Entering CRRT Orders in Power Chart Citrate Anticoagulation

Use these orders for regional filter anticoagulation with citrate.

Citrate is administered as the predilution hemofiltration fluid via the PBP pump. The citrate infusion is titrated to achieve a low post filter ionized calcium. The citrate is reversed with a calcium chloride infusion that is titrated to achieve a normal systemic ionized calcium. It is used when systemic anticoagulation is contraindicated and filter patency cannot be maintained with the No Anticoagulation prescription for > 12 hours after ruling out access problems.

A separate central venous line is required for the administration calcium chloride. The calcium chloride infusion is titrated to the ionized calcium level drawn from an arterial line.

Citrate is contraindicated in severe liver failure. CRRT is usually successfully delivered with No Anticoagulation in liver failure. Liver function and signs of citrate toxicity should be monitored closely during Citrate. It should be used with caution in profound shock where clearance may be impaired. Citrate should be delayed or avoided until serum sodium levels are >130 and < 150 mmol/L to avoid rapid sodium change. Heparin or No Anticoagulation protocols are recommended when sodium levels are abnormal.

Citrate may cause hypernatremia or acid-base disturbances (most frequently metabolic alkalosis, acidosis may be associated with citrate toxicity). The use of hemodialysis fluid can mitigate some electrolyte disturbances, however, close monitoring of all electrolytes including ionized calcium is required. Hypocalcemia and associated cardiac arrhythmias can develop due to increased calcium removal, inadequate replacement or citrate toxicity. Citrate can also chelate magnesium, however, magnesium is somewhat protected because the dialysate contains magnesium.

Search: CRRT 🔍 Type: 👘 Inpatient 🗸		
CRRT Citrate Prescription VH		
CRRT Heparin Prescription VH		
CRPT No/Other Anticoagulant Prescription VH	Therapy	ED SVS Demo Only
🚽 📶 🛃 N PH - Continous Renal Replacement Therapy (CRRT) Heparin	tic Testing	Dialysis Medication Favourites Ambulatory
🛛 🔁 🖓 🔁 🗛 📴 🖓 🖓 🗛 – Continuous Renal Replacement Therapy (CRRT) No Anticoagulation or Othe	er Anticoagulation	
📴 Blo 📴 N PH - Continuous Renal Replacement Therapy (CRRT) Citrate (VH)	rapies	
Blog BLOOD TRANSFUSION - Cryoprecipitate (CRY) - Full Protocol		For now orders, church choose the environmiste Device Dian
Chi BLOOD TRANSFUSION - Cryoprecipitate (CRYO) - Product Only	nts	For new orders, always choose the appropriate Power Plan.
Car carboprost	prt	The Device Dian includes the CDDT preservities also the
Car occarboprost (250 mcg, injection, IM, ONCE)	rral	The Power Plan includes the CRRT prescription plus the
Carlin Cardia Perminatany Manitaring (Dada)		valavent laburaule accurates instructions and usediastics, avalance
Chi Carlottespiratory Monitoring (Feds)	nctions	relevant labwork, nursing instructions and medication orders.
	ару	The citrate Power Plan contains the orders for calcium
Cyt Orvert	erapy	The citrate Power Plan contains the orders for calcium
Der Orvert (0.01 mg/kg, injection, IV, ONCE, infuse over 10 min)	stomy (SWC	chlarida
Dial "Enter" to Search		chloride.
Diagnostic Cardiology	Speech Language	
ED/UCC Orders	Spiritual Care	
Diet	Therapeutic Recreation	Use the stand along orders if you want to make a change to
Constraint	Vocational/Educational Ref	Use the stand-alone orders if you want to make a change to
Health Records	Care Sets - LHSC	an ovicting proceription only
	Care Sets - LRCP	an existing prescription only.
IV Solutions	Care Sets - Parkwood	
🔁 IV Therapy	Care Sets - MENT HLTH	
Laboratory	Care Sets - SJHC	If you want to change a prescription (e.g. from no
Medical Imaging	Care Sets - TDMH	If you want to change a prescription (e.g. nonino
Miscellaneous	Care Sets - Woodstock	anticoagulation to citrate), discontinue the old Power Plan
Molecular Diagnostics	Care Sets - FC	anticoaguiation to citrate, discontinue the old Power Plan
Multidisciplinary Cancer Conference Referrals	Care Sets - SMGH	and initiate the appropriate new Power Plan.
Music Therapy	Care Sets - STEGH	and initiate the appropriate new rower rian.
Nephrology	Care Sets - LMH	
Nutrition Services	Care Sets - WDH	
_	-	
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🕻 🗦 🝷 🚹 Orders

Reconciliation Status ✓ Meds History

 Admission

 Discharge

Orders Medication List Document In Plan

🕂 Add | 🥒 Document Medication by Hx | Reconciliation 🕶

View		on: None
Orders for Signature	Image: Component Status Dose NEPH - Continuous Renal Replacement Therapy (CRRT) Citrate (VH) (Planned Pending) Image: Continuous Renal Replacement Therapy (CRRT) Citrate (VH) (Planned Pending)	Details
- ONCR GU IP PEB 3d - ONCR SAR IP High E	Patient Care CRRT Citrate Prescription VH CRRT Citrate Prescription VH	
ONCR GYN Paclitaxe	Image: Communication Order	Monitor ionized calcium levels that are not corrected to pH Neph/Crit Care: Daily systemic total calcium:systemic ionized calcium ratio greater than 2.5:1; Systemic ionized calcium less than 0.75 mmol/L post calcium chloride IV bolus
ONCR GYN Cisplatin ONCR HAEM IP DHA ONCR MULTI Paclita	Image: Motify Provider Image: Motify Provider	Neph/Crit Care: Systemic ionized calcium less than 0.75 mmol/L post calcium chloride IV bolus Neph/Crit Care: Serum sodium greater than or equal to 150 mmol/L
ONCR HAEM Rituxir ONCR MULTI Pamid	Image: Construction Image: Construction Image: Construction Image: Construction Image: Construction Image: Construction Image: Construction Image: Construction	Neph/Crit Care: Serum bicarbonate (from electrolyte panel) greater than 36 mmol/L. ONCE, systemic, prior to starting treatment per protocol, Post filter (Blue port) 1 hour post initiation of therapy, then q3hours until 2 results obtained within target, then q6hours.
Plans Document In Plan	POC Ionized Calcium POC Ionized Calcium POC Ionized Calcium Electrolytes (Na/K/Cl/CO2) Nurse order when	per protocol, Post filter (side port) i floar post initiation of treatment, then q3hour until 2 results obtained within target, then q6hours. q6 hour schedule while on CRRT
Oncology Medical NEPH - Continuc	Image: Wrea Serum Nurse order when Image: Wrea Serum Nurse order when Image: Wrea Serum Nurse order when	q12 hour schedule while on CRRT q12 hour schedule while on CRRT
DI - Post-Interver	Image: Construction of the second	q12 hour schedule while on CRRT daily schedule while on CRRT Nurse to discontinue CRRT Citrate powerplan when CRRT prescription is discontinued
- ANESTH - PACU - NEPH - Continuc	Continuous Infusions Calcium chloride 7 g in 500 mL sodium chloride 0.9%	IV continuous, 30 mL/hr
- NEPH - Continuc - NEPH - Continuc	△ Medications	Start infusion 15 minutes before initiating dialysis treatment. Adjust as per protocol below to maintain SYSTEMIC ionized Calcium level 1 - 1.2 m
PAED ENDO - Lut PAED ENDO - Lut	Sodium citrate (sodium citrate 4% injectable solution)	2.5 mL, injection, BLOCK, as directed, PRN Other: See Comments Instill 4% sodium citrate solution into each catheter limb (total volume= limb volume + 0.1 mL)
COMMON - IV H ANESTH - Epidur ONC - Chemoerr ♥	calcium chloride (calcium chloride bolus dose) Details	1,000 mg, injection, IV, as directed, PRN Other: See Comments
CNC - Chemoent V	Orders For Nurse Review Save as Mu Favorite	Plan for Later

These are the orders within the Citrate Power Plan. Note that the prescription (first order requiring details) is contained within the Power Plan along with the labwork, nursing instructions and medication orders.

