INSERTION OF MIDLINE CATHETER

POLICY:

Physicians or RN’s who have completed an educational program and competency for insertion of midline catheters may perform this procedure.

PURPOSE:

To provide route for IV fluids, blood, blood products, PPN, meds. Midline is indicated for patients with limited peripheral access, patients needing intermediate - term IV therapies lasting 2-6 weeks (optimal 4 wk therapies), and when frequent peripheral IV site changes are contraindicated.

SUPPORTIVE DATA:

Advantage of midline catheters - peripheral vascular system preserved due to fewer IV starts, reliable IV access for 2-6 week (optimal 4 wks); low incidence of insertion-related complications; reduced patient discomfort associated with multiple IV starts; cost effective alternative to multiple short peripheral catheters; frequent blood draws are less painful to the patient.

Contraindicated for - high volume infusion or high pressure bolus infusion; conditions impeding venous return (i.e. paralysis, lymphedema post mastectomy, venous thrombosis in vessel where catheter expected to reside; hyper coagulopathy, orthopedic or neurological conditions affecting the extremity); hyper osmolar solutions - fluid with final glucose concentrations > 10% or protein concentration >5%; Osmolarity > 600 m Osm/L increases incidence of phlebitis and may affect integrity of silicone catheter.

Sterile gown and masks are recommended. Powderless gloves must be worn by those directly involved with insertion. All catheters must be flushed prior to insertion (use saline for Groshong catheters: check product literature for use of saline or heparin for flushing).

EQUIPMENT:

Midline tray from CSS
IV connecting tubing with clave
Saline or heparin for catheter irrigation
Sterile gown
PROCEDURE:

NURSING ACTION


2. Confirm and review physician’s order to place midline.

3. Measure distance from insertion site to location of desired tip placement. Note length of catheter to be inserted in centimeters.

4. Wash hands 5 minutes scrub - per IV Nurses Society. Consider need for buffered lidocaine or EMLA/LMS-4.

5. Open package, apply mask, don sterile gown and gloves, place drape over table.

6. Prep insertion site with 3 alcohol swab sticks. Allow to dry, then 3 betadine swab sticks (chlorhexidene 1% or chloraprep can be substituted per INS Standards.)

7. Apply drape over arm and hand.

8. Prepare flushes, preflush catheter and extension site through primary hub with saline.

9. Measure catheters with sterile tape measure, examine catheter along length to ensure stylet is straight.

10. Have assistant apply tourniquet or you may apply tourniquet and change gloves.

11. Hold introducer device with fingers on fingerpads. Pull introducer cover off. Approach vein approximately 1 cm below best spot of vein. Use low angle to go through skin and into vein. Drop angle of introducer. Keep needle point up, advance a little more into vein.

Push cannula off into vein holding stylet in place. Thread approximately ½ stylet into vein.

Apply digital pressure above cannula. Remove stylet. Remove tourniquet.

12. Confirm blood return through cannula then thread catheter through cannula to previously determined measurement using depth mark as guide, slowly advance 1 inch/2cm at a time.

13. After advancing 6 inches/15 cm you are past the valves. Check for blood return, flush. Continue to slowly insert catheter to desired measurement.

14. Remove guide wire, use Valsalva maneuver when opening catheter system.

15. Remove introducer.

1. Document patient teaching in education screen in CPSI.

2. Catheter tip should be below the shoulder in the cephalic or basilic vein.

4. Gloves needs to be powderless for handling midline. (Powder residue on gloves can increase incidence of mechanical phlebitis.)

11. Catheter is marked at 10 cm intervals. One dot (.) - 10 cm. Two dots (..) - 20 cm etc.
16. Irrigate catheter with 10cc Normal Saline, followed by 3 cc of 100u/cc heparin solution using sterile scissors, trim the catheter to desired length, leaving at least 3 inches for connector placement.

15. Groshong catheter do not require heparin. Know what kind of catheter you are placing and requirements for maintenance.

17. Apply extension set or posiflow injection cap. Apply no-sting or adhesive. Apply stet lock.

16. Extension set may or may not be used. (Assess individual patient needs)

18. Place a folded 2x2 gauze just below the insertion site. Place transparent dressing over the insertion site, catheter and hub.

17. See separate dressing procedure. Refer to PICC Line Dressing Change.


REFERENCES:


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