



Vein Preservation in Patients with Chronic Kidney Disease

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Outline

1. Why is vein preservation SO important in patients with chronic kidney disease?
2. What can be done to preserve veins in these patient?

Why is vein preservation SO important?

- Patients with chronic kidney disease (CKD) may be on hemodialysis (HD) or may need HD in the future.
- The best way for administering HD is through a fistula (1st choice) or graft (2nd choice). A fistula or graft has a much lower rate of complications than a catheter.
- Creation of a successful fistula is dependent on having patent peripheral arm veins and a healthy venous circuit back to the heart.
- Venipuncture, peripheral IVs or PICC lines can damage veins and jeopardize future fistula construction or function.
- Preservation of arm and central veins needs to start before the patient needs an access. If already on HD, need to preserve all remaining veins.

A fistula is a CKD patient's lifeline!

Fistula/Graft: the Lifeline!



Vein preservation: Provincial guideline

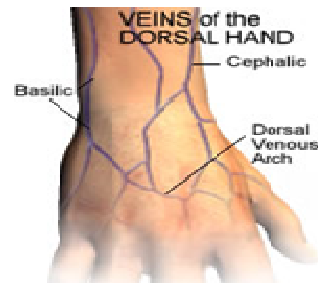
- Led by BC Provincial Renal Agency.
- Input provided by vascular access (renal) nurses and doctors and IV therapists from across BC.
- Available on the BCPRA website at www.bcrenalagency.ca.
- All centres are encouraged to implement the guideline.

Vein preservation: Target group

Patients with known stage 4 or 5 (eGFR<30) CKD, including patients currently on dialysis (HD or PD) or with a functional kidney transplant.

| Stage | Description | eGFR (mL/min/1.73 m ²) |
|-------|------------------------------|---------------------------------------|
| 1 | “Normal” renal function | ≥90 |
| 2 | “Mild” renal dysfunction | 60-89 |
| 3 | “Moderate” renal dysfunction | 30-59 |
| 4 | “Severe” renal dysfunction | 15-29 |
| 5 | “End-Stage” renal disease | <15 |

Vein preservation: Peripheral venous access

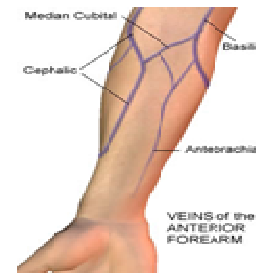


1st choice:

- If access in place, dorsal veins of the hand of the arm without the access
- If no access in place, dorsal veins of the dominant hand (to save non-dominant hand in case fistula/graft needed)

2nd choice:

- If access in place, dorsal veins of the hand of the arm with the access
- If no access in place, dorsal veins of the non-dominant hand



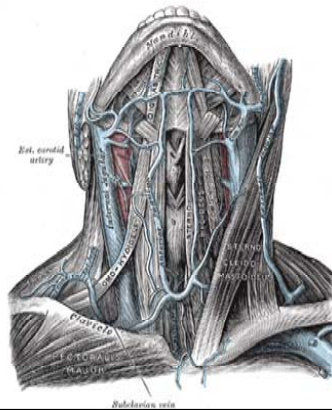
3rd choice:

- If access in place, forearm veins of the arm without the access
- If no access in place, forearm veins of the dominant arm (to save non-dominant arm in case fistula/graft needed)

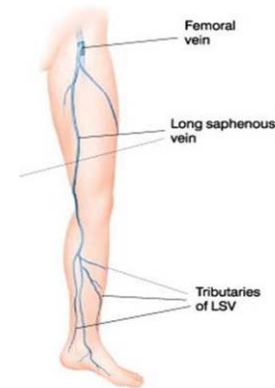
Last resort:

- If access is in place, forearm veins of the arm with the access
- If no access in place, forearm veins of the non-dominant arm

Vein preservation: Central venous access



1st choice: Internal jugular veins
2nd choice: External jugular veins



3rd choice: Femoral veins

Try to avoid the use of the peripherally inserted central catheters (PICC).

Try to avoid the use of the subclavian veins for central venous access in order to reduce the chance of central vein stenosis.

