

ICU Electrolyte Protocol with AGGRESSIVE Magnesium Replacement [1425]

These orders are intended for the treatment of electrolyte depletion in ADULTS. ELECTROLYTE ORDERS SHOULD BE ASSESSED FOR APPROPRIATENESS DAILY

The orders do not apply for patients with the following unless specified:

- ? ESRD or acute renal insufficiency
- ? DKA
- ? Pregnancy induced hypertension.

For patients with dosing or monitoring needs other than those outlined, please submit separate orders. The protocol will be discontinued if a patient develops acute renal failure (rise in serum creatinine greater than or equal to 0.5 mg/dL or UOP less than 30 mL/hr.

Nursing

Protocols

Please discontinue the previous Electrolyte replacement protocol - (Magnesium, Potassium, Phosphate) order prior to placing this aggressive (magnesium, potassium, phosphate) protocol order.

[] Electrolyte replacement protocol (Aggressive) - Potassium	Routine, Until discontinued, Starting S These orders are intended for the treatment of electrolyte depletion in ADULTS. The orders may not be appropriate for patients with ESRD, acute renal insufficiency, chronic heart failure, DKA or pregnancy induced hypertension. ELECTROLYTE ORDERS SHOULD BE ASSESSED FOR APPROPRIATENESS DAILY. For patients with dosing or monitoring needs other than those outlined below, please submit separate orders.
[] Electrolyte replacement protocol (Aggressive) - Magnesium	Routine, Until discontinued, Starting S These orders are intended for the treatment of electrolyte depletion in ADULTS. The orders may not be appropriate for patients with ESRD, acute renal insufficiency, chronic heart failure, DKA or pregnancy induced hypertension. ELECTROLYTE ORDERS SHOULD BE ASSESSED FOR APPROPRIATENESS DAILY. For patients with dosing or monitoring needs other than those outlined below, please submit separate orders.
[] Electrolyte replacement protocol (Aggressive) - Phosphate	Routine, Until discontinued, Starting S These orders are intended for the treatment of electrolyte depletion in ADULTS. The orders may not be appropriate for patients with ESRD, acute renal insufficiency, chronic heart failure, DKA or pregnancy induced hypertension. ELECTROLYTE ORDERS SHOULD BE ASSESSED FOR APPROPRIATENESS DAILY. For patients with dosing or monitoring needs other than those outlined below, please submit separate orders.
[] Electrolyte replacement protocol (Aggressive) - Calcium	Routine, Until discontinued, Starting S These orders are intended for the treatment of calcium depletion in ADULTS. The orders may not be appropriate for patients with ESRD, acute renal insufficiency, chronic heart failure, DKA or pregnancy induced hypertension. CALCIUM REPLACEMENT ORDERS SHOULD BE ASSESSED FOR APPROPRIATENESS DAILY. For patients with dosing or monitoring needs other than those outlined, please submit separate orders.

Notify

[] Notify Physician if potassium is less than 3 mEq/L or greater than 6 mEq/L	Routine, Until discontinued, Starting S
[] Notify Physician if magnesium is less than 1 mg/dL or greater than 4.5 mg/dL	Routine, Until discontinued, Starting S

Notify Physician if phosphate is less than 0.9 mg/dL or greater than 9 mg/dL Routine, Until discontinued, Starting S

Notify Physician if calcium is less than 0.75 mmol/L or greater than 1.5 mmol/L; serum creatinine is greater than 1 mg/dL in 24 hours; urine output less than 0.5 ml/kg/hr Routine, Until discontinued, Starting S

Medications

Potassium (Single Response)

Potassium Level (mEq/L)	Potassium Chloride Dose	Monitoring
3.5 – 3.7	20 mEq PO or IV	8 hours post administration
3.2 – 3.4	60 mEq PO or IV	
LESS THAN 3.2	80 mEq IV ONLY	2 hours post administration

Select **CENTRAL** or **PERIPHERAL** line order options based on available access

Patients tolerating oral feeding without symptomatic electrolyte abnormalities should receive oral replacement.