You need to **initiate** this Power Plan **first** to activate the orders. The citrate prescription Power Form will automatically launch as soon as you choose initiate.

8/24/2020

This Power Form launches automatically once you select initiate order.

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*Performed on: 2	020/08/18	EDT					By: Morgan, Brenda (RN)
🗸 CRRT Citrate VH			Continuous R	enal Replace	ment Therapy Citrate P	Prescription VH	Â
	CRRT Prescription Status	Start of the st	or update prescription O Disc	continue			
	Filter Setup			~			
	Prismaflex Mode	CVVHDF		×			
	Blood Flow Rate		Choose start o	r update pro	escription. If the pat	tient has a prev	/ious
	Priming Solution		prescription, it	will autom	atically populate the	e fields. You wi	ll have to modify 🚾
	Net Fluid Removal Targe	et	carefully to ma	ke sure the	prescription is still	correct.	
	Dialysate Solution		,				
	Dialysate Solution Rate		mL/hr Recomme	nded rate is 1000 ml	./hr		
	PRE Replacement Solution	on via pre	blood pump (PBP)		~		
	PRE Replacement Rate			mL/hr	Recommended rate to start at 2	50 mL/hr	
	Post Filter Ionized Calcium	n Target (adjust per protocol).			~	If entering a free text ionized calcium target, please include "adjust citrate
	POST Replacement Solu	tion via R	eplacement Pump		~		per protocol" in the response.
	POST Replacement Solu	tion Rate		mL/hr	Recommended rate is 1000 mL/h	ır	
	Add Potassium Chloride to	o dialysat	te according to Potassium	n Tiration Protocol?	Yes 🗸 🗸		
	Calcium Chloride Infusion	Adjust	Calcium Chloride infusion accord	ding to Calcium Tiration	Prototol to maintain a systemic ionized ca	alcium level of 0.96-1.10 mmol	л.📑
	Special Instructions	⊖ Yes ● No					
	<u>Citrate</u>	Titrati	on Protocol		Potass	ium Titration Pro	otocol

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*Performed on: 20	2020/08/18 🛉 🗸 1753 🖨 EDT	By: Morgan, Brenda (RN)
🗸 CRRT Citrate VH	Continuous Renal Replacement Therapy Citrate Prescription VH	^
	CRRT Prescription Status 💿 Start or update prescription 🔿 Discontinue	
	Filter Setup ST 150 ~	
	Prismaflex Mode ~	
	Blood Flow Rate	
	Priming Solution ST 150 is the standard filter.	patient is HIT positive
	Net Fluid Removal Target ML/hr Start at 0 ml/hr and progress to target as long as MAP is maintained	
	Dialysate Solution	
	Dialysate Solution Rate ML/hr Recommended rate is 1000 mL/hr	
	PRE Replacement Solution via pre blood pump (PBP)	
	PRE Replacement Rate ML/hr Recommended rate to start at 250 mL/hr	
	Post Filter Janized Colours Torget (edjust per protocol)	a free text ionized calcium ease include "adjust citrate
		col" in the response.
	POST Replacement Solution Rate mL/hr Recommended rate is 1000 mL/hr	
	Add Potassium Chloride to dialysate according to Potassium Tiration Protocol? Yes	
	Calcium Chloride Infusion 🖲 Adjust Calcium Chloride infusion according to Calcium Tiration Prototol to maintain a systemic ionized calcium level of 0.96-1.10 mmol./L 📑	
	Special Instructions	

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*Performed on: 2020/08/18		By: Morgan, Brenda (RN)
	Always order CVVHDF. This is the order for	Î
CRRT Prescription Status Start or update prescription Discontinue Filter Setup ST 150 Prismaflex Mode CVVHDF	how to set the machine up, not the actual prescription. This allows the delivered CRRT	
Blood Flow Rate Priming Solution Net Fluid Removal Target ML/hr Start at 0 ml/hr and provided the second se	treatment to be modified without changing the filter by adjusting flow rates.	T positive
Dialysate Solution Image: Commended rate is 1000 Dialysate Solution Rate Image: Commended rate is 1000		
PRE Replacement Solution via pre blood pump (PBP) PRE Replacement Rate PRE Filter Ionized Calcium Target (adjust per protocol).		e text ionized calcium
POST Replacement Solution via Replacement Pump POST Replacement Solution Rate	V per protocol" in Recommended rate is 1000 mL/hr	clude "adjust citrate the response.
Add Potassium Chloride to dialysate according to Potassium Tiration Protoc Calcium Chloride Infusion Adjust Calcium Chloride infusion according to Calcium Tirat		
Special Instructions		

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*Performed on: 2020/08/18	53 EDT By: Morgan, Brenda (RN)
✓ CRRT Citrate VH	Continuous Renal Replacement Therapy Citrate Prescription VH
CRRT Prescription Sta	tus 🖲 Start or update prescription 🔿 Discontinue
Filter Setup	ST 150 ~
Prismaflex Mode	CVVHDF ~
Blood Flow Rate	Start at 150 mL/min may increase to 250 mL/min prn to manage access and return pressure
Priming Solution	 Do not use heparin if patient is HIT positive
Net Fluid Removal T	For No Anticoagulation and Heparin orders, we want the blood flow to be as high as
Dialysate Solution	possible to minimize the time that blood sits in the filter. This reduces filter clotting.
Dialysate Solution Ra	
PRE Replacement Sc	For Citrate, we want to use a fixed blood flow rate to keep the citrate and calcium
PRE Replacement Re	chloride requirements as stable as possible. The dropdown menu is being revised to the
Post Filter Ionized Cal	
POST Replacement \$	wording shown below.
POST Replacement \$	
	Nurse need to adjust the blood flow rate to manage access and return pressures, but
Calcium Chloride Infus	the goal with citrate is to keep a steady blood flow rate of ~150 ml/min.
Special Instructions	
	Blood flow 150-200 to optimize access/return pressures. Maintain stable

rate to avoid fluctuations in ionized calcium

🚿 💦 🔹 EDT *Performed on: ÷ ~ By: Morgan, Brenda (RN) 2020/08/18 1753 CRRT Citrate VH Continuous Renal Replacement Therapy Citrate Prescription VH CRRT Prescription Status Start or update prescription Discontinue Filter Setup ST 150 CWHDE Prismaflex Mode Start at 150 mL/min may increase to 250 mL/min prn to manage access and return pressure Blood Flow Rate Priming Solution Do not use heparin if patient is HIT positive 5,000 units of heparin sodium in 1 litre of 0.9% sodium chloride then reprime with 1 litre of 0.9% sodium chloride Net Fluid Removal Tar

Dialysa
 Prime with heparin (even when using citrate), UNLESS there is a concern of
 HIT/allergy. The heparin adheres to the filter but is rinsed out of the circuit
 With the second prime. This helps to reduce filter clotting by providing a
 PRE Re
 PRE Re
 PRE Re
 Past Filt

POST F POST F The patient does not receive a heparin bolus when using an ST 150 filter as Add Por this filter requires a 2 L prime. If using a smaller filter such as an ST 100 (rarely used in adults now), a heparin bolus would be given as this filter requires a single prime. entering a free text ionized calcium rget, please include "adjust citrate r protocol" in the response.

