

WHAT TO DO WHEN THE URR IS UNDER 65

(See *Model: Low URR Checklist* adapted from Midwest Kidney Centers, Peoria, IL and presented in an Excel spreadsheet format.)

URR

A URR should be ordered every time a patient gets a new size dialyzer, change in time, change in flow, or any other change. If it is still not up to 65, another change should be made as soon as the URR result is obtained. **Waiting unnecessarily for the monthly URR draw results in the patient taking 5-6 months to achieve a target URR of 65.** Repeat the URR as soon as the change is implemented and continue to repeat until URR is over 65. Ordering the URR and reporting the result to the physician is the responsibility of the nursing supervisor and the dietitian.

Heparinization

- Dose heparin in units/kg, especially in larger patients. If URR's are not adequate, the patient should receive at least 80 units/kg and possibly 100 units/kg. Obtain PTT's during the run if still in doubt. New patients should receive full doses and patients on double dialyzers may require more heparin than a single dialyzer patient.
- 3-5 minutes before connecting the patient, administer the heparin followed by a saline flush so that the patient is systemically heparinized by the time the first blood reaches the dialyzer.
- The hourly infusion of heparin should be at least 1,000 units. **Catheter patients should have the infusion continued until termination of dialysis since post dialysis bleeding is not a problem.**
- Reasons for **reduced** heparin dose are:
 - Diabetics who are currently bleeding or who are undergoing laser treatments. Most ophthalmologists agree that if a patient is not having active bleeding or undergoing laser treatment, heparin does not lead to bleeding and, therefore, does not need to be reduced.

- Bleeding, blood dyscrasias, anticoagulants and hemorrhagic pericarditis are the only other reasons to reduce heparin.
- The staff must ensure that the heparin dose has been increased back to normal after it has been held for bleeding or laser treatments.
 - Note that there are some patients who are “peekers.” They keep taking the gauze off to “peek” and see if they have stopped bleeding, and that causes them to continue to bleed. Making certain that they keep pressing is more valuable than reducing the heparin dose. Staff must be alert to the possibility that excessive bleeding is due to a torn graft. However, 15 minutes is not an unduly long time to bleed post dialysis.
 - Prolonged bleeding may be due to problem with access such as a tear in the graft rather than too much heparin. Evaluating the access should be the first step **RATHER THAN REDUCING THE HEPARIN DOSE**, when there is prolonged bleeding.

Recirculation

- Unrecognized recirculation must always be considered. High URR is not the only sign of recirculation; the URR may also be low. A calculated “V” by the Gotch & Sargent method that is more than 20% larger than the demographic “V” is also suggestive.

Arterial Flow

- The blood pump should be turned to maximum flow immediately upon starting dialysis. The caregiver should never leave the machine to deal with another patient until it is at maximum flow. In addition, the patient can be kept at maximum blood flow until the very end of dialysis and then dialysis can be abruptly stopped.
- Virtually all patients can tolerate blood flows of 400 and 500 with modern ultrafiltration equipment. If the blood pressure falls during the run with any frequency, **USING A LOWER BLOOD FLOW IS THE LEAST DESIRABLE OPTION**. Instead, the patient should be checked for pericardial effusion and/or it may be necessary to discontinue some blood pressure medications. If blood pressure falls consistently, tell the patient to take the

antihypertensive drugs after, rather than before dialysis. If blood flow is reduced for **ANY** reason, then the treatment time should be lengthened. The Kinetic Modeling screen on the CTS will indicate how many extra minutes are required to obtain the desired URR and Kt/V at the new lower blood flow.

- Patients who complain of chest pain due to high blood flow should be sent for cardiac evaluation and possible bypass. Consistently reducing the blood flow for chest pain is not acceptable.
- Virtually all patients should have 15 gauge needles, nothing smaller.
- **On Fresenius machines**, the negative arterial pressure should be set at not greater than negative 250 and should not be bypassed. If it is necessary to bypass it, the patient needs a new access immediately.
- **On Cobe machines**, the blood pump should be set so that the negative arterial pressure does not exceed negative 250.
- **Baxter machines** do not measure negative arterial pressure.
- The venous pressure should be checked at a blood flow of 200 at least monthly and preferably weekly in all patients to make certain that it is less than 100. If it is greater than 100 at a blood flow of 200 on three separate treatments, the nephrologists should be notified that the access needs evaluation.
- A high venous pressure during the run, may only mean that the venous needle needs to be adjusted
- If there is no obvious cause of low URR, assess the graft by occlusion to be certain which is the arterial and which is the venous side. The louder side will be the arterial side. It may be necessary to try reversing them.
- Clotting in the dialyzer should be checked by running saline through the dialyzer. If the saline is slow to clear the blood and the residual volume is close to the fail volume, the dialyzer should be immediately discarded and a new dialyzer used on that run. Do not wait for the next run. (This cannot be done with Fresenius dialyzers.)

- **Political problems must be faced when the referring doctor's favorite surgeon is incapable of doing vascular access, especially revisions. It may be necessary to refer the patient elsewhere for revision.**
- The percent of catheters in the unit should be reduced. Currently, the Everest goal is that there be no more than 15% catheters in each unit including those patients who are using catheters until their permanent access matures.

Dialyzer

- New patients on ultrafiltration machines should be initially started on the largest size dialyzer, i.e. CA210, F80 or similar.
- If a patient has a complaint on the first run of a new size dialyzer, do not immediately change the dialyzer back to the older, smaller one on the next run. Allow the staff some time to accustom themselves and the patient to the new dialyzer.

Time on Dialysis

- On the Fresenius machine, the "RTD" or remaining time on dialysis clock rather than the wall clock should be used to determine the endpoint of dialysis. On the Cobe machines, "time to RX" should be used rather than "time completed" or the wall clock. If the patient is off dialysis, e.g. to the bathroom, the machine should be put in "rinseback" to prevent the clock from running.

Falsely Low URR

- The greater the weight loss during dialysis, the more the "dilution" of the **URR**. This is not usually significant unless the weight loss on dialysis is greater than 10% of body weight. See attached graph.

Double Dialyzer

- Any patient who is willing to stay four hours and is willing to have the appropriate recommended access attempted is eligible for double dialyzer. (See Policy & Procedure Manual for details). Double dialyzers should only be used when all of the above measures have failed. Catheter patients **ARE** acceptable. Most men over 6'2" tall will require double dialyzer unless they stay over four hours.

Social Service Issues

- If the patient will not stay the full time, contact family members to emphasize the importance. If one family member does not seem interested, try a different family member as that may make a difference.

Patient Education

- Physicians need to urge patients to stay the full time. It may be necessary to enlist the aid of the referring physician as well as the nephrologist.
- Medicare and other agencies have patient brochures on URR which should be distributed.
- Contests between patients, pods or even units are often helpful.
- A “URR Awareness Day” may also be helpful

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