

1. Nutrition Standards of Care:

- A. Follow P&P Nutrition Standards of Care

2. Laboratory Tests:

A. Drawn On Admission:

1. Renal Function Panel (BMP, PO₄ and Albumin) (ICD10 N18.6 & Diabetics E08.21 or Non-Diabetics R73.09)
2. Total Protein, Alkaline Phosphatase, ALT (ICD10 N18.6)
3. CBC with differential and platelets (ICD10 N18.6)
4. HBsAg, HBsAb, HBcAb, HCVAb (ICD10 N18.6)
5. Kt/V (Daugirdas II) all patients (ICD10 Z49.31)
6. Standard Kt/V if two (2) or four (4) treatments regularly ordered weekly (ICD10 Z49.31)
7. Serum Aluminum (ICD10 N18.6)
8. Iron Studies (ICD10 N18.6)
9. Vitamin D-25 (ICD10 N18.6)
10. Intact PTH (ICD10 N18.6)
11. If a patient is admitted during monthly lab week, draw the labs on the first treatment

B. Monthly Draws:

1. Renal Function Panel: monthly (ICD10 N18.6 & Diabetics E08.21 or Non-Diabetics R73.09)
2. Total Protein, Alkaline Phosphatase, ALT (ICD10 N18.6)
3. CBC with differential and platelets (ICD10 N18.6)
4. HBsAg (ICD10 N18.6)
5. Kt/V (Daugirdas II) all patients (ICD10 Z49.31)
6. Standard Kt/V if two (2) or four (4) treatments regularly ordered weekly (ICD10 Z49.31)
7. Intact PTH (ICD10 N25.81) if patient is on Cinacalcet

C. Two (2) Weeks After Monthly Labs:

1. Hgb (ICD10 N18.6)

D. Quarterly Labs:

1. Iron Studies (Jan, Apr, Jul, Oct) (ICD10 N18.6)
2. Intact PTH (Feb, May, Aug, Nov) (ICD10 N18.6)
3. Aluminum for patients with most recent aluminum levels > 30 or on aluminum containing phosphate binders (Feb, May, Aug, Nov) (ICD10 M83.9)

E. Annual Labs:

1. HBsAb, HCVAb (Jan) (ICD10 N18.6)
2. Vitamin D-25 (Jan) (ICD10 N18.6)
3. Magnesium (Jan) (ICD10 N18.6)

F. Patients with AKI:

1. Weekly Renal Function Panel for the first month then every other week
2. If the patient reports increasing urine output, check the potassium level each treatment

G. PRN Lab Draws:

1. Blood Cultures (ICD10 A41.9) & Wound Cultures of access site (ICD10 T82.7XXA (initial), D (subsequent) or S (sequela):

- a. Patient with a central venous catheter and a fever of $>100.4^{\circ}\text{F}$ or $>38.0^{\circ}\text{C}$, draw two (2) sets of blood cultures from the access/bloodlines at least five (5) minutes apart. Notify MD.
 - b. Patient with a fistula or graft and a fever of $>100.4^{\circ}\text{F}$ or $>38.0^{\circ}\text{C}$, call MD for orders.
 - c. Culture and Sensitivity on any drainage noted from a dialysis access site
 - i. Specify Site
 - ii. Contact MD prior to initiation of dialysis if access infection suspected.
2. HBsAb titer recheck 30 days after completion of Hepatitis B vaccination series (ICD10 N18.6)
 3. Phosphorus (ICD10 N18.6) per dietitian/Care Coordinator discretion if not meeting goal
 4. Recheck labs and notify MD per P&P Critical Lab Notification to Nephrologist

3. Dialysis Adequacy:

- A. Set dialysate flow rate machine setting for 1.5 times blood flow rate *or closest equivalent setting of 600 or 800 for BBraun machines* (readings in EMR flow sheet may be +/- 10 ml/min from machine setting due to machine programming).
- B. If Kt/V (Daugirdas II) < 1.2 or Std Kt/V < 2.0 follow P&P Guidelines for Inadequate Kt/V and recheck prior to end of current month (ICD10 Z49.31)
- C. Ultrafiltration rate may not exceed 13 ml/kg/hr without MD order. This DOES NOT apply while the patient is in Pure or Sequential Ultrafiltration (PUF/SUF).
- D. Schedule an extra 2-3 hour ultrafiltration treatment to remove 3-4 liters of fluid PRN fluid overload (ICD10 E87.70) on an F160 dialyzer and notify the MD
- E. Challenge Dry Weight up to 2 kg total but no more than 0.5 kg per week PRN signs/symptoms of excess fluid per nurse discretion and fax the MD.
- F. For dialysis units using the BBraun machine, follow Adimea Policy & Procedure *if available*.