Citrate Titration Protocol

Post-Filter Ionized Calcium

Loss than taxaal

Citrate Infusion Adjustment

Potassium Titration Protocol

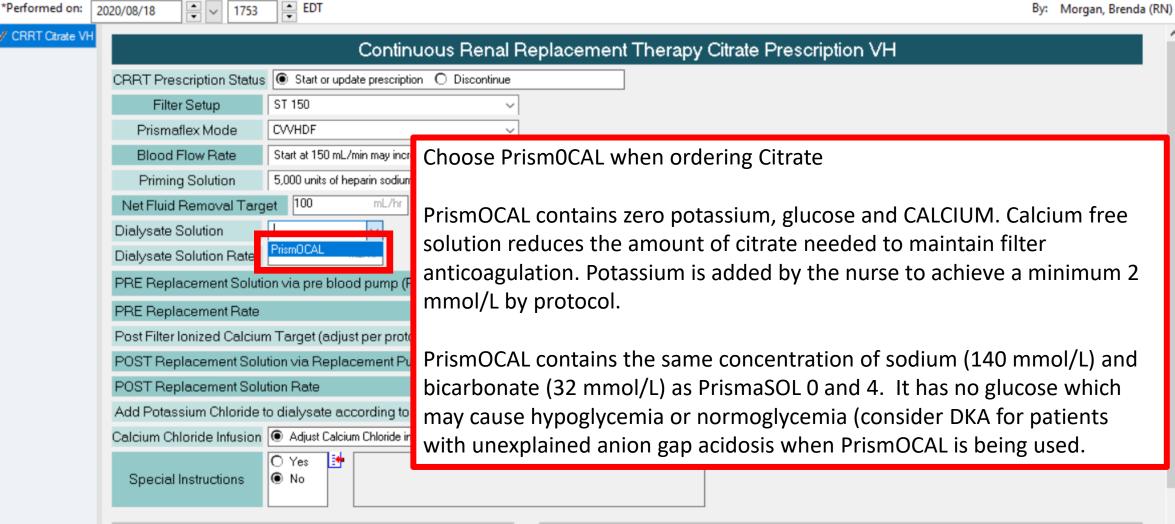
Add KCl to dialysate and all replacement fluids according to the following protocol. Prismocal solution contains zero KCl at baseline.

✓ ■ ○ | ※ 第 + ■ ■ ■ ■ *Performed on: 2020/08/18 ■ √ 1753 ■ EDT

*Performed on: 20	20/08/18 🔹 🗸 1753	EDT By	y: Morgan, Brenda (RN)
✓ CRRT Citrate VH		Continuous Renal Replacement Therapy Citrate Prescription VH	^ _
	CRRT Prescription Status	s 🖲 Start or update prescription 🔿 Discontinue	
	Filter Setup	ST 150 ~	
	Prismaflex Mode	CVVHDF ~	
	Blood Flow Rate	Start at 150 mL/min may increase to 250 mL/min prn to manage access and return pressure 🗸 🗸	
	Priming Solution	5,000 units of heparin sodium in 1 litre of 0.9% sodium chloride then reprime with 1 litre of 0.9% sodium chloride V Do not use heparin if patient is	HIT positive
	Net Fluid Removal Targ	get 100 mL/hr Start at 0 ml/hr and progress to target as long as MAP is maintained	
	Dialysate Solution	Enter desired net fluid removal. Nurses will start at 0 and then	
	Dialysate Solution Rate	attempt to achieve this target based on hemodynamic stability.	
	FRE Replacement Solu		
	PRE Replacement Rate	If entering a free tex	kt ionized calcium
		m Target (adjust per protocol). <pre> target, please includ per protocol" in the </pre>	
	POST Replacement Solu		response.
		to dialysate according to Potassium Tiration Protocol? Yes	
	Calcium Chloride Infusion	Adjust Calcium Chloride infusion according to Calcium Tiration Prototol to maintain a systemic ionized calcium level of 0.96-1.10 mmol./L	
	Special Instructions	O Yes ● No	
	Citrate	e Titration Protocol Potassium Titration Protocol	
	Post-Filter Ionized Cal	Icium Citrate Infusion Adjustment Add KCl to dialysate and all replacement fluids according to the following protocol. Prise	mocal solution

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*Performed on:



Citrate Titration Protocol

Potassium Titration Protocol

BEFORE RECONSTITUTION Each 1000 mL contains	Prisma SOL 0	Prisma SOL 4	Prism 0CAL
Compartment A			
Sodium bicarbonate			58.8 g
Magnesium chloride, hexahydrate	2.033 g	2.036 g	
Lactic acid	5.4 g	5.4 g	
Calcium chloride dihydrate	5.145 g	5.148 g	
Glucose anhydrous		24.2 g	
Compartment B			
Lactic acid			0.284 g
Magnesium chloride, hexahydrate			0.108 g
Sodium chloride	6.45 g	6.45 g	6.449 g
Sodium bicarbonate	3.09 g	3.09 g	
Potassium chloride		0.314 g	

AFTER RECONSTITUTION		Prisma SOL 0		Prisma SOL 4		Prism OCAL	
		mmol/L	mEq/L	mmol/L	mEq/L	mmol/L	mEq/L
Calcium	Ca ²⁺	1.75	3.50	1.75	3.50		
Magnesium	Mg ²⁺	0.5	1.0	0.5	1.0	0.5	1.0
Sodium	Na+	140	140	140	140	140	140
Chloride	CI-	109.5	109.5	113.5	113.5	106	106
Lactate		3.0	3.0	3.0	3.0	3.0	3.0
Bicarbonate	HCO₃ ⁻	32	32	32	32	32	32
Potassium	K+	0	0	4.0	4.0	0	0
Glucose		0	0	6.1		0	0

These are the 3 solutions that are stocked in CCTC. Prism OCAL is a calcium free product used only with citrate.

Note that all 3 solutions contain the same final concentration of bicarbonate and sodium. They all contain 3 mmol/L of lactate which is added for pH adjustment; the lactate is metabolized to bicarbonate. Potassium is added by the nurse to achieve a minimum concentration of 2 mmol/L by protocol.

