

(place patient label here)

Patient

Name: _____

Order Set Directions:

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PROVIDER ORDERS

Diagnosis: _____
Allergies with reaction type: _____

CHRONIC HOME HEMODIALYSIS ORDERS

Version 4 1/21/2013

1. TREATMENT ORDERS

- A. Frequency of treatment _____ 5 _____ 6 times per week.
- B. Weight and blood pressures, both sitting and standing prior to initiation of each home treatment and record on run sheet.
- C. Record all physical pre-treatment data on the dialysis run sheet including the
- D. NxStage cyclor and Pureflo serial #, PAK lot #, SAK lot #, Cartridge lot #, and SAK Type.
- E. Record all data, blood pressures, on the run sheets as required every ½ hour during treatment
- F. Record all data on the run sheets as required for the post-treatment assessment. Record the cyclor's last set of data (totals for time, dialysate, UF and blood liters processed).
- G. Dialysate volume – based on weight/gender per dosing nomogram.
- H. Blood pump range 300-500 ml/min. with goal of 500 ml/min.
- I. Needle size 15 gauge. Patient to notify home dialysis nurse if unable to cannulate.
- J. Dialysate solution K+ _____ Lactate _____.
- K. Ultra filter to established dry weight.
- L. Heparin 1000 units/ml heparin
Patient bolus: begin at 2,000 units infusion to initiate treatment. Check cartridge circuit at 1 and 2 hours into treatment for signs of filter and/or arterial access pressure pod clotting. If clotting of circuit or pod occurs, titrate heparin bolus up 500 units each treatment until circuit is free from clotting.
- M. Central lines (if present) at end of treatment:
 - 1) Remove heparin from limbs with a 3 cc syringe and discard.
 - 2) Flush each limb with 10ml NS.
 - 3) At end-of-treatment heparinize each limb with 5000 units/ml heparin, the volume of the lumen plus 0.2 ml.
 - 4) If unable to aspirate heparin from catheter do not give heparin bolus.

2. LABORATORY ROUTINE:

- A. On admission (before first dialysis treatment):
 - 1) Dialysis renal panel
 - 2) CBC w/o differential
 - 3) Hepatitis B surface antigen
 - 4) Hepatitis C antibody
 - 5) Hepatitis B surface antibody
 - 6) Hepatitis B core antibody
 - 7) HIV (after consent)
 - 8) Iron profile
 - 9) Ferritin
 - 10) PTH Intact
 - 11) ALT
- B. Monthly: Patient will draw blood for lab evaluation on morning of scheduled monthly assessment at the in-center clinic.
 - 1) CBC w/o differential
 - 2) Dialysis renal panel
 - 3) Iron Profile
 - 4) ALT
 - 5) Hepatitis B surface antigen, if unvaccinated or susceptible
 - 6) Ferritin monthly if results greater than 1200 ng/ml
 - 7) Glucose - diabetic patients only
- C. Quarterly
 - 1) Kt/V
 - 2) PTH intact
 - 3) Ferritin (do monthly if previous result greater than 1200 ng/ml)

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D. Semi-Annually:

- 1) Hepatitis C antibody
- 2) Hgb A1c (diabetic patients only)
- 3) Vitamin D 25 Hydroxy

E. Annually:

- 1) Hepatitis B surface antigen if antibody positive
- 2) Hepatitis B surface antibody if vaccination series completed (If no response after booster, do not recheck)

3. ROUTINE MISCELLANEOUS

A. On admission:

- 1) Height
- 2) Pneumovax if has not had, or if > 5 years ago
- 3) Obtain 12-lead EKG from hospital or clinic. If not available, order 12-lead EKG.
- 4) TB skin test; if positive obtain chest X-ray (state TB skin test was positive)

B. Annually:

- 1) TB questionnaire yearly. Notify provider of change in results. TB test if traveling and receiving unit requires test. If positive TB test in the past, chest x-ray for "possible TB."
- 2) Influenza vaccine 0.5ml IM