() For potassium 3.5-3.7 mEq/L (Single Response)

() potassium chloride CENTRAL LINE

"And" Linked Panel

potassium chloride 20 mEq in 100 mL IVPB 20 mEq, intravenous, for 60 Minutes, once, For 1 Doses
Total dose 20 mEq. Recheck potassium level 8 hours after total dose is administered. For Central Line administration ONLY

Recheck potassium level Once, Starting H+10 Hours For 1 Occurrences
Recheck potassium level 8 hours after total dose is administered.

() potassium chloride PERIPHERAL LINE

"And" Linked Panel

potassium chloride 10 mEq in 100 mL IVPB 10 mEq, intravenous, for 60 Minutes, every 1 hour, For 2 Doses
Total dose 20 mEq. Recheck potassium level 8 hours after total dose is administered. For Peripheral Line administration ONLY

Recheck potassium level Once, Starting H+11 Hours For 1 Occurrences
Recheck potassium level 8 hours after total dose is administered.

() potassium chloride tablet

"And" Linked Panel

potassium chloride (K-DUR) CR tablet 20 mEq, oral, once, For 1 Doses
Total dose 20 mEq. Recheck potassium level 8 hours after total dose is administered.

Recheck potassium level Once, Starting H+9 Hours For 1 Occurrences
Recheck potassium level 8 hours after total dose is administered.

() potassium chloride oral packet

"And" Linked Panel

potassium chloride (KLOR-CON) packet 20 mEq, oral, once, For 1 Doses
Total dose 20 mEq. Recheck potassium level 8 hours after total dose is administered.

Recheck potassium level Once, Starting H+9 Hours For 1 Occurrences
Recheck potassium level 8 hours after total dose is administered.

() For potassium 3.2-3.4 mEq/L (Single Response)

() potassium chloride CENTRAL LINE

"And" Linked Panel

Potassium chloride 20 mEq/100 mL 20 mEq, intravenous, for 60 Minutes, every 1 hour, For 3 Doses
Total dose 60 mEq. Recheck potassium level 8 hours after total dose is administered. For Central Line administration ONLY

Recheck potassium level Once, Starting H+12 Hours For 1 Occurrences
Recheck potassium level 8 hours after total dose is administered.

() potassium chloride PERIPHERAL LINE

"And" Linked Panel

Potassium chloride 10 mEq/100 mL 10 mEq, intravenous, for 60 Minutes, every 1 hour, For 6 Doses
Total 60 mEq. Recheck potassium level 8 hours after total dose is administered. For Peripheral Line administration ONLY

Recheck potassium level Once, Starting H+15 Hours For 1 Occurrences
Recheck potassium level 8 hours after total dose is administered.

() potassium chloride tablet

"And" Linked Panel

potassium chloride (K-DUR) CR tablet 60 mEq, oral, once, For 1 Doses
Total dose 60 mEq. Recheck potassium level 8 hours after total dose is administered.

Recheck potassium level Once, Starting H+9 Hours For 1 Occurrences
Recheck potassium level 8 hours after total dose is administered.

<input type="checkbox"/> potassium chloride oral packet	"And" Linked Panel
<input type="checkbox"/> potassium chloride (KLOR-CON) packet	20 mEq, oral, every 15 min, For 3 Doses Total dose 60 mEq. Recheck potassium level 8 hours after total dose is administered.
<input type="checkbox"/> Recheck potassium level	Once, Starting H+9 Hours For 1 Occurrences Recheck potassium level 8 hours after total dose is administered.

For potassium level LESS than 3.2 mEq/dL (Single Response)

<input type="checkbox"/> potassium chloride CENTRAL LINE	"And" Linked Panel
<input type="checkbox"/> Potassium chloride 20 mEq/100 mL	20 mEq, intravenous, for 60 Minutes, every 1 hour, For 4 Doses Total dose 80 mEq. Recheck potassium level 2 hours after total dose is administered. For Central Line administration ONLY
<input type="checkbox"/> Recheck potassium level	Once, Starting H+7 Hours For 1 Occurrences Recheck potassium level 2 hours after total dose is administered.