4. Dialysis Bath:

- A. 3Ca 2K Naturalyte Bath: 3Ca bath can only be initiated when the uncorrected calcium level is < 8.0 . Any patient dialyzing on a 3Ca bath will be changed to a 2.5Ca bath if their calcium is ≥ 8.5 for 2 consecutive months. Check calcium weekly for two weeks.
- B. 1K Bath: Any patient dialyzing on a 1K bath will be changed to a 2K bath if their potassium level is < 5.5 and the MD will be notified. The patient will remain on a 2K bath until a different bath is ordered by the nephrologist. A potassium level will be rechecked weekly for 2 weeks.

5. Medications:

- A. Epinephrine Auto Injector per P&P Anaphylaxis
- B. Benadryl 25 mg IV:
 1. **FOR ALLERGIC REACTIONS ONLY**
 2. **Patients should not drive after dialysis after receiving these medications as their abilities may be hampered**
- C. Ondansetron 4 mg PO PRN nausea or vomiting, may repeat once
- D. Acetaminophen 325 mg 1-2 PO every four (4) hours as needed for pain
- E. Nitroglycerin 0.4 mg SL PRN chest pain:
 1. May repeat every five (5) minutes for up to 3 doses
 2. *Page* MD after the first dose is given
 3. **DO NOT GIVE IF BP SYSTOLIC IS < 100**
- F. Glucose Tabs for Insulin Reaction (ICD10 E16.1): See P&P Hypoglycemia Management
- G. Dextrose 50% for Insulin Reaction (ICD10 E16.1): See P&P Hypoglycemia Management

- H. Alteplase (tPA, cathflo activase):
 - 1. Follow Central Venous Catheter Protocols for indications and use
- I. Lidocaine 1% intradermal injection (up to 0.2ml) for local anesthesia at each cannulation site PRN
- J. EMLA Cream apply up to 30 minutes before treatment for local anesthesia at each cannulation site PRN
- K. Oxygen 2 L/min nasal cannula PRN dyspnea, chest pain or hypotension per P&P Administration of Oxygen
- L. Oseltamivir (Tamiflu) 30 mg PO post dialysis (ICD10 J06.9)
 - 1. This is **ONLY** to be given during flu season (October-April)
 - 2. Page MD if a patient presents during flu season with a fever (>100.4°F or >38°C) **AND** a cough or sore throat
 - 3. Obtain order to give Oseltamivir 30 mg PO post dialysis for one (1) treatment
 - 4. Puget Sound Kidney Centers will only provide the initial dose of Oseltamivir
 - 5. Remind MD to call in an order for subsequent doses to patient's local pharmacy *and request recommendations for testing for SARS-CoV-2 and Influenza A and B.*
 - 6. Standard dosing is 30 mg PO post dialysis for a total of 5 days
- M. Gentamicin 0.1% cream topical to central venous catheter exit site every hemodialysis treatment (ICD10 N18.6)
- N. Heparin 1000 units/1 ml heparin lock for central venous catheters
- O. Heparin infusion on dialysis– follow P&P Anticoagulation Protocol

6. Vaccinations:

- A. Hepatitis B Vaccination (ICD10 Z23) per P&P Hepatitis B Prevention Program
- B. Seasonal Flu Vaccination (ICD10 Z23) per P&P Administration of the Seasonal Influenza Vaccine
 - 1. Should be administered to all patients 18 years or older during the flu season (October-April)
 - 2. Exceptions:
 - a. Check package insert for contraindications
 - b. MD stated contraindicated
 - c. Patient refuses
- C. Pneumococcal Vaccination (ICD10 Z23) per P&P Administration of the Pneumococcal Vaccines PCV13 and PPSV23

