Arterial Lines

Purpose:

1. To provide continuous intra-arterial pressure monitoring safely and accurately.
2. To provide a means to obtain frequent arterial blood gas determinations without discomfort to the patient.

Policy:

1. A physician shall obtain consent prior to the insertion of an arterial line. If consent is unable to be obtained and patient emergently needs arterial line, the arterial line shall be deemed emergent and stated as such in the progress note.
2. A physician will insert arterial lines using sterile technique. If line is placed in an emergency situation where break in aseptic technique is likely to have occurred, the arterial line will be removed and a new arterial access will be inserted using sterile technique within 24 hours or as soon as the patient become stable.
3. Arterial insertion sites shall be changed upon noting any signs or symptoms of infection. The changing of arterial access site is at the discretion of the attending physician.
4. Arterial lines shall be zeroed at least every twelve (12) hours. Square wave test shall be done at least every twelve (12) hours to assess for appropriate dampness.
5. All intravascular access dressings, and tubing shall be changed at least every 96 hours using strict aseptic technique. If the dressing becomes dampened or soiled the dressing will be changed at such time. Dressings and tubing shall be dated, timed and initialed by the RN/MD when done. Dressing changes shall be documented on the nursing flow sheet.
6. All access site condition shall be evaluated every four (4) hours. Distal perfusion shall be evaluated every four (4) hours. Appropriate documentation shall be recorded on the patient's record when assessment of site condition and distal perfusion is made.
7. Normal Saline shall be used as the flush solution unless otherwise ordered by the physician. Flush solutions shall be changed at least every 96 hours. 500cc bags shall be used. 1000cc bags may be used if frequent flushing and blood collection is anticipated. It is recommended that all extra air be removed from flush bag after spiking.
8. Flush solutions shall be maintained to 300 mm Hg pressure. If using the 500cc bag the 500cc pressure bag is to be used and if using the 1000cc bag the 1000cc pressure bag is used.

REPONSIBLE PARTY	ACTION
MD	1. Obtain informed consent.
MD, RN	2. Clean puncture site and hands with chlorohexidine solution per Infection Control Policy 22 http://www.sh.lsuhsc.edu/policies/policy_manuals_via_ms_word/infection/IC%2022.0.pdf
RN	3. Assemble equipment. 4. Prime arterial pressure tubing and disposable transducer maintaining sterility. 5. Zero and calibrate monitor with transducer.

6. Performs and documents Time Out
7. Place patient's wrist in hyper extended position and secures to arm board. (For radial) Position leg for optimal access during procedure. (For Femoral)

MD
8. Don sterile gloves, gown, mask, and hat.
9. Insert catheter.
10. Connect 6 inch sterile tubing with stopcock to catheter. (When extension tubing is placed at time of insertion via sterile technique, it is considered part of the device)

RN
11. Connect arterial pressure tubing to stopcock end of sterile 6" tubing.
12. Flush line to ensure patency and assess for appropriate waveform.

MD
13. Anchor catheter firmly with suture.

MD, RN
14. Apply sterile dressing.
15. Record A-line reading.
16. Zero monitor at least every 12 hours.
17. Assess square wave test at least every 12 hours.
    a. Square wave test assesses the accuracy and the appropriateness of the waveform.
    b. The nurse or physician flushes the catheter and witnesses the waveform disappear in an upward stroke off the monitor.
    c. Optimally damped – waveform returns with 1 to 1 ½ strokes/bounce with a normal waveform.
    d. Underdamped – waveform returns to normal after more than 1 ½ strokes/bounce
    e. Overdamped - waveform returns to normal before 1 stroke/bounce
18. Evaluate distal perfusion at least every four (4) hours and record findings.
19. Evaluate site condition at least every four (4) hours and record findings.
20. Change and label flush solution every 96 hours and document on the Critical Care Flow - sheet.
21. Charge flush solution in Diebold.
22. Change and label tubing and dressings at least every 96 hours.

Reference:

1. Chulay, M. & Burns, S. (2006). AACN: Essentials of Critical Care Nursing.
2. Wiegand, D & Carlson, K. (2005). AACN: Procedure Manual for Critical Care.
3. Infection Control Guidelines IC 16