Each 5 L bag is divided into 2 compartments (250 mL in the upper and 4750 mL in the lower compartments). These must be mixed together at the time the solution is hung (stability is only 24 hours once mixed).

Refer to the "AFTER RECONSTITUTION" for the final concentration of electrolytes.

Failure to break the seal between the bags will change the concentration to that of the lower compartment only. The bag will also run dry, potentially drawing air into the circuit and causing multiple alarms (the machine will identify the 5 L bag but only 4750 mL is accessible).

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*Performed on: 20	020/08/18	By: Morgan, Brenda (RN)
🖋 CRRT Citrate VH		Continuous Renal Replacement Therapy Citrate Prescription VH
	CRRT Prescription Status	Start or update prescription O Discontinue
	Filter Setup	ST 150 ~
	Prismaflex Mode	CVVHDF ~
	Blood Flow Rate	Start at 150 mL/min may increase to 250 mL/min prn to manage access and return pressure
	Priming Solution	5,000 units of heparin sodium in 1 litre of 0.9% sodium chloride then reprime with 1 litre of 0.9% sodium chloride v Do not use heparin if patient is HIT positive
	Net Fluid Removal Targ	et 100 mL/hr Start at 0 ml/hr and progress to target as long as MAP is maintained
	Dialysate Solution	PrismOCAL
	Dialysate Solution Rate	1000 mL/hr Recommended rate is 1000 mL/hr

When running citrate, the delivered treatment is CVVHDF. Set a dialysis flow rate of 1000 ml/hr This will achieve a delivered prescription of > 25 ml/kg/hr in most patients.

Citrate can increase both the sodium and bicarbonate concentrations in the blood. The administration of hemodialysis solution with a sodium of 140 mmol/L and bicarbonate of 32 mmol/L prevents significant electrolyte derrangments.

Serum Potasium Level

Final KCI Concentration in Dialysate

If you cannot achieve adequate clearance with the standard dialysis and **post dilution** flow rates, increase the dialysis rate. Any change to the blood flow, dialysis or post dilution flow rates will disrupt the stability of the citrate-calcium chloride infusions.

<< NO CHANGE >>

Target

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🗸 CRRT Citrate

*Performed on: 2020/08/18

By: Morgan, Brenda (RN)

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	Continuous Renal Replacement Therapy Citrate Prescription VH
CRRT Prescription Status 💿 S	Start or update prescription O Discontinue
Filter Setup ST 15	50 ~
Prismaflex Mode CVVH	IDF ~
Blood Flow Rate Start a	at 150 mL/min may increase to 250 mL/min prn to manage access and return pressure \sim
Priming Solution 5,000) units of heparin sodium in 1 litre of 0.9% sodium chloride then reprime with 1 litre of 0.9% sodium chloride V Do not use heparin if patient is HIT positive
Net Fluid Removal Target 10	00 mL/hr Start at 0 ml/hr and progress to target as long as MAP is maintained
Dialysate Solution Prism0	OCAL ~
Dialysate Solution Rate 1,000	mL/hr Recommended rate is 1000 mL/hr
PRE Replacement Solution via	pre blood pump (PBP
PRE Replacement Rate	mL/hr Recommended rate to start at 250 mL/hr
Post Filter Ionized Calcium Targ	get (adjust per protocol).
POST Replacement Solution via	ol" in the response.
POST Replacement Solution Ra	
Add Potassium Chloride to dialy	ysate a anticoagulation of the blood where it first enters the access
Calcium Chloride Infusion 🖲 Ad	diust Cald line. We use 2% Citrate ACD-A for adults.
Special Instructions	The volume of citrate infused also provides a small amount of
	predilution hemofiltration.

Commonly available citrate solutions

Components	4% TSC Tri-sodium citrate	2.2% ACDA Anticoagulant Citrate Dextrose Solution-Formula A	0.5% Low concentration citrate solution	
Na (mmol/l) Cl (mmol/l)	420	224	140/86	
Citrate (mmol/l)	136	113	18	
Citric Acid (mmol/I)	0	38.1	0	
Dextrose (g/L)		24.5	0	
Bag Size (ml)	500 & 1000	1000	5000	

We use 2.2% Anticoagulant Citrate Dextrose Solution-Formula A (ACDA)

Baxter
for adults at LHSC.

8/24/2020

🗸 🖃 🚫 | 🦄 🌠 🛧 🔸 | 💷 🎆 🗎 🔹 EDT *Performed on: 2020/08/18 ÷ ~ By: Morgan, Brenda (RN) 1753 CRRT Citrate VH Continuous Renal Replacement Therapy Citrate Prescription VH Start or update prescription O Discontinue CRRT Prescription Status ST 150 Filter Setup CVVHDF Prismaflex Mode Blood Flow Rate Start at 150 mL/min may increase to 250 mL/min prn to manage access and return pressure 5,000 units of heparin sodium in 1 litre of 0.9% sodium chloride then reprime with 1 litre of 0.9% sodium chloride Priming Solution Do not use heparin if patient is HIT positive \sim 100 Net Fluid Removal Target mL/hr Start at 0 ml/hr and progress to target as long as MAP is maintained **Dialysate Solution** PrismOCAL 1,000 mL/hr Dialysate Solution Rate Recommended rate is 1000 mL/hr Citrate ACD-A PRE Replacement Solution via pre blood pump (PBP) \sim 250 PRE Replacement Rate Recommended rate to start at 250 mL/hr mL/h If entering a free text ionized calcium Post Filter Ionized C Recommended citrate starting rate is 250 ml/hour. This \sim target, please include "adjust citrate POST Replacemen per protocol" in the response. will be titrated by the nurse per protocol to achieve a POST Replacemen target post filter ionized calcium. The citrate adds a small Add Potassium Chl amount of predilution hemofiltration. Calcium Chloride Inf of 0.96-1.10 mmol./L 📑 O Yes 1. No Special Instructions

*Performed on: 2020/08/18

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🔶 🗸 1753 🚔 EDT

By: Morgan, Brenda (RN)

RRT Citrate VH		Continue	us Danal Ba	مامممهمه	t Thorony, Citrata Preseri	ntion \/LL	^
		Continue	ous Renai Re	placemer	nt Therapy Citrate Prescri	puon VH	
	CRRT Prescription Status	Start or update prescription	O Discontinue]		
	Filter Setup	ST 150	~				
	Prismaflex Mode	CVVHDF	~				
	Blood Flow Rate	Start at 150 mL/min may increase	e to 250 mL/min prn to n	manage access	and return pressure 🔍 🗸		
	Priming Solution	5,000 units of heparin sodium in	litre of 0.9% sodium ch	loride then reprir	ne with 1 litre of 0.9% sodium chloride \sim	Do not u	se heparin if patient is HIT positive
	Net Fluid Removal Targ	et 100 mL/hr	Start at 0 ml/hr an	d progress to	target as long as MAP is maintained		
	Dialysate Solution	PrismOCAL ~					
	Dialysate Solution Rate	1,000 mL/hr Re	commended rate is	1000 mL/hr			
	PRE Replacement Solution	on via pre blood pump (PBF) Citrate ACD-A		~		
	PRE Replacement Rate		250 mL	./hr Rec	ommended rate to start at 250 mL/hr		
	Post Filter Ionized Calciun	n Target (adjust per protoco	0			\sim	If entering a free text ionized calcium target, please include "adjust citrate
	POST Replacement Solu	tion via Replacement Pump	0.36-0.45 mmol/L (adjust citrate pe	r protocol)		per protocol" in the response.