7. Bone Disease Management Protocol:

- A. For dosing of oral calcium medications and phosphate binders follow P&P Calcium and Phosphorus Management
- B. For dosing of IV paricalcitol and calcimimetics follow P&P In-Center Mineral and Bone Disorder Protocol - DO NOT APPLY TO AKI PATIENTS

8. Anemia Management:

- A. For dosing of ESA (ICD10 D63.1) and IV Iron (ICD10 D50.9) see P&P Anemia Management with Mircera

9. Dialysis Access:

- A. Maintain adequate blood flow rate (BFR):
 - 1. Minimum BFR of 200ml/min up to maximum ordered BFR but limited by arterial pressures NEVER to exceed -240 mmHg and venous pressures NEVER to exceed +240 mmHg. Adjust BFR as needed to stay within pressure limits.

2. Notify MD if unable to maintain blood flow rate ≥ 200 ml/min
- B. Recirculation Studies (ICD10 N18.6 or as indicated by MD) to be drawn per P&P Drawing Recirculation Studies for a Hemodialysis Access if:
 1. Arterial pressure is ≥ -10 mmHg x1 at a 200 ml/min BFR
 2. Venous pressure is ≥ 140 mmHg x3 consecutive treatments at a 200 ml/min BFR
 3. Notify MD if:
 - a. AV Fistula – Recirculation $> 10\%$
 - b. AV Graft – Recirculation $>15\%$

10. Nursing:

- A. Hypovolemia/Hypotension:
 1. Decrease ultrafiltration rate
 2. Administer 0.9% Normal Saline IV in 100 ml increments up to 500 ml PRN
 3. Page MD if more than 500 ml is needed
- B. Cramping
 1. Decrease ultrafiltration rate
 2. Decrease blood flow rate to 200 ml/min
 3. Administer 0.9% Normal Saline IV in 100 ml increments up to 200 ml PRN
- C. Unstable Medical Condition:
 1. Dialysis may be postponed or terminated at the discretion of the nurse if the patient is deemed to be medically unstable
 2. Page MD immediately
- D. Hypertension (Systolic Blood Pressure >200 or Diastolic Blood Pressure >120):
 1. Do not initiate dialysis
 2. Page MD for instructions
- E. Tachycardia (Pulse > 120):
 1. Do not initiate dialysis
 2. Page MD for instructions
- F. Use Low Dose Heparin per P&P Anticoagulation Protocol and page MD if:
 1. Evidence of recent fall
 2. Same day surgery
 3. Dental visit
 4. Epistaxis
 5. Suspected pericarditis
- G. If a dialysis flow rate (DFR) of 800ml/min (2x) is ordered, the DFR can be adjusted down to 600ml/min (1.5x) prn TMP alarms

11. Emergency Dialysis Orders:

- A. In a declared emergency (earthquake, fire, flood, power-outage, etc.) where routine dialysis treatment cannot be performed the following adjustments to the dialysis prescription may be made:
1. Dialyzer: F160NRe (if not available, F180NRe may be substituted)
 2. Dialysate: Per patient’s prescription. If this is not available, the default dialysate will be K2.0/Ca2.5
 3. Time: Maximum feasible up to prescribed time depending on the nature of the emergency.
 4. MD will be notified if adjustments are made to the patient’s dialysate or time
 5. Heparinization
 - Use back up orders if available
 - Hold if patient reports no heparin on run
 - Otherwise: Use table below for bolus dose
 - Normal Saline Flushes PRN for clotting

Time	:00 Minutes	:15 Minutes	:30 Minutes	:45 Minutes
2 Hours	2400 units heparin	2600 units heparin	2800 units heparin	3000 units heparin
3 Hours	3200 units heparin	3400 units heparin	3600 units heparin	3800 units heparin
4 Hours	4000 units heparin	4200 units heparin	4400 units heparin	4600 units heparin

Nephrologist Name: _____ Signature: _____ Date: _____

See Electronic Signature in the EMR System