C. Renal Diet:

- 1) greater than 1.2 grams protein/kg/day, 2 grams sodium, less than 1 gram phosphorus, less than 2 grams potassium, Fluid restriction of _____ml/day

D. Pneumovax 0.5 ml IM if has not had, or if > 5 years since last given; MAX 2 doses

4. DIALYSIS HEPATITIS B ORDERS:

- A. On all non-immunized patients, after obtaining consent, give 40 mcg Hepatitis B vaccine IM at month 0, 1, 2, 6.
- B. One month after 4th dose (month 7) draw Hepatitis B surface antibody. If antibody negative administer one additional dose of Hepatitis B vaccine at month 12.
- C. If previously vaccinated patient who was antibody positive converts to antibody negative repeat vaccine series once.

5. MEDICATION ORDERS:

- A. If dual lumen catheter clotted home hemodialysis nurse may administer 2 mg/lumen of CathFlo to volume of lumen. Dwell in catheter 60 minutes, then attempt aspiration.. Notify provider if this does not rectify.

B. Aranesp _____mcg sq every _____ weeks Adjust dose monthly using following Aranesp Protocol

- 1) Aranesp is available in the following syringe sizes:
25 mcg, 40 mcg, 60 mcg, 100 mcg, 150 mcg, 200 mcg and 300 mcg
- 2) Target hemoglobin is 10-11.5 g/dL unless otherwise ordered
- 3) Maximum Aranesp dose is 300mcg/week or 1200 mcg/month. Notify provider if dose increase would be greater the maximum
- 4) Monthly Aranesp dose adjustments:

a. Dose changes for Hgb 8-9.5 gm/dL

Current Dose	New dose
25 mcg	60 mcg
40 mcg	100 mcg
60 mcg	150 mcg
100 mcg	200 mcg
150 mcg	300 mcg
200 mcg	300 mcg

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b. Dose changes for Hgb 9.6-10 gm/dL OR Hgb decreases by greater than 0.5 gm/dL

Current Dose	New dose
25 mcg	40 mcg
40 mcg	60 mcg
60 mcg	100 mcg
100 mcg	150 mcg
150 mcg	200 mcg
200 mcg	300 mcg

c. Dose changes for Hgb 10.1-11 gm/dL: NO CHANGES

d. Dose changes for Hgb 11.1-12 gm/dL OR increases is Hgb by greater than 0.5 mg/dL

Current Dose	New dose
25 mcg	↑dosing interval by 1 week (ie if every 2 weeks change to every 3 weeks)
40 mcg	25 mcg
60 mcg	40mcg
100 mcg	60 mcg
150 mcg	100 mcg
200 mcg	150 mcg
300 mcg	200mcg

- e. If Hgb is greater than 12 gm/dL
- 1) Hold dose and notify provider.
 - 2) Repeat Hgb in 2 weeks

5) Aranesp dose adjustments for restarting after holding doses:

a. If Hgb is greater than 11.1-11.5 gm/dL

Current Dose	New dose
25 mcg	↑dosing interval by 1 week (ie if every 2 weeks change to every 3 weeks)
40 mcg	25 mcg
60 mcg	40mcg
100 mcg	60 mcg
150 mcg	100 mcg
200 mcg	150 mcg
300 mcg	200mcg

b. If Hgb is 10.5-11 gm/dL: Restart at the same dose as before

c. If Hgb is less than 10.4 gm/dL

Current Dose	New dose
25 mcg	40 mcg
40 mcg	60 mcg
60 mcg	100 mcg
100 mcg	150 mcg
150 mcg	200 mcg
200 mcg	300 mcg

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C. Venofer Administration Protocol

- 1) Draw iron studies monthly - Ferritin levels quarterly unless >1200 ng/ml, then do monthly
- 2) Hold Venofer for T-sat > 50% and Ferritin >1200 ng/ml.
- 3) Consult provider if T-sat < 20%, Ferritin <1200 ng/ml and Hgb > 12.5 g/dl regarding Venofer administration.