We use a "medium" target for filter anticoagulation which is sufficient to maintain filter life. A high dose target (0.25-0.35 mmol/L) is usually unnecessary, can be more difficult to maintain and may increase the risk for citrate toxicity. Consider changing to a low dose target (0.46-0.55 mmol/L) if citrate requirements begin to increase after achieving stability (free text in the orders).

Citrate toxicity will bind with systemic ionized calcium to create a calcium-citrate complex. This increases the total calcium and lowers the ionized calcium. Life-threatening systemic hypocalcemia can develop. Consider citrate toxicity (if Total:Ionized Calcium ratio > 2.5 or upward trend, hypocalcemia, increasing calcium chloride (and citrate) requirements and/or anion gap metabolic acidosis develops. Risk increases with shock and liver failure.

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*Performed on: 20	020/08/18	EDT EDT	By: Morgan, Brenda (RN)
✓ CRRT Citrate VH		Continuous Renal Replacement Therapy Citrate Prescription \	√H
	CRRT Prescription Status	Start or update prescription O Discontinue	
	Filter Setup	ST 150 ~	
	Prismaflex Mode	CVVHDF ~	
	Blood Flow Rate	Start at 150 mL/min may increase to 250 mL/min prn to manage access and return pressure \sim	
	Priming Solution	5,000 units of heparin sodium in 1 litre of 0.9% sodium chloride then reprime with 1 litre of 0.9% sodium chloride 🗸 🛛 🗖	o not use heparin if patient is HIT positive
	Net Fluid Removal Targ	et 100 mL/hr Start at 0 ml/hr and progress to target as long as MAP is maintained	
	Dialysate Solution	Prism0CAL ~	
	Dialysate Solution Rate	1,000 mL/hr Recommended rate is 1000 mL/hr	
	PRE Replacement Soluti	on via pre blood pump (PBP) Citrate ACD-A	
	PRE Replacement Rate	250 mL/hr Recommended rate to start at 250 mL/hr	
	Post Filter Ionized Calciur	n Target (adjust per protocol). 0.36-0.45 mmol/L (adjust citrate per protocol)	 If entering a free text ionized calcium target, please include "adjust citrate
	POST Replacement Solu	tion via Replacement Pump	per protocol" in the response.
	POST Replacement Solu	tion Rate prismOCAL pl / br	
	Add Potassium Chloride t	• dialysate a Choose PrismOCAL when ordering Citrate for both	
	Calcium Chloride Infusion	Adjust Calc the dialysis and the post dilution replacement	0 mmol./L
	Special Instructions	Solution.	

*Performed on: 20	20/08/18 🔹 🗸 1753	EDT			By: Morgan, Brenda (RN)				
🗸 CRRT Citrate VH	Continuous Renal Replacement Therapy Citrate Prescription VH								
	CRRT Prescription Status	Start or update prescription C	Discontinue						
	Filter Setup	ST 150	~						
	Prismaflex Mode	CVVHDF	~						
	Blood Flow Rate	Start at 150 mL/min may increase to	250 mL/min prn to manage	access and return pressure \sim					
	Priming Solution	5,000 units of heparin sodium in 1 litr	e of 0.9% sodium chloride th	Do not use heparin if patient is HIT positive					
	Net Fluid Removal Target 100 mL/hr Start at 0 ml/hr and progress to target as long as MAP is maintained								
	Dialysate Solution	PrismOCAL ~							
	Dialysate Solution Rate	1,000 mL/hr Reco	mmended rate is 1000 m	ıL/hr					
	PRE Replacement Solution	on via pre blood pump (PBP)	Citrate ACD-A	~					
	PRE Replacement Rate		250 mL/hr	Recommended rate to start at 250 mL/hr	If entering a free text isning calcium				
	Post Filter Ionized Calcium	n Target (adjust per protocol).	0.36-0.45 mmol/L (adjust o	citrate per protocol)	If entering a free text ionized calcium target, please include "adjust citrate				
	POST Replacement Solut	tion via Replacement Pump	PrismOCAL	~	per protocol" in the response.				
	POST Replacement Solut	tion Rate	1000 mL/hr	Recommended rate is 1000 mL/hr					

Set the flow rate to 1000 ml/hr. Avoid changing the blood flow, dialysate and replacement rates if possible, which will alter the citrate:calcium chloride stability. The combined dialysate, post dilution and predilution flow rates (2.25 L) will provide a delivered prescription of > 25 mL/kg/hr in most patients.

This is the only CCTC prescription that uses **post dilution** replacement fluid for clearance vs to maintain the dearation chamber alone. Predilution hemofiltration during citrate Post dilution provides better clearance by concentrating the blood in the filter (increases diffusion gradient). The trade-off is that filter clotting is higher with post dilution. This is not an issue with citrate.

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*Performed on: 2	020/08/18 🔺 🗸 1753 🚔 E	DT				By: Morgan, Brenda (RN)		
🗸 CRRT Citrate VH	Post Filter Ionized Calcium Target (adjust per protocol). 0.36-0.45 mm POST Replacement Solution via Replacement Pump Prism0CAL			'L (adjust citrate per protocol)	If entering a free text ionized calcium target, please include "adjust citrate			
					~	per protocol" in the response.		
	POST Replacement Solution Rat	te 1000	ſ	mL/hr Recommended rate is 1	000 mL/hr			
	Add Potassium Chloride to dialysate according to Potassium Tiration Protocol?							
	Calcium Chloride Infusion 💿 Adjust Calcium Chloride infusion according to Calcium Tiration Prototol to maintain a systemic ionized calcium level of 0.96-1.10 mmol./L 📴							
	· · ·			e to titrate the pota incentration is 2 mm		n by		
	<u>Citrate Titra</u>	tion Protocol	1	ļ	Potassium Titration Pro	otocol		
	Post-Filter Ionized Calcium Citrate Infusion Adjustme				acement fluids according to the f	ollowing protocol. Prismocal solution		
	Less than target	Decrease by 10 mL/hour		contains zero KCl at baseline.				
	Target	<< NO CHANGE >>		Serum Potasium Level if less than 3.0 mmol/L		centration in Dialysate		
	Greater than target	Increase by 10 mL/hour		ii tess triair 5.0 minot/ c		E - Electrolyte Replacement (Module). Id treat as per CRIT CARE - Electrolyte		
	Notify Nephrology and Critical Care 350 mL/hour	if Citrate infusion greater than			Replacement (Module)	a deat as per chin cane - clectionyte		
	550 ME/100				* KCl to equal 6 mmol/L			
	Calcium Chloride Titration Protocol				* Notify Nephrology and Critica < 3.0 mmol/L	l Care if repeat potassium level is		
		n according to protocol below to		if 3.0 - 3.4 mmol/L	KCl to equal 5 mmol/L			
	maintain SYSTEMIC ionized o	alcium level 1.0 - 1.2 mmol/L		if 3.5 - 4.5 mmol/L	KCl to equal 4 mmol/L			
	Systemic Ionized Calcium	Calcium Chloride Adjustment		if 4.6 - 5.0 mmol/L**	KCl to equal 3 mmol/L			
	less than 0.80 mmol/L**	increase by 20 mL/hr		If 5.1 - 6.0 mmol/L**	KCl to equal 2 mmol/L			
		give ordered bolus		if greater than 6.0 mmol/L**	Notify Nephrology and Critical > 6.0 mmol/L	Care if repeat postassium level		
	0.80 - less than 1.0 mmol/L	increase by 10 mL/hr give ordered bolus		If the serum potassium remains a		mmol/L, notify Nephrology and Critical		
	1.0 - 1.2 mmol/L	<< NO CHANGE >>		Care to review possible causes for persistent hyperkalemia.				