Vein preservation: “Dos” and “don’ts”

If patient has a working HD access (fistula or graft)

DO:

- Use the dorsum of the hand of the non-access arm for venipuncture & IV infusions. Use as small a needle as possible (general rule: 22 gauge or smaller).
- Rotate venipuncture sites.
- Draw labs at the time of hemodialysis when possible.
- If a patient requires an indwelling catheter for home antibiotics or other medications, insert a small bore (<8 french), tunneled internal jugular line and try to avoid PICC lines.

DO NOT:

- Use the limb with the fistula or graft for blood pressure readings (use the other arm or a thigh or ankle cuff).
- Use the access limb for venipuncture or an IV infusion or arterial line.
- Use the access for diagnostic studies or treatments.
- Use the cephalic veins of either arm for blood draws or IV infusions.
- Place a subclavian catheter, unless as a last resort.
- Place a PICC line, unless unable to obtain a tunneled small bore (<8 french) CVC.

Vein preservation: “Dos” and “don’ts”

If patient has stage 4 or 5 CKD (eGFR<30), whether or not on dialysis:

DO:

- Use the dorsum of the hand for venipuncture & IV infusions. Use as small a needle as possible (general rule: 22 gauge or smaller).
- Rotate venipuncture sites.
- Use a manual blood pressure device (less pressure on arm).
- If patient requires an indwelling catheter for home antibiotics or other medications, insert a small bore (<8 french), tunneled internal jugular line and avoid PICC lines.

DO NOT:

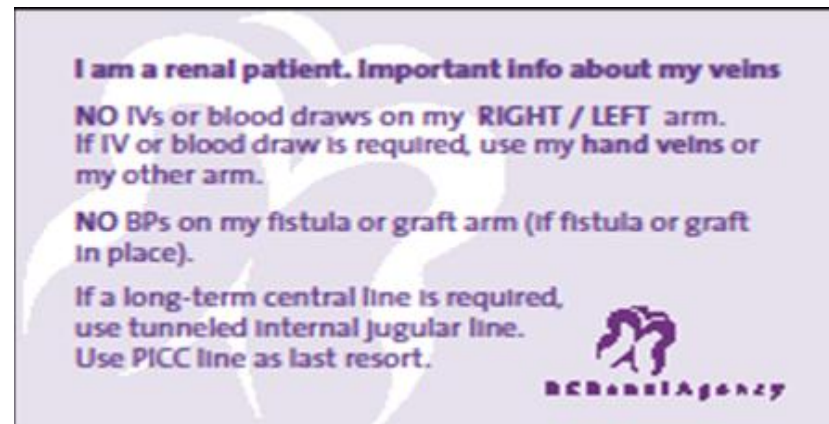
- Use the cephalic veins of either arm for blood draws or IV infusions.
- Place a subclavian catheter, unless as a last resort.
- Place a PICC line, unless unable to obtain a tunneled small bore (<8 french) CVC.

Vein preservation: Flagging” patients in target group

- Poster at the patient’s bedside
- Stamp lab requisitions or enter with lab orders in computer “RENAL PATIENT: Try to use hand veins for venipuncture”.
- Suggest patient carry a wallet card & wear purple wristband “I’m a Renal Patient: Use Hand Veins”.
- Wear wristband on arm to be used for bloodwork (i.e., non-access arm or arm least likely to be used for an access).
- Wallet card & wristbands available from VA RN in each HA.
- If computer system allows, flag patients in hospital/office computer.

Wallet card

- Front of card



- Back of card



Wristband



Poster



Important Info About My Veins

For Patients with a Fistula or Graft for Dialysis



- Use the veins on either of my hands or my _____ (non-fistula/graft) arm for IVs or blood draws
- No needle punctures in my forearm or the inside of the elbow of my arm with the fistula/graft
- No BPs on my arm with fistula/graft
- If long-term central line is required, use tunneled internal jugular vein. Use PICC lines as last resort

For Blood Work and/or IVs



1st
CHOICE Veins on the backs of either of my hands

2nd
CHOICE Forearm veins in my dominant arm (if fistula/graft in place, use non-fistula/graft arm)

3rd
CHOICE Veins in the inside of the elbow of my dominant arm (if fistula/graft in place, use non-fistula/graft arm)

* Use as small a needle as possible (general rule: 22 gauge or smaller)



Questions?

