Guidance notes for managing the acutely unwell dialysis patient

The Renal service based in Preston provides dialysis for over 600 patients, across 7 dialysis units in Lancashire and South Cumbria plus approximately 90 patients who dialyse at home. It is therefore an outpatient treatment and an acutely unwell dialysis patient should be admitted under the team most suitable to manage the primary problem.

Renal advice is available 24 hours a day 7 days per week but please read these guidance notes first to help you look after your patient in the acute setting. If after reading this guidance you would like advice or to request in-patient transfer then please use the following e-referral form:
LTHTR Renal Services e-referral form

As part of admission/assessment please ask the following questions:

1. When and where did they last have their dialysis? How often do they usually have dialysis?
2. Do they pass urine? If yes preserving this is beneficial therefore avoid harmful drugs
3. Are they on a fluid restriction? If so how much per day.
4. Are they on the renal transplant waiting list?

Specific Topics

1. **Do they need dialysis today and if so where?**

Often we are called on urgent basis as the patient is due their usual maintenance dialysis session that day however they may not require it on an urgent basis and clinical assessment should take place prior to contact*. In these cases if the patient is stable they might be suitable to travel to their usual dialysis unit or if less well but suitable to travel, then to the main dialysis unit at Preston.

In all situations contact the renal team to clarify dialysis plans; ideally around 10am unless you feel there are urgent indications*. For patients on peritoneal dialysis where possible they will be transferred to Royal Preston Hospital and they usually do not need to have dialysis on an urgent basis unless there have been problems with dialysis itself.

For newly admitted patients in your hospital there must be a discussion between the admitting team and our renal team before they are accepted for their usual or urgent dialysis.

*The emergency indications for dialysis remain the same and will prompt the need for same day dialysis in discussion with the renal team:

I. Refractory Hyperkalaemia >6.5
II. Refractory Pulmonary Oedema
III. Refractory Metabolic acidosis pH <7.3 (if severe acidosis patient may not be suitable to travel)
IV. Uraemic encephalopathy and/or pericarditis

2. **Hyperkalaemia**

Any dialysis patient with urgently processed *hospital laboratory* serum potassium > 6.5 requires urgent discussion with the renal team as prompt dialysis may be required. It should be medically managed in the short term while arranging dialysis. Community potassium samples should be repeated and processed urgently before management decisions.

National Renal Association Treatment of Acute Hyperkalaemia in Adults Guidance

3. **Fluid management**

Having asked the assessment questions above fluid management should therefore be tailored to individual requirements and the nature of any acute illness. If nil by mouth their maintenance fluid requirements are usually less and IV fluids may not be needed at all or if so at a lower rate.

Fluid status assessment - Euvolaemia is the aim.
Use clinical assessment plus current/admission weight if available compared to their usual post-dialysis fluid removal 'target weight'
Discuss with patient and ask them 'Do you think you're carrying extra fluid?'
Some will know and some will not but it may help you. Measuring urine output will rarely be a reliable marker of organ perfusion, *therefore routine urethral catheterisation should not be performed.*

Volume depletion – give fluids for septic or dehydrated patients as needed based on clinical assessment. Use small fluid boluses 250mls 0.9% NaCl and assess response, repeating as needed.

Symptomatic fluid overload – if anuric and in acute pulmonary oedema an urgent/extra session of dialysis is usually required. Contact on-call renal team after discussing with most senior team member on site.

- If patient passes urine, IV Furosemide can be used as a temporary measure usually requiring larger intravenous doses to achieve diuresis – try at least 80mg IV at first.
- IV opiates +/- GTN infusion can be useful in the management of pulmonary oedema if there is delay in arranging urgent dialysis in addition to CPAP where available.

Variable rate insulin infusions - please avoid the routine use of potassium containing fluids

- The volume of fluid accompanying the infusion should be tailored to individual requirements
- For blood sugars >15 there is no absolute requirement to run IV fluids if euvolaemic

4. **Analgesia – give initial analgesia in standard way – PO opiates or IV morphine as needed**

Caution required for maintenance/frequent pain relief. Avoid regular codeine, dihydrocodeine or morphine sulphate as toxic intermediate metabolites accumulate with $T^{1/2}$ 50x greater. Use oxycodone or fentanyl preparations if concerned. NSAIDS can be used intermittently in those that pass urine and regularly in anuric patients. Caution required in patients with ischaemic heart disease.

5. **Antibiotic regimens**

In urgent scenarios initial doses are the same except for Gentamicin. For maintenance doses please consult the renal dosing section of your antibiotic policy or the renal drugs database if you have access renal drug database In any discussion with microbiology please highlight that the patient is receiving dialysis.

6. **Dialysis access and suspected tunnelled dialysis line infection or sepsis**

Please do not attempt to access dialysis lines directly unless in peri-arrest or arrest scenario. Dialysis access for patients might be their last option for treatment. Never attempt to access a peritoneal dialysis catheter or tunnelled haemodialysis catheter for cultures or blood sampling unless agreed with the renal team without a specially trained dialysis nurse.

If a tunnelled dialysis catheter is suspected as the most likely source of infection please contact us. Initial doses of antibiotics can be given immediately; there is no need to wait for a dialysis session.

In severe sepsis urgent line removal may be required, and again please liaise with the renal team regarding this.

7. **Use of IV contrast for imaging**

Do not delay urgent imaging requiring IV contrast in a dialysis patient. There is no need to plan emergency dialysis post contrast. Do what is necessary to achieve the right diagnosis.

8. **Blood testing and abnormal blood results**

Do not immediately treat high potassium values based on community samples. Do not immediately treat low potassium values if known or suspected to be taken immediately post dialysis.

- In both cases assess the patient whilst repeating the sample and ensure *processed urgently by biochemistry* if point of care testing not available. If concerns whilst awaiting result treat as required. If patient at home and you are informed out of hours then contact patient and assess symptoms. If in doubt discuss with renal registrar or your medical registrar depending on timing and location. As required contact Renal Consultant on-call.
- If caring for a dialysis in-patient then communicate with the renal dialysis unit about blood tests required. Try to avoid routine phlebotomy or daily testing on the wards unless clearly clinically indicated – blood tests via the dialysis machine is more convenient for the patient.

9. **Anaemia**

We avoid blood transfusions wherever possible in those patients active on the kidney transplant waiting list as it is a sensitising event that can generate antibodies in the patient that may prevent or harm future transplantation.

- However in urgent symptomatic scenarios this is not a concern and you should treat the patient as required.
- Blood transfusions can be given on dialysis – again liaise with the dialysis unit.
- There is never an urgent need to start Erythropoietin. Contact the renal team in usual hours.

Renal Team Contact details

1. **Renal registrar on-call** external referrals – 07712403313 Available and on-site 9-9pm Mondays to Friday; 9-7pm Sat & Sun/Bank Holidays.
   LTHTR Renal Services e-referral form

2. Outside of these hours or if unable to contact registrar, **Renal Consultant on-call available via switchboard** as needed 24 hours per day 7 days per week – bearing in mind they will be working the next day so ensure all necessary details to hand, your patient has been reviewed prior to the call and a registrar or above agrees the contact is required.

3. **Main dialysis unit ground floor RPH** for all queries regarding dialysis in-patients if the patient is not well enough to have dialysis at their usual satellite unit 01772 522739 or 01772 522520

4. **Home dialysis team Chorley District Hospital** – for communications regarding patients on home dialysis CDH 01257 247565