orders
- If the delivered CRRT dose was under 20 mL/kg/hr over the last 24 hours, notify nephrologist within the next 12 hours
- If there is no access to obtain bloodwork (i.e. no arterial line or other central line) and peripheral bloodwork cannot be obtained, CRRT **patient** venous bloodwork can be drawn from the red access port with a 22-gauge needle after pushing "Change Bags" on the CRRT machine (blood circulates but all fluid flows including the calcium infusion stop) **and** waiting 30 seconds to allow equilibration

Additional Orders

Practitioner: _____
Signature: _____
Date: _____ Time: _____

Nurse: _____
Signature: _____
Date: _____ Time: _____

Clerk: _____
Signature: _____
Date: _____ Time: _____