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Sign Form n: 2020/08/18	By: Morgan, Brenda (RN)							
✓ CRRT Citrate VH Post Filter Ionized Calcium Target (adjust per protocol).	0.36-0.45 mmol/L (adjust citrate per protocol)							
POST Replacement Solution via Replacement Pump	PrismOCAL \checkmark per protocol" in the response.							
POST Replacement Solution Rate	1000 mL/hr Recommended rate is 1000 mL/hr							
Add Potassium Chloride to dialysate according to Potas	sium Tiration Protocol? Yes 🗸							
Calcium Chloride Infusio	Calcium Chloride Infusio 🛛 💿 Adjust Calcium Chloride infusion according to Calcium Tiration Prototol to maintain a systemic ionized calcium level of 0.96-1.10 mmol./ 📑							
Special Instruct Adjust calcium chlorid	e infusion auto-populates and must be selected.							
Citrate Titration Protocol	Potassium Titration Protocol							
Post-Filter Ionized Calcium Citrate Infusion Adjust Less than target Decrease by 10 ml								
Target << NO CHANGE	>> Serum Potasium Level Final KCI Concentration in Dialysate							
Greater than target Increase by 10 mL Notify Nephrology and Critical Care if Citrate Infusion great 350 mL/hour								
Calcium Chloride Titration Protoc	* Notify Nephrology and Critical Care if repeat potassium level is < 3.0 mmol/L							
Adjust calcium choride infusion according to protocol								
maintain SYSTEMIC ionized calcium level 1.0 - 1.2 n								
Systemic Ionized Calcium Chloride Ad								
less than 0.80 mmol/L** increase by 20 m								
give ordered bo 0.80 - Jess than 1.0 mmol/l increase by 10 m	if greater than 0.0 mmol/L ^m							

All titration protocols appear at the end of the Power Form. These are also available on the CCTC website and are printed by nurses for ease of use.

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If the

Citrate Titration Protocol

Post-Filter Ionized Calcium	Citrate Infusion Adjustment				
Less than target	Decrease by 10 mL/hour				
Target	<< NO CHANGE >>				
Greater than target	Increase by 10 mL/hour				
Notify Nephrology and Critical Care if Citrate Infusion greater than					
350 mL/hour					

Calcium Chloride Titration Protocol

Adjust calcium choride infusion according to protocol below to maintain SYSTEMIC ionized calcium level 1.0 - 1.2 mmol/L

Systemic Ionized Calcium	Calcium Chloride Adjustment
less than 0.80 mmol/L**	increase by 20 mL/hr
	give ordered bolus
0.80 - less than 1.0 mmol/L	increase by 10 mL/hr
	give ordered bolus
1.0 - 1.2 mmol/L	<< NO CHANGE >>
greater than 1.2 mmol/L	decrease by 10 mL/hr
** Call Nephrology and Critical Care	for order for calcium bolus if
systemic calcium less than 0.80 m	nmol/L; repeat systemic IONIZED
calcium 1 hour post bolus. Ifless	than target, repeat bolus and

Potassium Titration Protocol

Add KCl to dialysate and all replacement fluids according to the following protocol. Prismocal solution contains zero KCl at baseline.

Serum Potasium Level

Final KCI Concentration in Dialysate

if less than 3.0 mmol/L	 * KCl bolus I.V. as per CRIT CARE - Electrolyte Replacement (Module). * Recheck serum Magnesium and treat as per CRIT CARE - Electrolyte Replacement (Module) * KCl to equal 6 mmol/L
	* Notify Nephrology and Critical Care if repeat potassium level is < 3.0 mmol/L
if 3.0 - 3.4 mmol/L	KCl to equal 5 mmol/L
if 3.5 - 4.5 mmol/L	KCl to equal 4 mmol/L
if 4.6 - 5.0 mmol/L**	KCl to equal 3 mmol/L
If 5.1 - 6.0 mmol/L**	KCl to equal 2 mmol/L
greater than 6.0 mmol/L**	Notify Nephrology and Critical Care if repeat postassium level > 6.0 mmol/L
serum potassium remains ab	ove 5 mmol/L with dialysis KCl 2 mmol/L, notify Nephrology and Critical

Care to review possible causes for persistent hyperkalemia.

<

notify provider.

 \odot 2020/08/18 1753 ▲ EDT By: Morgan, Brenda (RN) Sign Form In: If entering a free text ionized calcium 🖉 CRRT Citrate VH et Filter lonized Celcium Terget (ediust per protocol) _____0.36-0.45 mmol/L (adjust citrate per protocol) target, please include "adjust citrate Click the green check box in top left corner PrismOCAL per protocol" in the response. 000 Recommended rate is 1000 mL/hr mL/hr to sign the form and complete the um Tiration Protocol? Yes prescription order. cording to Calcium Tiration Prototol to maintain a systemic ionized calcium level of 0.96-1.10 mmol./L 🌁 O Yes ٠ Special Instructions No No **Citrate Titration Protocol** Potassium Titration Protocol Add KCl to dialysate and all replacement fluids according to the following protocol. Prismocal solution Post-Filter Ionized Calcium Citrate Infusion Adjustment contains zero KCl at baseline. Decrease by 10 mL/hour Less than target Final KCI Concentration in Dialysate Serum Potasium Level << NO CHANGE >> Target if less than 3.0 mmol/L * KCl bolus I.V. as per CRIT CARE - Electrolyte Replacement (Module). Increase by 10 mL/hour Greater than target * Recheck serum Magnesium and treat as per CRIT CARE - Electrolyte Notify Nephrology and Critical Care if Citrate Infusion greater than Replacement (Module) 350 mL/hour * KCl to equal 6 mmol/L * Notify Nephrology and Critical Care if repeat potassium level is Calcium Chloride Titration Protocol < 3.0 mmol/L if 3.0 - 3.4 mmol/L KCl to equal 5 mmol/L Adjust calcium choride infusion according to protocol below to maintain SYSTEMIC ionized calcium level 1.0 - 1.2 mmol/L if 3.5 - 4.5 mmol/L KCl to equal 4 mmol/L if 4.6 - 5.0 mmol/L** Calcium Chloride Adjustment KCl to equal 3 mmol/L Systemic Ionized Calcium less than 0.80 mmol/L** If 5.1 - 6.0 mmol/L** KCl to equal 2 mmol/L increase by 20 mL/hr Notify Nephrology and Critical Care if repeat postassium level give ordered bolus if greater than 6.0 mmol/L** > 6.0 mmol/L 0.80 - less than 1.0 mmol/L increase by 10 mL/hr If the serum potassium remains above 5 mmol/L with dialysis KCl 2 mmol/L, notify Nephrology and Critical give ordered bolus Care to review possible causes for persistent hyperkalemia. 1.0 - 1.2 mmol/L << NO CHANGE >> greater than 1.2 mmol/L decrease by 10 mL/hr

