RENAL IN-PATIENT CONSULT SERVICE

Daily Rounds

- On weekdays, rounds typically start at 9:00-10 AM in the MICU.
- Pre-round on old patients and try to see any new patients before rounds as time permits.
    - Residents/students should not enter COVID+ or COVID PUI rooms at this time. Please try to obtain information from the primary team documentation. For initial consults, call the patient if possible to obtain the history (and on follow up as needed).
- The EPIC list is routinely updated throughout the day
    - Patients being managed by the General Service II Fellow will be denoted by $$$ (these may be fellow-only patients or co-managed with residents)
- Daily progress notes can be written and pended on EPIC prior to rounds. Patients are discussed during rounds. Take note of applicable revisions, additions, new plans etc. for the progress note. Do not JUST copy yesterday's note, make sure you update it. Keep it focused, to the point, and up to date.
    - There are dot phrases which you should use:
        a. Initial Consult Note: .INAKIN (new AKI) or .INESRDN (ESRD) or INCOVIDN (COVID)
        b. Initial Progress Note: .INAKIF, .INESRDF, or INCOVIDF
    - After the initial progress note, the "copy forward" function can be used
- Modify and sign pended progress notes after rounds. The Attending will make an addendum to the progress note later in the day.
- New consults are seen and presented either during or after rounds. The consult note can be written before presentation but as pended, and then modified and signed after discussing the case with the Attending and Fellow. The Attending will make an addendum to the consult note later in the day.
- Do not rely on the medical record alone to communicate important recommendations to the primary team on both old and new patients. We recommend paging the primary team with our recommendations.
- Residents are limited to covering and writing notes on 12 patients. If the patient list is too large to fit these numbers, there is a fellow on the "General Service II" service that will follow the overflow without residents to keep the patient limits within these rules. If there are any concerns, please communicate with the fellow and/or attending.

The Renal Consult (new patients)

Key information to obtain:

1. **CHRONICS (ESRD)**
    - Cause of ESRD
    - Dialysis schedule (M W F or T TH Sat) and when was last full HD?
    - BMP, Hemoglobin, PO4 if available
    - Volume status
    - Access – type, site, functional? Any signs of infection?
    - Binder dose
    - Erythropoietin and vitamin D doses (the patient automatically receives these at dialysis and will not know the dose)
    - Briefly the major problem/reason for hospitalization

2. **ACUTES (AKI)**
    - Baseline creatinine and trend. If with abnormal baseline, then CKD stage (compute eGFR using baseline Cr, not current Cr). Cause of CKD? Prior Nephrologist?
    - Precipitating events – hypotension, IV dye, nephrotoxic drugs, etc

- Renal ultrasound – hydro? Echogenicity? Kidney size?
- Urinalysis, urine Na, urine urea nitrogen, urine creatinine if available
- Urine creatinine and urine protein to quantify proteinuria by urine Protein/Creatinine ratio
- If has had kidney biopsy in past, print out the report or have it available
- Clues to fluid status – Echo, CVP/PCWP, CXR, oxygen requirements, exam
- Any available serologies

Pre-rounding (old patients)

Important things to take note of while pre-rounding (in addition to the usual stuff):

- In's and out's (how much urine output and how much was taken off with dialysis – will need to refer to the acute hemodialysis/acute hemofiltration flow sheet)
- Weight (if available)
- Range of blood pressure (did they bottom out while they were on dialysis? – in flow sheets)
- Oxygen requirements/last CXR (if any)
- On PE, if with AVF/AVG, bruit/thrill? Catheter C/D/I? Any cardiac rub? Edema?
- **CHRONICS (ESRD):**
    1. DIALYSIS/AVVHD/CVVHD: last treatment with amount of UF. Tolerated?
    2. ANEMIA: Goal is 10-11.5 g/dl. If Hgb > 11.5 g/dL, hold iron and retacrit until < 11.5 g/dL. If Hgb < 11.5 g/dL, begin retacrit 10,000 units subQ TIW and check Fe stores. Administer Venofer (200 mg IV qD x 5) if Ferritin < 100 ng/mL OR Ferritin < 1000 ng/mL AND Fe sat < 25%. Retacrit should be held with BP > 160/100, active malignancy with curative intent (unless hematology/oncology has approved of its use), and active thrombosis
    3. RENAL OSTEODYSTROPHY: PO4, Ca, iPTH: Work with Fellow to determine management
    4. NEPHROCAPS/RENAL MVI: Most ESRD patients need water soluble vitamin supplementation
    5. Daily weights help assess how much fluid to take off but are rarely available and may not be reliable
    6. Daily BMP and twice weekly Phosphorus, daily Phosphorus in AVVH and CVVH
    7. Low K diet for HD only
- **ACUTES:**
    1. Trends in BUN and creatinine (looking at rate of increase/decrease)
    2. Urine output (trends also important)
    3. Urinalysis findings
    4. Renal US report
    5. Follow-up on serologies after initial consults: ANA, ANCA, C3/C4, hepatitis titers, SIEP/UIEP, etc (may take a few days to come back)

