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Assessing and Flushing a Peripheral Intravenous Line

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Corresponding Author:	Madeline Lassche UNITED STATES
Corresponding Author Secondary Information:	
Corresponding Author's Institution:	
Corresponding Author's Secondary Institution:	
First Author:	Madeline Lassche
First Author Secondary Information:	
Order of Authors:	Madeline Lassche Katie Baraki
Order of Authors Secondary Information:	

Author Name

Katie Baraki, MS, RN; Madeline Lassche, MSNEd RN

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Assessing and Flushing a Peripheral Intravenous Line

Overview

After peripheral intravenous access is initiated, it is important to assess and maintain the intravenous catheter according to institutional policies and nursing standards of practice. According to the CDC, peripheral intravenous catheters may be kept in place for as long as 96 hours with proper care and maintenance. Regular assessment of the insertion site and surrounding areas for signs of complications is necessary prevent intravenous catheter complications, including: infiltration, phlebitis, infection, extravasation or catheter dislodgement. Completing routine intravenous maintenance is important to preserve line patency and to reduce the risk of occlusion, thrombosis and thrombophlebitis.

Procedure

1. General procedure considerations (review in the room, with the patient).

1.1 Upon first entering the patient's room, wash hands with soap and warm water, and vigorous friction for at least 20 seconds. Hand sanitizers may be used if the hands are not visibly soiled, but vigorous friction should also be used.

1.2 At the bedside computer, log into the patient's electronic health record and review the patient's medical history and confirm that the patient continues to require intravenous access.

1.3 At the bedside computer, pull up the Medication Administration Record (MAR).

1.4 Review the patient's MAR for maintenance IV fluid orders. If the patient has a maintenance IV fluid currently being administered through the patient's IV, verify that the patient continues to require IV fluid therapy. This is verified through reviewing the patient's intake and output balance, assessing vital signs, skin turgor and mucus membranes, and reviewing serum laboratory results.

1.4 Leave the patient's room, wash hands as described above (1.1).

2. Go to the Medication Preparation area (this area may be in a secured room or in a secured portion of the nurses' station), and acquire: a 10mL normal saline flush and alcohol wipes.

Administration

3. Upon first entering the patient's room, set the supplies down on the counter and wash hands as described in step 1.1.

4.0. Assess the peripheral intravenous insertion site.

4.1. Inspect the intravenous catheter insertion site for redness, swelling or bruising. Redness can be an indication of irritation, inflammation, infection or thrombus formation. Bruising may indicate a hematoma has developed and may cause damage to surrounding tissues.

4.2. Assess the condition of the transparent dressing. The dressing should be clean, dry and should securely adhere to the skin around the intravenous catheter insertion site. If the dressing has become loose, wet or soiled, the dressing should be changed using aseptic technique.

4.3. Gently palpate the area around the intravenous catheter insertion site, assessing for tenderness and swelling. Ask the patient if the area is tender or painful. Tenderness may indicate that the insertion site has become inflamed or infected.

4.4. With one hand, gently palpate the area around the intravenous catheter insertion site while palpating the same area on the other limb with your other hand. During palpation pay attention to the temperature (both increased and decreased), skin texture (soft, boggy, tight), and swelling (are there differences in size between the two limbs). Increased temperature may indicate inflammation or infection, while decreased temperature and bogginess may indicate infiltration. Both conditions indicate the peripheral intravenous catheter needs to be discontinued.

5.0. Flush the peripheral intravenous catheter.

5.1. Wash hands as described in 1.1 and put on clean gloves.

5.2. Open the package of the 0.9% Saline syringe. Hold the syringe with your dominant hand. Unscrew and remove the syringe cap with your non-dominant hand and place the cap upright on a table/counter taking care not to contaminate the end of the cap. Gently turn the plunger to "break the seal".

5.3. Holding the syringe upright with your non-dominant hand, gently push the plunger with your dominant hand to expel the air. Pick up the syringe cap with your dominant hand, taking care not to contaminate the end of the cap, and gently screw the cap onto the 0.9% saline syringe. Place the 0.9% syringe on the table.

5.4. Cleanse the PIV needleless injection site.

5.4.1 Open an alcohol wipe and hold it with your dominant hand.

5.4.2 Holding the PIV needless injection site with your non-dominant hand, wrap the alcohol wipe around the PIV needless injection site and scrub the site with friction and intent (as if you were juicing an orange) for at least 15 seconds. Allow the needless injection site to dry while continuing to hold with your non-dominant hand, taking care not touch the site.

