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Discontinuing Intravenous Fluids and a Peripheral Intravenous Line

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Overview

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Intravenous (IV) fluid administration and peripheral IV catheters (PIVs) may be discontinued for a number of reasons. The most common reason for discontinuing IV fluids is that the patient has returned to normal body fluid volume (euvolemia) and is able to maintain adequate oral fluid intake or is being discharged from the hospital. In addition, the Centers for Disease Control Guidelines for the Prevention of Intravascular Catheter-Related Infections (2011) recommends replacing PIVs every 72-96 h in adults to prevent the risk of infection or phlebitis. If the PIV becomes dislodged or if the insertion site demonstrates the signs and symptoms of infection, infiltration, extravasation, or phlebitis, the PIV should be discontinued and replaced. For pediatric patients, the Infusion Nurses Society recommends replacing the PIV only when the IV infusion site is no longer patent or when it demonstrates the signs and symptoms of complications.

This video describes the approach to discontinue IV fluid administration and PIVs.

Procedure

1. General IV fluid infusion discontinuation and PIV removal considerations (review in the room, with the patient).

1. Upon first entering the patient's room, clean your hands with a sanitizer or with soap and warm water, applying vigorous friction for at least 20 s.
2. Review the patient's electronic health record for fluid volume status. This includes intake and output total volumes, serum laboratory results, vital sign assessments, skin turgor, mucus membranes, and the patient's ability to maintain adequate oral fluid intake. In addition, review current medication orders to determine if there is a continued need for IV access and IV medication administration. Note if the patient's history indicates increased risk of bleeding following peripheral line removal, including bleeding disorders, anticoagulant therapy, and low platelet counts.
3. Verify the patient's identity using two independent identifiers, not including the patient's room number or bed number. These might include the patient's name and record number.
4. Review the PIV removal procedure with the patient, answering any questions and discussing concerns. Discuss with the patient his/her preference for using the tape versus non-adhesive self-adhering wrap following PIV removal. Patient allergies to tape adhesive will require the use of non-adhesive self-adhering wrap.
5. Inspect the IV catheter insertion site for redness, swelling, or bruising. Redness can indicate irritation, inflammation, infection, or the formation of a thrombus. Bruising at the insertion site could be a sign of a hematoma, which may cause a damage to the surrounding tissues.
6. Gently palpate the area around the IV catheter insertion site, assessing for tenderness and swelling. Ask the patient if the area feels tender or painful. Tenderness may suggest inflammation or infection at the insertion site.
7. Repeat the palpation of the area around the IV catheter insertion site while palpating the same area on the other limb with your other hand. During the palpation, pay attention to the temperature (*i.e.*, increased or decreased), skin texture (*i.e.*, soft, boggy, or tight), and swelling (*i.e.*, any differences in size between the two limbs). Increased temperature may indicate inflammation or infection, while decreased temperature and bogginess may suggest an infiltration.
8. Take note of any abnormal findings to determine if further intervention is needed and for documentation following PIV removal.
9. Leave the patient room and wash your hands, as described above (step 1.1).

2. Gather the supplies needed for PIV removal, including two sterile 2 x 2 gauze packages, an absorbent pad, and tape or non-adhesive self-adhering wrap.

3. Return to the patient's bedside, set the supplies down on the counter, and wash hands as described in step 1.1.

1. Position the bedside stand or the over-bed table on the same side as the peripheral insertion site and place the supplies on the table.

4. Discontinue IV fluid administration.

1. Hold the IV tubing in your non-dominant hand, use the other hand to slide the roller clamp towards the narrow clamp end, which will occlude the tubing. Clamping the extension tubing will prevent the backflow of blood into the extension tubing following the discontinuation of IV fluid administration.
 1. If the IV pump is used, press and hold the "Channel Off" button on the IV pump channel until the channel powers down to stop IV infusion and then proceed to clamping the extension tubing.

2. Dispose the fluid bag and tubing according to facility policy into the appropriate disposal receptacle.

5. Prepare the patient and supplies for PIV removal.

1. Place an absorbent pad under the peripheral IV insertion site.
2. Open two 2 x 2 sterile gauze packages, leaving them on their sterile packaging, and place them within easy reach on the bedside stand or the over-bed table. Take care not to contaminate the sterile gauze.

6. Remove the PIV.

1. Wash hands, as described in step 1.1, and don clean, non-sterile gloves.
2. Remove the transparent dressing that covers the PIV.
 1. With your dominant hand, gently peel up one proximal corner of the transparent dressing while holding the skin taut near the dressing removal site with your non-dominant hand. Holding the skin taut decreases pain and helps to prevent skin injury during the removal of the transparent dressing.
 2. Peel back the transparent dressing, with your dominant hand towards the catheter and away from the patient, while continuing to hold the skin taut near the dressing removal site. Peeling the dressing towards the catheter and away from the patient prevents unintentional removal of the PIV before you are prepared to do so.
3. Remove the gloves; wash hands as described in step 1.1; and apply clean, non-sterile gloves.
4. Grasp the PIV near the catheter hub between the dominant thumb and index finger.
5. Fold one gauze in half. Hold the gauze gently over the peripheral IV insertion site with your non-dominant hand.
6. With your dominant hand, remove the PIV by pulling the catheter out along the line of the vein and away from the patient.
7. With your non-dominant hand, apply firm pressure to the gauze over the insertion site for 1-3 min or until bleeding stops.
8. With your dominant hand, fold the remaining clean 2 x 2 gauze in half; remove the soiled gauze; and place the folded, clean gauze over the peripheral catheter insertion site.
9. Secure the clean gauze to the peripheral catheter insertion site wound with tape or non-adhesive self-adhering dressing. Be mindful of applying adequate pressure, but not so much as to occlude peripheral circulation.
10. Monitor the peripheral catheter insertion site wound for bleeding and instruct the patient to apply pressure to the site and to notify you if the site begins to bleed.
11. Assess the removed PIV to determine if the catheter is intact. The catheter should not be shortened and should have a clean edge on its tip. A shortened or jagged catheter tip suggests that a portion of the catheter has detached and may remain in the patient. The primary care provider should be notified immediately.
12. Remove and discard the gloves, soiled gauze, and trash into the appropriate disposal receptacle and according to facility policy.
13. Wash hands, as described in step 1.1

7. Document the discontinuation of IV fluids and PIV removal in the patient's electronic health record.

1. Documentation should include the patient's response to PIV removal and any abnormal findings.

Applications and Summary

While the discontinuation of IV fluids and the removal of a PIV appears to be a straightforward process, the nurse should ensure adequate preparation and assessment prior to the procedure and should closely monitor the patient afterwards. Prior to discontinuing IV fluids and removing the PIV, the nurse must verify that the patient no longer requires IV therapy and educate the patient to ensure that he/she understands his/her responsibilities to maintain adequate hydration. Both the nurse and the patient need to continue to monitor the insertion site wound for bleeding, bruising, pain, and infection. Bleeding from the insertion site may require additional pressure and intervention to prevent blood loss. Progressive bruising at the insertion site may indicate bleeding into the tissue. This may result in compromised peripheral circulation and increased pressure in the tissues, which could potentially lead to compartment syndrome. Common mistakes when discontinuing a peripheral IV include not acquiring appropriate supplies, neglecting to stop fluid administration prior the procedure, and failing to monitor the insertion site for complications following catheter removal.

References

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