D. Vitamin D Therapy

- 1) Begin therapy only if these criteria are met:
 - a) Intact PTH > 400 pg/ml
 - b) Serum calcium <10.2 mg/dl
 - c) Serum phosphorus <6.5 mg/dl
- 2) Target intact PTH 150 – 600 pg/ml

Suggested starting dose:

Intact PTH (pg/ml)	< 400	401-600	601-800	801-1000	> 1000
Calcitriol oral dose DAILY	N/A	0.5 mcg	0.75 mcg	1.0 mcg	1.5 mcg

% PTH CHANGES = ((Prior PTH – Current PTH)/ Prior PTH) X 100

Laboratory Trend	Dose Adjustment/Titration
cCa 9.8 -10.2 Or If cCa increasing by 1 mg/dl from previous value	Decrease calcitriol dose by 0.25 mcg (if not already indicated to decrease based on PTH change) Consider: -reducing or discontinuing calcium based binder. Replace with a non- calcium based binder -additional education on low phosphorus and low calcium diet
cCa >10.2	Hold Calcitriol Once cCa < 10.2 restart calcitriol dose at 0.25 mcg less than previous dose daily
P > 6.5	1 st time – Decrease calcitriol by 0.25 mcg daily 2 nd time – Hold Calcitriol, then restart at previous dose
PTH < 150	1 st time – Decrease Calcitriol by 0.25mcg daily 2 nd time – Hold Calcitriol, then restart once PTH > 200 at 0.25 mcg less than previous dose. -Evaluate binder, if on calcium based binder consider replacing with non-calcium based binder. -Evaluate calcimimetic therapy. Consider reducing dose. <u>DOSE ADJUSTMENT/TITRATION</u> If PTH >400 and increased > 25% from last value: Increase Calcitriol dose by 0.25mcg daily
PTH 150-600 (Target)	If PTH decreased ≤25% from last value and previous PTH > 600. Maintain current Calcitriol dose If PTH decreased >25% from last value and previous PTH > 600: Decrease current Calcitriol dose by 0.25 mcg daily If PTH fluctuates within target range (150-600), maintain current Calcitriol dose
PTH > 600	If PTH increased or decreased < 25% from last value: Increase Calcitriol dose by .5 mcg daily If PTH decreased 25-50% from last value: Maintain current Calcitriol dose If PTH decreased > 50% from last value: Decrease Calcitriol dose by 0.25 mcg daily

ALL DOSE CHANGES MUST BE DOCUMENTED IN THE PROVIDER ORDERS

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6. EMERGENCY TREATMENT:

- A. Normal saline 200 ml bolus IV for systolic blood pressure less than 100mmHg or signs and symptoms of hypotension. May repeat x1. Notify provider if ineffective.
- B. Normal saline up to 1000ml may be used to maintain adequate transmembrane pressure with additional fluid removed in patient's goal.
- C. Call 911 or seek medical help at ER for palpitations or chest pain during dialysis.
- D. Oxygen @ 3 L/min PRN chest pain or shortness of breath if available at home.
- E. Dialysis may be terminated at the discretion of the patient and/or care partner with notification of the home hemodialysis nurse.
- F. Notify home hemodialysis nurse and/or seek medical attention at ER if temperature greater than 100 °F
- G. Culture any drainage from access site and notify provider of possible infected access.

7. ROUTINE TREATMENT:

- A. Vital signs and weight at beginning and end of each treatment.
- B. Blood pressure at least hourly and PRN signs and symptoms of hypotension or hypertension
- C. Capillary blood glucose for diabetics PRN signs and symptoms of hypoglycemia
- D. Notify provider of lab values outside of acceptable dialysis value range
- E. Notify provider of dialysis venous pressure progressive elevations.

8. SPECIAL INSTRUCTION:

Provider Signature: _____ Date: _____ Time: _____