<input type="checkbox"/> potassium chloride PERIPHERAL LINE	"And" Linked Panel
<input type="checkbox"/> Potassium chloride 10 mEq/100 mL	10 mEq, intravenous, for 60 Minutes, every 1 hour, For 8 Doses Total dose 80 mEq. Recheck potassium level 2 hours after total dose is administered. For Peripheral Line administration ONLY
<input type="checkbox"/> Recheck potassium level	Once, Starting H+11 Hours For 1 Occurrences Recheck potassium level 2 hours after total dose is administered.

Aggressive Magnesium (Single Response)

Magnesium Level (mg/dL)	Magnesium Sulfate Dose	Monitoring
2 – 2.3	2 g IV	AM labs
1.5 – 1.9	3 g IV	AM labs
1 – 1.4	4 g IV	2 hours post administration
LESS THAN 1	4 g IV	2 hours post administration AND Contact MD

For magnesium 2 - 2.3 mg/dL

<input type="checkbox"/> magnesium sulfate IV 2 gram total dose	2 g, intravenous, once, For 1 Doses Infusion rate is 2 gm over 2 hours for peripheral or central infusion. Recheck magnesium level in AM.
<input type="checkbox"/> Recheck magnesium level	AM draw For 1 Occurrences Recheck magnesium level in AM.

For magnesium 1.5-1.9 mg/dL

<input type="checkbox"/> magnesium sulfate IV 3 gram total dose	3 g, intravenous, once, For 1 Doses Infusion rate is 3 gm over 3 hours for peripheral or central infusion. Recheck magnesium level in AM.
<input type="checkbox"/> Recheck magnesium level	AM draw For 1 Occurrences Recheck magnesium level in AM.

For magnesium level 1-1.4 mg/dL

<input type="checkbox"/> magnesium sulfate IV 4 gram total dose	"And" Linked Panel 4 g, intravenous, once, For 1 Doses Infusion rate is 4 gm over 4 hours for peripheral or central infusion. Recheck magnesium level 2 hours after total dose is administered.
<input type="checkbox"/> Recheck magnesium level	Once, Starting H+7 Hours For 1 Occurrences Recheck magnesium level 2 hours after total dose is administered.

For magnesium LESS THAN 1 mg/dL

<input type="checkbox"/> magnesium sulfate IV 4 gram total dose	"And" Linked Panel 4 g, intravenous, once, For 1 Doses Contact physician immediately for magnesium level LESS than 1 mg/dL Infusion rate is 4 gm over 4 hours for peripheral or central infusion.
<input type="checkbox"/> Notify Physician for magnesium LESS THAN 1 mg/dL	Routine, Until discontinued, Starting S
<input type="checkbox"/> Recheck magnesium level	Once, Starting H+7 Hours For 1 Occurrences Recheck magnesium level 2 hours after total dose is administered.

Phosphate (Single Response)

Phosphate Level (mg/dL)	Sodium Phosphate IV Dose	Phospha Neutral 250 PO Dose	Monitoring
2 - 2.4	30 mmol IV	6 (2 tabs q4 hours x3)	AM labs
1.5 – 1.9	40 mmol IV	8 (2 tabs q4 hours x4)	
LESS THAN 1.5	60 mmol IV	--	2 hours post administration

Patients tolerating oral feeding without symptomatic electrolyte abnormalities should receive oral replacement.

() For phosphate 2 - 2.4 mg/dL (Selection Required)

Phosphate IV or PO (Single Response) (Selection Required)

() sodium phosphate IVPB 30 mmol, intravenous, once, For 1 Doses
Total dose 30 mmol. Recheck phosphorous level in AM.

() sod phos di, mono-K phos (PHOSPHA 250 NEUTRAL) tablet 2 tablet, oral, every 4 hours, For 3 Doses

Phosphorus level AM draw For 1 Occurrences
Recheck phosphorous level in AM.

() For phosphate 1.5 - 1.9 mg/dL (Selection Required)

Phosphate IV or PO (Single Response) (Selection Required)

() sodium phosphate IVPB 40 mmol, intravenous, once, For 1 Doses
Total dose 40 mmol. Recheck phosphorous level in AM.

() sod phos di, mono-K phos (PHOSPHA 250 NEUTRAL) tablet 2 tablet, oral, every 4 hours, For 4 Doses

Phosphorus level AM draw For 1 Occurrences
Recheck phosphorous level in AM.

