PURPOSE

To ensure standardized practice in the care of Arterial line Catheters
To provide guidelines for care, maintenance, monitoring, troubleshooting, specimen collection and removal.

STANDARD

1. An arterial line will be inserted by a physician or certified Registered Respiratory Therapist (RRT)
2. Identify the correct patient with two patient identifiers
3. Arterial lines will be cared for by Critical Care Nurses only
4. Patients with an arterial line must be cared for in a monitored environment
5. An ordering practitioner’s order is required for an RN to remove arterial line
6. Blood cultures are not to be drawn from arterial lines, unless ordered by the ordering practitioner and only at the time of arterial line insertion
7. A patient shall remain in the unit for a minimum of one hour after the radial arterial catheter is removed, or three hours after the femoral arterial line removal
8. For removal of femoral arterial sheath, refer to the policy for the removal of Cardiac sheaths in the Cardiac program (CLS-110)
9. Only normal saline is the approved flush solution, unless otherwise specified by the ordering practitioner

GUIDELINES

Set up:

1. Perform hand hygiene
2. Remove the air from 500mL bag of Normal Saline
3. Place Normal Saline bag into pressure bag
4. Tighten all connections
5. Insert pressure tubing into Normal saline bag and flush tubing
6. Replace vented (white) caps with non-vented (blue) caps
7. Pressurize bag to 300mmHg
8. Attach pressure cable to transducer
9. Date pressure tubing
10. Zero and calibrate transducer by closing stopcock to patient, remove cap to open transducer to atmosphere. Push “zero” key on monitor, once zero obtained, push calibration key. Reconnect cap to stopcock, turn stopcock open to patient to observe waveform on monitor.
MAINTENANCE

1. The RN shall zero and calibrate the system: At the beginning of each shift when bag and/or tubing has been disrupted or changed when transducer is changed or disconnected whenever the accuracy of the measurements is in question
2. The RN shall obtain a waveform strip with the ECG on the same strip, at the beginning of each shift and prn based on patient acuity
3. Ensure high and low alarms are set within 10 to 20 mmHg of the patient’s typical blood pressure
4. Record manual non-invasive blood pressure to obtain base line data
5. Change the tubing to the hub of the catheter every 72 hours with dressing change and label
6. IV flush solution will be changed every 24 hours and labeled

DRESSING CHANGE

1. Dressings shall be changed every 72 hours and when compromised and labelled
2. Perform hand hygiene
3. Apply personal protective equipment (PPE)
4. Maintain asepsis
5. Open sterile supplies:
   - 2 (2x2) gauze pads
   - 2 transparent dressings
   - 1 alcohol swab (cleanser Aseptic) Open sterile gloves
6. Prepare tape strips
7. Place blue pad under cannulated extremity
8. Remove old dressing carefully and discard
   *second nurse or RRT may be necessary to assist if patient is restless and/or if dressing is particularly difficult to change
9. Inspect insertion site for swelling, redness, drainage, bleeding/oozing, and correct position of catheter in the artery
10. Cleanse insertion site with chlorhexadine. If StatLock present change Q7days or when compromised
11. Secure site with transparent dressing over hub of catheter
12. Attach new tubing to hub following set up guidelines. Anchor tubing distal to hub
13. To secure stopcock to extremity:
   - Fold 2 x 2 gauze in half and place under stopcock
   - Place transparent dressing over folded gauze and attach to skin Place stopcock over secured gauze pad
   - Tape tubing ¼” above and below stopcock to the secured gauze pad
14. Label, date, sign dressing over insertion site
15. Zero and calibrate waveform

**OBTAINING BLOOD SPECIMEN**

1. Perform hand hygiene
2. Apply personal protective equipment (PPE)
3. Maintain asepsis
4. Assemble necessary equipment
5. Don gloves.
6. Identify the correct patient with two patient identifiers
7. Open sterile 4 x 4, remove dead end cap from stopcock and place on sterile gauze pad
8. Temporary suspend arterial alarm
9. Insert needleless blood sampling access device into stopcock
10. Turn stopcock off to transducer
11. Take a discard specimen using 6 mL discard tube
12. Attach required blood samples tubes using appropriate tubes in the following order
   - tubes without additives
   - tubes with additives
   - INR / PTT
   - Arterial blood gas
13. Turn stopcock to original position
14. Flush stopcock and tubing intermittently to clear
15. Remove access device and apply new dead ender

**REMOVAL OF ARTERIAL LINE**

1. Check ordering practitioner’s order prior to removal of arterial line
2. Assess patient’s coagulation profile before removal of catheter, consult physician if outside normal range
3. Perform hand hygiene
4. Apply personal protective equipment (PPE)
5. Turn off arterial alarm
6. Remove dressing and stabilizing device (if in use)
7. Turn stopcock off to flush solution
8. Apply pressure 1-2 finger widths above the catheter site
9. Remove arterial catheter and place gauze pad over site
10. Apply manual pressure for a minimum of 5 minutes for radial site, and minimum of 10 minutes for femoral site. Longer periods of direct pressure may be needed to achieve haemostasis
11. Apply pressure dressing to site (do not encircle the extremity) Apply femoral dressing from inner thigh over site & up hip to apply appropriate pressure
12. Observe site for bleeding and circulation (colour, pulses & sensation) Q 15 minutes for one hour and then Q 1 hour x 4 hours

13. Patient should be instructed to notify nurse if
   - Bleeding occurs
   - Any numbness or tingling occurs in the limb

TROUBLESHOOTING

Refer to AACN Procedure Manual for Critical Care

DOCUMENTATION

On flow sheet record,
   - Site assessment hourly
   - Neuro assessment every four hours

Waveform strip with ECG strip at the beginning of every shift and PRN based on patient acuity
Removal of arterial line on the integrated record
The amount of flush solution on the intake and output record
Dressing care on appropriate form(s)

REFERENCES


Nursing Procedures, 4th Edition Lippincott, 2004