Writing the Note

1. **Use the appropriate templates in EPIC for your notes (the fellow with share the templates). Include the "Service" as "Nephrology".**
2. Reason(s) for consult: Include all renal-related problems.
3. ROS: Need to check off at least 10 organ systems (for new consults). Provide a ROS in the "subjective" part of the progress note (for old patients, these have been built into the template)
4. Past Medical/Surgical, Family and Social History should be filled out (for new consults). If not in EPIC, please type them into your note.
5. Physical Exam: Need to check off at least 10 organ systems (for new consults). "Access" does NOT count. "Vital signs" and "Constitutional" only count a 1. Comment on the access when applicable.
6. Include laboratory work-up AND imaging (CXR, renal US, TTE) for new consults.

7. Problem List:

CHRONICS: (when applicable)

a. ESRD secondary to (DM, HTN, GN, PKD, etc)
b. Any related ESRD issues (HTN, Hyper-K etc)
c. Renal Osteodystrophy
d. Anemia
e. Pertinent renal-related problems (access malfunction, access infection)
f. Primary problem/reason for admission

ACUTES: (when applicable)

a. AKI secondary to (ATN, pre-renal, interstitial nephritis, RPGN, etc)
b. CKD (stage) secondary to (DM, HTN, ischemic nephropathy, etc)
c. Acid-base disorder (AGMA, NAGMA, metabolic alkalosis, etc)
d. Fluid balance (Volume Depletion, Volume Overload)
e. Hyperkalemia/Hypokalemia
f. Hypernatremia/Hyponatremia
g. Proteinuria
h. Hematuria
i. Hypertension
j. Primary problem/reason for admission

8. Discussed with attending/fellow/primary team/etc.

Other issues

- Resident on call covers the Renal resident pager (85-7885) and takes consults and distributes them to the team. Please notify the fellow as well.
- All residents get 4 days off for the rotation, though ideally all residents should be present during the first weekend.
- On days when a resident has Medicine AM clinic, he/she still pre-rounds on his/her patients then passes on the printed pended note to a covering resident. Revisions to the pended note are made by the resident after returning from clinic.
- Residents are capped at a max of 12 patients daily
- **RUMC EPO Policy: Anemia in patients with End Stage Renal Disease (ESRD)**

Anemia is common in patients with CKD and ESRD, due to decreases in erythropoietin production. Most patients with ESRD will become anemic, and replacing erythropoietin can assist to attain appropriate hemoglobin targets. However, erythropoietin administration to target higher hemoglobin targets with higher doses has been linked in studies to vascular events and recurrent malignancies. In addition, erythropoietin administration is well known to cause a functional iron deficiency which can be corrected by administering intravenous iron.

For patients with ESRD, do **NOT** administer erythropoietin if the Hgb is ≥ 11.5 g/dL, if the blood pressure is > 160/100 mmHg or in the setting of active thrombosis or cancer with curative intent. In addition, it should **NOT** be given if true or functional iron deficiency exists. Otherwise, it should be dosed to achieve Hgb targets listed below:

Erythropoietin (EPO) dosing:

Hgb ≥ 11.5 g/dL:	Hold EPO
Hgb 10-11.5 g/d:	Resume outpatient EPO dose and schedule.
Hgb ≤ 10 g/dL:	Increase outpatient EPO dose by 25%, rounded to the nearest vial size.

According to Rush Medical Center Staff policy, erythropoietin will not be administered unless iron studies within 30 days have been documented in the LAB section of EPIC OR in the renal resident/fellow note.

Therefore, obtain the iron studies and erythropoietin dose by contacting the outpatient dialysis center and putting the results in the renal note or by asking the primary team to order the iron studies for the current hospitalization.

Administer IV iron if indicated below by giving Venofer 200 mg IV qD x 5.

- Iron studies should be ordered or documented (within 30 days) and iron replacement initiated as necessary
- If iron studies are low (ferritin less than 100 mcg/mL, or iron saturation is less than 25% and ferritin is less than 1000 mcg/mL), initiate iron replacement. If iron studies are normal or high (ferritin greater than 1000 mcg/mL, or iron saturation greater than 25% and ferritin greater than 100mcg/mL), dose epoetin based on Hgb parameters noted above.

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