PURPOSE:
To establish guidelines and standards for the continuous infusion of medications via the subcutaneous route.

CONSIDERATIONS:
1. Prior to instituting therapy, describe the care required of the family in the absence of the nurse.
2. Patients considered for continuous subcutaneous infusion (CSQI) are listed below:
   a. Patients unable to take medications by mouth because of physiological alterations.
   b. Patients requiring subcutaneous injections for a period of greater than 48 hours, e.g., post-op.
   c. Patients requiring parenteral narcotics but have poor venous access.
3. Medications given via CSQI may include:
   a. Parenteral narcotics.
   b. Iron binding compounds (Deferoxamine or Desferal).
4. Patients referred to homecare for CSQI of narcotic analgesics should receive the first dose in a controlled environment. When this is not possible and the initial dose is administered in the home, the patient will require observation for the first 24 hours.
5. An electronic infusion device (pump) is required to administer a CSQI to ensure accurate, safe delivery.
6. Review special considerations related to narcotic analgesic infusions. (See Continuous Intravenous Narcotic Infusion.)
7. Hourly infusion volume should be equal to or less than 3.0 mL/hour to prevent local site irritation.
8. Insertion sites should be monitored twice daily by patient/caregiver and by the nurse three times a week after initial insertion, progressing to bi-weekly, then weekly.
9. Insertion sites are to be changed every 3 to 5 days on an established schedule and anytime signs of redness or swelling occur. Sites should be rotated and should not be reused for 7 to 10 days. Select sites at least 1 inch from previous site, using a new needle with each insertion attempt.
10. The subcutaneous cannula can be inserted into any area having an ample amount of subcutaneous tissue. Potential sites are:
    a. Upper arm.
    b. Thigh.
    c. Abdomen.
    d. Flank areas.
    e. Chest (optimal site of an ambulatory patient is the upper chest area).
11. Hardened areas may form under the skin, which may be due, in part, to malabsorption of the medication. Histamines are released into the subcutaneous tissue from the trauma of the needle stick. These decrease blood flow and may slow absorption of the medication. These areas should not be used until they return to normal.

12. The size of the cannula depends on the size of the patient, the drug and rate of infusion. (Range of sizes from 25-27 gauge, 3/8 to 1 1/2 inches.)
13. Insertion site should be dressed with a clear, occlusive dressing without gauze to allow visualization of site.
14. All tubing should be primed prior to insertion of cannula device.
15. Tubing and cassette or infusion bag should be changed according to an established schedule and when site is changed.
16. Patient/caregiver education should include the following:
   a. Purpose of medication/therapy.
   b. Desired medication effect.
   c. Potential side effects and adverse reactions.
   d. Assessment of site twice daily.
   e. Rotation of site, including insertion procedure (with a physician order).
   f. Emergency phone numbers.
   g. Use and care of infusion pump, including troubleshooting alarms.

EQUIPMENT:
Gloves
Medication
Pump and tubing
Subcutaneous device:
   a. Patch
   b. 23- to 27-gauge winged-catheter with attached extension tubing
Alcohol applicator (wipes/swab/disk/ampule)
Antimicrobial applicator (wipes/swab/disk/ampule)
Sterile tape or steri strips
Transparent semi-permeable adhesive dressing
Normal saline – 10 mL vial
Microbore 4-6 inch extension (if needed)
3 mL syringe with needle or needle less adaptor
Disposable apron (optional)
Protective eye wear (optional)
Puncture-proof container
Impervious trash bag

PROCEDURE:
1. Adhere to Standard Precautions.
2. Identify patient and explain procedure and purpose to patient/caregiver.
3. Assemble equipment on a clean surface close to patient.
4. Place patient in a comfortable position, ensuring that site is accessible.
5. Open all packages and place on clean surface.
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6. While maintaining aseptic technique, attach the subcutaneous cannula needle and extension to pump tubing.

7. Insert pump tubing into infusion pump according to manufacturer's instructions. Spike medication container and prime tubing through end of subcutaneous cannula needle.

8. Identify and palpate potential insertion site to ensure the skin is soft and non-tender.

9. Clean the skin:
   a. If the site is excessively hairy, clipping is recommended.
   b. Question the patient regarding allergies to adhesive tape and iodine.
   c. Clean skin with an alcohol applicator. Apply in a circular motion starting at the intended site and working outward using friction.
   d. Allow skin to air dry. DO NOT blot.
   e. Repeat procedure using antimicrobial applicator. Allow to dry. DO NOT blot.

10. Pinch skin at site using the thumb and index finger to raise a fat fold of at least 1 inch.

11. Insert cannula using a 45-degree angle and release the fat fold. If using a subcutaneous set, insert at a 90-degree angle. Secure wings flat against the skin using sterile tape or steri strips and across extension tubing for security of the site.

12. Cover with a transparent semi-permeable adhesive dressing. DO NOT use ointment at site.

13. Connect primed pump tubing to extension and start the infusion.

14. Discard soiled supplies in appropriate containers.

AFTER CARE:

1. Document in patient's record:
   a. Date, time, procedure and observations.
   b. Medication dose, rate, time and site.
   c. Appearance of CSQI site.
   d. Patient's response to procedure.
   e. Instructions given to patient/caregiver.