dication by Hx Reconciliation •		Reconciliation Status V Meds History 👙 Admission 👙 Disch	harge
Document In Plan			
▲ Image: Component service 20 Image: Component service Component service 20 Image: NEPH - Continuous Renal Replacement Therapy (CRRT) Cite Component service	Status Dose		^
😻 😣 😰 CRRT Citrate Prescription VH	Order		
The communication order	order	Monitor Ionized calcium reveis that are not conceled to pri	
😿 🖸 Notify Provider	Order	Neph/Crit Care: Daily systemic total calcium:systemic ionized calcium ratio greater than 2.5:1; Systemic ionized calcium less than 0.75 mmol/L post calcium chloride IV bolus	
🖗 📝 Notify Provider	Order	Neph/Crit Care: Systemic ionized calcium less than 0.75 mmol/L post calcium chloride IV bolus	
🖗 📝 Notify Provider	Order	Neph/Crit Care: Serum sodium greater than or equal to 150 mmol/L	
😿 🔯 Notify Provider	Order	Neph/Crit Care: Serum bicarbonate (from electrolyte panel) greater than 36 mmol/L.	
🖗 💆 POC Ionized Calcium	Order	2020/08/18 17:53 EDT, ONCE, systemic, prior to starting treatment	
🖗 💆 POC Ionized Calcium	Order	2020/08/18 17:53 EDT, per protocol, Post filter (Blue port) 1 hour post initiation of therapy, then q3hours until 2 results obtained within target, th	
😵 📅 POC Ionized Calcium	Order	2020/08/18 17:53 EDT, per protocol, Arterial line (systemic) 1 hour post initiation of treatment, then q3hour until 2 results obtained within target,	\sim
✓ Details for CRRT Citrate Prescription	VH		
*Requested Start Date/Time: 2020/08/18	1753 EDT	*Reason/Clinical History:	
Special Instructions:			

You will be brought back to this page to sign the orders You will not be able to sign until you enter a reason for initiation of CRRT in the details section. If the highlighted Reason/Clinical History box does not appear, click on the CRRT Citrate Prescription at the top.

		[□] Full screen 🖷 Print 💸 11 minutes ago					
		Reconciliation Status Meds History Status Admission Status					
	/18 16:57 Duration: N	one					
🕅 Component	Status Dose	Details					
NEPH - Continuous Renal Replacement Therapy (CRRT) No Anti	coagulation or Other Antico	agulation (Initiated Pending)					
⊿ Patient Care							
Image: CRRT No/Other Anticoagulant Prescription VH Image: Communication Order	Order Order	Change filter if were ultrafiltertaneous esting (0.00					
Ar Communication Order Image: I	Order	Change filter if urea ultrafiltrate:serum ratio <0.80 g6 hour schedule while on CRRT					
Phosphate, Magnesium Nurse Order When	Order	a6 hour schedule while on CRRT					
	Onder	יין איז					
Image: Second Addition of the second and the second addition of the second additis addition of the second addition of the second addition	Order	q12 hour schedule while on CRRT					
🔆 🕅 Urea Fluid Nurse order when	Order	q12 hour schedule while on CRRT Ultra filtrate					
😵 🕅 Communication Order	Order	Nurse to discontinue CRRT No anticoagulation powerplan when CRRT prescription discontinued					
⊿ Medications							
😵 🧼 🕅 sodium citrate (sodium citrate 4% injectable solution)	Order	2.5 mL, injection, BLOCK, as directed, PRN for Other: See Comments, Start: 2020/08/18 16:57 EDT Instia 4% sodium citrate solution into each catheter limb (total volume= limb volume + 0.1 mL)					
Tetails for CRRT No/Other Anticoagulant Prescription VH							
Orders For Nurse Review Save as My Favorite	Orders For Nurse Review Save as My Favorite Orders For Signature						

The detail box may be difficult to view. If you cannot see the details, drag the box up to make it visible.

Document In Plan						
🔹 🗣 🚫 🕂 Add to Phase -	🛄 Comments	Start:	2020/08/18 17:53	Duration:	None	

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- 1 U V				
2	Component	Status Dose	Details	^
NEPH -	Continuous Renal Replacement Therapy (C	RRT) Citrate (VH) (Initiated Pending)		
	ent Care	-		
🐺 😣	CRRT Citrate Prescription VH	Order		
- `Q` :	🖄 Communication Order	Order	Monitor ionized calcium levels that are not corrected to pH	_
- `@ :	🖄 Notify Provider	Order	Neph/Crit Care: Daily systemic total calcium:systemic ionized calcium ratio greater than 2.5:1; Systemic ionized calcium less than 0.75 mmol/L post calcium chloride IV bolus	
	🖄 Notify Provider	Order	Neph/Crit Care: Systemic ionized calcium less than 0.75 mmol/L post calcium chloride IV bolus	
	🖄 Notify Provider	Order	Neph/Crit Care: Serum sodium greater than or equal to 150 mmol/L	
	🖄 Notify Provider	Order	Neph/Crit Care: Serum bicarbonate (from electrolyte panel) greater than 36 mmol/L.	
- `Q` -	POC lonized Calcium	Order	2020/08/18 17:53 EDT, ONCE, systemic, prior to starting treatment	
- `Q` -	POC lonized Calcium	Order	2020/08/18 17:53 EDT, per protocol, Post filter (Blue port) 1 hour post initiation of therapy, then q3hours until 2 results obtained within target, th	
-;Q:	POC lonized Calcium	Order	2020/08/18 17:53 EDT, per protocol, Arterial line (systemic) 1 hour post initiation of treatment, then q3hour until 2 results obtained within target,	v
₩ 80 + 1	bills for CRRT Citrate Prescrip	tails	*Reason/Clinical Histon	
ке	Uested Start Date/Time: 2020/08/18 Special Instructions:	▲ 1753 ▲ EDT	*Reason/Clinical Histor	
Orders F	For Nurse Review Save as My Favorite		a reason for starting CRRT choose "order for signature".	gnature