5.5. While continuing to hold the PIV needless injection site with between your thumb and forefinger of your non-dominant hand, with your dominant hand, pick up the 0.9% saline syringe. Holding the 0.9% Saline Syringe in your dominant hand, place the 0.9% saline syringe cap between the middle and ring finger of your non-dominant hand and unscrew the cap.

5.6. Attach the syringe to the needless port by pushing gently to insert the tip of the syringe into the center portion of the needless injection site and turning the syringe clockwise.

5.7. Unclamp the PIV clamp by gently pushing the plastic clamp open. Holding the 0.9% saline syringe between your middle and forefinger of your dominant hand, use the thumb of your dominant hand and gently push the plunger to flush the PIV line.

5.7.1. While pushing the plunger, assess the PIV insertion site for leaking, swelling at the insertion site and ease of administration. Ask the patient if they are experiencing any pain as the 0.9% saline is being pushed into their line. If any of these conditions occur or if it is difficult to push the 0.9% saline fluid into the line, the IV site is no longer appropriate for use and should be replaced.

5.8. Continue to hold the needless injection site between your forefinger and thumb of your non-dominant hand, gently unscrew the 0.9% syringe from the needless injection port. Place the used syringe on the table top or counter.

5.9. Dispose of used alcohol wipe and 0.9% saline syringe in the garbage.

6. Document peripheral intravenous site assessment in the patient's EHR.

6.1. In the patient's EHR, record the date, time and location/site of peripheral intravenous site assessment. Record the assessment findings.

6.1.1. If the site is free from complications, document that the peripheral intravenous site is free from signs and symptoms of redness, swelling and irritation. Document the dressing is clean, dry and intact and that the peripheral intravenous line is patent and flushes easily.

6.1.2. If the site has complications, document findings and patient responses. The peripheral intravenous line should be discontinued and replaced. The patient's primary care provider should be notified and appropriate actions should be taken to prevent further complications.

7. Leave the patient room. Upon exiting the room, wash hands as describe in step 1.1.

Summary

This video demonstrates the assessment and maintenance of peripheral intravenous lines. Routine assessment and line maintenance will ensure that intravenous therapy can continue and to prevent avoidable complications and patient injury. When assessing the site, if complications are noted, it is important to contact the primary care provider and take measures to prevent further injury. If complications are noted, any intravenous fluids that are infused into the line should be stopped. If phlebitis or infiltration is suspected, the peripheral intravenous catheter should be promptly removed and documented in the patient's electronic health record. If the site is infiltrated, the patient's limb should be elevated, ice or heat applied (according to physician instruction), and circulation, pulse and capillary refill should be assessed periodically to ensure that perfusion is maintained. If phlebitis is suspected, a warm pack should be applied to the site. Lastly, if extravasation or thrombophlebitis is suspected, stop the intravenous fluid infusion and follow institutional policy. Do not remove the intravenous catheter until instructed to do so because the catheter may be necessary to deliver an antidote if available.,

Figures

Figure 1: Phlebitis Scale
Visual phlebitis scale with associated interventions.

References

Centers for Disease Control. (2011). Guidelines for the prevention of intravascular catheter-related infections. Department of Health and Human Services.

V. I. P. Score (Visual infusion phlebitis score)

	I.V. site appears healthy	0	No sign of phlebitis ■ OBSERVE CANNULA
	One of the following is evident : Slight pain near the I.V. site or slight redness near the I.V. site	1	Possible first sign of phlebitis ■ OBSERVE CANNULA
	Two of the following are evident: ● Pale near I.V. site ● Erythema ● Swelling	2	Early stage of phlebitis ■ RESITE CANNULA
	All of the following are evident: ● Pain along path of cannula ● Erythema ● Induration	3	Medium stage of phlebitis ■ RESITE CANNULA ■ CONSIDER TREATMENT
	All of the following are evident & extensive ● Pain along path of cannula ● Erythema ● Induration ● Palpable venous cord	4	Advanced stage of phlebitis or start of thrombophlebitis ■ RESITE CANNULA ■ CONSIDER TREATMENT
	All of the following are evident & extensive ● Pain along path of cannula ● Erythema ● Induration ● Palpable venous cord ● pyrexia	5	Advanced stage of theombophlebitis ■ INITIATE TREATMENT ■ RESITE CANNULA