PURPOSE:

1. To provide instruction in performing Single Needle Hemodialysis (Click-Clack).

POLICY:

1. Registered Nurses and Licensed Practical Nurses working in Hemodialysis who have received instruction from the renal educator or delegate may perform this procedure.

2. Single needle (SN) (Click-Clack) hemodialysis can only be used if the functioning needle is not situated below an interstitial needle site (i.e. a “blow”) and not placed retrograde (i.e. returning into the anastomosis).

3. SN (Click-Clack) hemodialysis does remove fluid effectively but provides minimal diffusion. Recirculation value is very high (~80%). The On-Line Clearance Module (OCM) and the Blood Temperature Module (BTM) do not function in this mode and there will not be a recorded Kt/V.

4. Notify the physician if patient will be receiving SN (Click-Clack) hemodialysis. It may be necessary to obtain pre and/or post hemodialysis bloodwork to determine if the patient will require Kayexalate and when the next hemodialysis treatment should be scheduled.

5. Both steel needles and Teflon needles can be used for SN (Click-Clack) hemodialysis. Using a steel needle will increase the percentage of recirculation. A central venous catheter with one functioning lumen could also be used with approval from a physician.

6. Heparin free hemodialysis is not recommended for SN (Click-Clack) hemodialysis due to the frequent starting and stopping of the pump and thus increased likelihood of the blood lines and dialyzer clotting.

7. SN (Click-Clack) hemodialysis can be initiated at start of treatment or after double needle hemodialysis has been started. If SN is chosen at the beginning of the treatment it will take longer to get the prompt that blood has been detected and to start the treatment. It is also possible to return to or start double needle hemodialysis at any time (i.e. if a second needle has been established).

EQUIPMENT:

- Y-line connector (Gambro S-660-C)
- 3-10ml syringes containing 0.9% NaCl
- Forceps (optional)

KEY POINTS:
PROCEDURE:

A. Initiating SN (Click Clack) Hemodialysis

1. Prime Y-line using the syringes with 0.9% NaCl.

2. On the OPTION screen select SINGLE NEEDLE menu.

3. Confirm the settings entered for arterial and venous pressure.

4. Touch the CLICK-CLACK I/O button. The blood pump will stop and the following message will appear:

Connect both the arterial and venous blood lines to the same vascular access

5. Attach the Y-line to the functioning needle or CVC. Make sure access is clamped. If attaching to a Teflon needle ensure that both clamps on the Y-line are clamped.

6. Attach the arterial and venous bloodline to the limbs of the Y-line. Unclamp the Y-line clamps and the clamp on the fistula needle. Select Start.

7. A prompt may appear requiring a lower UF rate to be set if the effective blood flow rate is too low. (The displayed effective blood flow may rise several minutes after starting SN.) Qb may also need to be adjusted if the venous pressure rises too high during the cycle.

8. When treatment is complete, perform reinfusion as per procedure 30.20.07 Use of the Fresenius 5008 Delivery System (http://www.kidneyhealth.ca/wp/wp-content/uploads/pdfs/P&P/P&P 30.20.07.pdf)

B. To return to double needle hemodialysis

1. Select the Single Needle menu and touch the Click-Clack I/O button.

Message will appear: “Connect the arterial and the venous blood line to the respective vascular access”

KEY POINTS:

- SN (Click-Clack) hemodialysis can be initiated at the start of HD treatment or any time after double needle dialysis is initiated.

- The venous pressure limits are set at 50 and 400 mmHg.

- If not previously primed with 0.9% NaCl, fill the limbs of the Y line using blood from access. Ensure that the line is de-aerated prior to connecting patient. Clamp both limbs of the Y-line.

- If SN (Click-Clack) hemodialysis is chosen at the beginning of the treatment, it will take longer to get the prompt that blood has been detected and to start the treatment.

- The SN screen will display an effective blood flow and arterial and venous pressures. The venous pressure reflects the pressure within the system (not the return access) and may climb to 400 or slighter higher.

- Qb should be adjusted based on minimum arterial pressure e.g. -200 mmHg.
PROCEDURE:

2. Remove the Y-line from the needle and connect the arterial and venous blood lines to their respective fistula needles. (Ensure clamping as required).

3. Touch the Start button. Regular HD will resume. ▪ The OCM and BTM function will not be available for the remainder of the treatment.

DOCUMENTATION:

▪ Integrated Progress Notes
▪ Hemodialysis treatment record W-00411

REFERENCES:

Fresenius Medical Care 5008 Hemodialysis System Operating Instructions: Edition 10/08 2013.

Fresenius 5008 CorDia: Resource Nurse Training Binder. Revised 14 November 2014.