Reconciliation Status ✓ Meds History 🇳 Admission 🗳 Discharge

Reconciliation Status ✓ Meds History 🦃 Admission 🧐 Discharge

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Document In Plan

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?	Order Name	Status	Start	Details		^	
	NEPH - Continuous R			placing 23 order(s)			
∠ V-C53; C5-3 OF; A VISIT #:411442900 Admit: 2008/05/27 13:41						-	
⊿ Patient Care							
A	CRRT Citrate Prescription VH	Order	2020/08/18 17:53	Reason: AKI			
🔁 🔁	Communication Order	Order	2020/08/18 17:53	Monitor ionized calcium levels that are not corrected to pH			
ft 🔁	Notify Provider	Order	2020/08/18 17:53	Neph/Crit Care: Daily systemic total calcium:systemic ionized calcium ratio greater than 2.5:1; Systemic ionized calcium less than 0.75 mmol/L post call V bolus	alcium chloride		
🔁 🗗	Notify Provider	Order	2020/08/18 17:53	Neph/Crit Care: Systemic ionized calcium less than 0.75 mmol/L post calcium chloride IV bolus			
🗗 🗈	Notify Provider	Order	2020/08/18 17:53	Neph/Crit Care: Serum sodium greater than or equal to 150 mmol/L			
🔁 🔁	Notify Provider	Order	2020/08/18 17:53	Neph/Crit Care: Serum bicarbonate (from electrolyte panel) greater than 36 mmol/L.			
🔂 🔁	POC Ionized Calcium	Order	2020/08/18 17:53	2020/08/18 17:53 EDT, ONCE, systemic, prior to starting treatment			
🔁 🔁	POC Ionized Calcium	Order	2020/08/18 17:53	2020/08/18 17:53 EDT, per protocol, Post filter (Blue port) 1 hour post initiation of therapy, then q3hours until 2 results obtained within target, then q6hours.			
🔂 🔁	POC Ionized Calcium	Order	2020/08/18 17:53	2020/08/18 17:53 EDT, per protocol, Arterial line (systemic) 1 hour post initiation of treatment, then q3hour until 2 results obtained within target, then	q6hours.		
A	Electrolytes (Na/K/Cl/CO2) Nurse	Order	2020/08/18 17:53	q6 hour schedule while on CRRT			
A	Urea Serum Nurse order when	Order	2020/08/18 17:53	q12 hour schedule while on CRRT			
() E	Creatinine Serum Nurse order when	Order	2020/08/18 17:53	q12 hour schedule while on CRRT			
() ()	Urea Fluid Nurse order when	Order	2020/08/18 17:53	q12 hour schedule while on CRRT			
() ()	Calcium Serum Plasma Nurse order when	Order	2020/08/18 17:53	daily schedule while on CRRT			
👘 🗈	Communication Order	Order	2020/08/18 17:53	Nurse to discontinue CRRT Citrate powerplan when CRRT prescription is discontinued			
∠ Continuous Infusi							
	calcium chloride -	Order	2020/08/18 17:53	IV continuous 30 mL/br. Total volume (mL): 500. Start: 2020/08/18 17:53 EDT		~	
Tetails							
0 Missing Required Details Orders For Nurse Review							

Sign the Order

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edic	edication by Hx Reconciliation -					Reconciliation Statu		
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NEPH - Continuous Renal Replacement Therapy (CRRT) Citrate (VH) (Initiated)						
Last updated on: 2020/08/18 17:58 by: Morgan, Brenda (RN)						
∠ Patient Care						
🗹 🌋 60°	CRRT Citrate Prescription VH	Ordered	Reason: AKI			
	Communication Order	Ordered	Monitor ionized calcium levels that are not corrected to pH			
M 🤶 🏍	Notify Provider	Ordered	Neph/Crit Care: Daily systemic total calcium:systemic ionized calcium ratio greater than 2.5:1; Systemic ionized calcium less than 0.75 mmol/L post calcium chloride IV bolus			
🗹 🌋 66	🖄 Notify Provider	Ordered	Neph/Crit Care: Systemic ionized calcium less than 0.75 mmol/L post calcium chloride IV bolus			
🗹 🌋 66^	🖄 Notify Provider	Ordered	Neph/Crit Care: Serum sodium greater than or equal to 150 mmol/L			
🗹 🌋 66	Notify Provider	Ordered	Neph/Crit Care: Serum bicarbonate (from electrolyte panel) greater than 36 mmol/L.			
	POC Ionized Calcium	Ordered	2020/08/18 17:53:00 EDT, ONCE, systemic, prior to starting treatment			
	POC Ionized Calcium	Ordered	2020/08/18 17:53:00 EDT, per protocol, Post filter (Blue port) 1 hour post initiation of therapy, then q3hours until 2 results obtained within target, then q6hours.			
	POC Ionized Calcium	Ordered	2020/08/18 17:53:00 EDT, per protocol, Arterial line (systemic) 1 hour post initiation of treatment, then q3hour until 2 results obtained within target, then q6hours.			
	Electrolytes (Na/K/Cl/CO2) Nurse order when	Ordered	q6 hour schedule while on CRRT			
	Urea Serum Nurse order when	Ordered	q12 hour schedule while on CRRT			
🗹 🏂 66^	Creatinine Serum Nurse order when	Ordered	q12 hour schedule while on CRRT			
	Urea Fluid Nurse order when	Ordered	q12 hour schedule while on CRRT			
	Calcium Serum Plasma Nurse order when	Ordered	daily schedule while on CRRT			
🗹 🏂 66'	Communication Order	Ordered	Nurse to discontinue CRRT Citrate powerplan when CRRT prescription is discontinued			
⊿ Continuous In						
☑ ☜羹命	calcium chloride - additive 7 g + sodium chloride 0.9% 500 mL	Ordered	IV continuous, 30 mL/hr, Total volume (mL): 500, Start: 2020/08/18 17:53:00 EDT Start infusion 15 minutes before initiatng dialysis treatment. Adjust as per protocol below to maintain SYSTEMIC ionized Calcium lev			
⊿ Medications						
⊠ `∋<u>\$</u>6 6∕	sodium citrate (sodium citrate 4% injectable solution)	Ordered	2.5 mL, injection, BLOCK, as directed, PRN for Other: See Comments, Start: 2020/08/18 17:53:00 EDT Instill 4% sodium citrate solution into each catheter limb (total volume= limb volume+ 0.1 mL)			
🗹 📷 💆 66'	calcium chloride (calcium chloride bolus dose)	Ordered	1,000 mg = 72 mL, injection, IV, as directed, PRN for Other: See Comments, infuse over 15 min, Start: 2020/08/18 17:53:00 EDT administer from calcium chloride infusion bag, for use with citrate protocol for systemic ionized calcium less than or equal to 0.8 m			
🗹 📷 💆 66'	calcium chloride (calcium chloride bolus dose)	Ordered	500 mg = 36 mL, injection, IV, as directed, PRN for Other: See Comments, infuse over 15 min, Start: 2020/08/18 17:53:00 EDT administer from calcium chloride infusion bag, for use with citrate protocol for systemic ionized calcium less than or equal to 0.81-0			
⊿ Laboratory						
Liver Function						
	Alkaline Phosphatase (ALP)	Ordered (Dispatched)	Now, 2020/08/18 17:53:00 EDT, Blood, until 2020/08/18 17:58:00 EDT			
	Alanine Aminotransferase (ALT)	Ordered (Dispatched)	Now, 2020/08/18 17:53:00 EDT, Blood, until 2020/08/18 17:58:00 EDT			
	Bilirubin, Total (BILT)	Ordered (Dispatched)	Now, 2020/08/18 17:53:00 EDT, Blood, until 2020/08/18 17:58:00 EDT			
🗹 🏂 66'	🖄 Bilirubin, Total (BILT)	Ordered	AM Routine, 2020/08/19 3:00:00 EDT, Blood, Frequency: daily.			
Details						

Orders have been completed