() For phosphate LESS THAN 1.5 mg/dL

"And" Linked Panel

sodium phosphate IVPB 60 mmol, intravenous, once, For 1 Doses
Total dose 60 mmol. Recheck phosphorous level 2 hours after total dose is administered.

Phosphorus level Once, Starting H+7 Hours For 1 Occurrences
Recheck phosphorous level 2 hours after total dose is administered.

Calcium (Single Response)

Ionized Calcium Level (mg/dL)	Calcium Gluconate IV PERIPHERAL LINE	Calcium Chloride CENTRAL LINE	Monitoring
1.05 – 1.16	3 g IV	1 g IV	8 hours post administration
0.91 – 1.04	3 g IV and Contact provider	2 g IV	
LESS THAN 0.9	Contact provider	3 g IV	

Select CENTRAL or PERIPHERAL line order options based on available access

() For ionized calcium 1.05-1.16 mg/dL (Single Response)

() Calcium gluconate PERIPHERAL LINE

"And" Linked Panel

calcium gluconate 3 g IVPB 1 g, intravenous, for 30 Minutes, every 30 min, For 3 Doses
Total dose 3 gm. Recheck ionized calcium level 8 hours after total dose is administered.

Ionized calcium Once, Starting H+11 Hours For 1 Occurrences
Recheck ionized calcium level 8 hours after total dose is administered

() Calcium chloride CENTRAL LINE	"And" Linked Panel
<input type="checkbox"/> calcium chloride 1 g IVPB	1 g, intravenous, for 60 Minutes, once, For 1 Doses IRRITANT. Infuse through Central Line only. Total dose 1 gm. Recheck ionized calcium level 8 hours after total dose is administered. Do not infuse in the same IV line as phosphate-containing solutions. Stop the infusion if patient complains of pain or discomfort. Infuse NO faster than 1 gm per hour.
<input type="checkbox"/> Ionized calcium	Once, Starting H+10 Hours For 1 Occurrences Recheck ionized calcium level 8 hours after total dose is administered

() For ionized calcium 0.91-1.04 mg/dL (Single Response)

() Calcium gluconate PERIPHERAL LINE	"And" Linked Panel
<input type="checkbox"/> calcium gluconate 3 g IVPB	1 g, intravenous, for 30 Minutes, every 30 min, For 3 Doses Total dose 3 gm. Recheck ionized calcium level 8 hours after total dose is administered. For ionized calcium level LESS than 0.91 mMol/mL, contact physician and consider administration of IV calcium replacement using a Central Line.
<input type="checkbox"/> Ionized calcium	Once, Starting H+11 Hours For 1 Occurrences Recheck ionized calcium level 8 hours after total dose is administered
<input type="checkbox"/> Notify Physician for ionized calcium 0.91-1.04 mg/dL	Routine, Until discontinued, Starting S

() Calcium chloride CENTRAL LINE	"And" Linked Panel
<input type="checkbox"/> calcium chloride 2 g IVPB	1 g, intravenous, for 60 Minutes, every 1 hour, For 2 Doses IRRITANT. Infuse through Central Line only. Total dose 1 gm. Recheck ionized calcium level 8 hours after total dose is administered. Do not infuse in the same IV line as phosphate-containing solutions. Stop the infusion if patient complains of pain or discomfort. Infuse NO faster than 1 gm per hour.
<input type="checkbox"/> Ionized calcium	Once, Starting H+11 Hours For 1 Occurrences Recheck ionized calcium level 8 hours after total dose is administered

() For ionized calcium LESS THAN 0.9 mg/dL

<input type="checkbox"/> calcium chloride 3 g IVPB	"And" Linked Panel
	1 g, intravenous, for 60 Minutes, every 1 hour, For 3 Doses IRRITANT. Infuse through Central Line only. If no central line available, contact provider.
	Total dose 3 gm. Recheck ionized calcium level 8 hours after total dose is administered. Do not infuse in the same IV line as phosphate-containing solutions. Stop the infusion if patient complains of pain or discomfort. Infuse NO faster than 1 gm per hour.
<input type="checkbox"/> Ionized calcium	Once, Starting H+12 Hours For 1 Occurrences Recheck ionized calcium level 8 hours after total dose is administered