Subcutaneous Medication Administration and Infusion of Fluids (Hypodermoclysis)			
Signing Authority:	Chief Nursing Executive		
Approval Date:	27-01-2020	Effective Date:	26-02-2020

SCOPE:

This policy and procedure applies to all nurses who are involved in the initiation, maintenance, and monitoring of medications or fluids through the subcutaneous route at the Royal Victoria Regional Health Centre (RVH).

POLICY STATEMENT:

This document provides guidance in initiating, maintaining, and monitoring of medications or fluids through the subcutaneous route. It is the policy of RVH that a physician's order is required for the initiation of a subcutaneous infusion of fluids and/or medications.

DEFINITIONS:

Hyaluronidase: An adjuvant to increase the absorption and dispersion of other injected drugs. This increases the volume of medication that can be injected in one site in a single injection. Medications with this additive are to be administered according to the manufacturer's specification.

Hypodermoclysis: An efficient method of fluid/medication delivery to patients who may not be able to tolerate them by the oral/intravenous route.

PROCEDURE:

Equipment:

a. Chlorhexidine gluconate 2% with 70% alcohol
b. % 0.9 Sodium chloride flush or infusate as ordered
c. Tape
d. Appropriate tubing or needleless connector
e. Transparent dressing
f. Subcutaneous infusion set (BD Saf-t-Intima™ or Baxter Sub-Q-Set™)
g. Smart pump
h. Personal Protective Equipment (PPE) as per risk assessment.

1. Perform hand hygiene and don appropriate PPE as per routine practices.

2. Introduce yourself and explain procedure using RVH's standardized introduction.
3. Verify the patient's identity utilizing two patient identifiers.
4. Site and device selection:
    a. The selected access site shall have intact skin and be located away from bony prominences, the patient's waistline, previously irradiated skin, sites near a joint and lymphedematous limbs.
    b. Appropriate infusion sites include the abdomen, upper chest above the breast (avoid breast tissue), over an intercostal space, scapular area, thighs, and outer aspect of upper arm.
    c. Selected sites shall have adequate amounts of subcutaneous tissue and good lymphatic drainage enabling the most comfortable placement of the cannula, maximum dispersion and absorption of the infusate.
    d. For patients who are confined to bed consider the risk that the patient may lie on or dislodge the cannula. The preferred sites in this situation are the thighs, abdomen, or outer aspect of the upper arm.
    e. For medications containing hyaluronidase, do not inject into areas where the skin is red, bruised, tender or hard, or where there are moles or scars. Specific medications may have restricted site selections, follow manufacturer's instructions.
    f. The Baxter Sub-Q-Set™ is for abdominal insertion only and should only be used in the event that the patient is allergic to, or there are continued issues, such as kinking, of the catheter with the BD Subcutaneous set.
    g. The catheter (BD) or needle (Baxter) should lie in the subcutaneous space above the underlying fascia. If the catheter/needle is too deep (intramuscular) it will be painful and may bleed. If it is too superficial, it will be painful and may leak.
    h. Note: some medications may only be given via direct subcutaneous injection (i.e. chemotherapy or biotherapy agents), the nurse shall consider the manufacturer's recommendation for administration site and volumes.
5. Assemble desired equipment:

BD Saf-t-Intima™:

a. Hold the Saf-T-Intima™ and rotate the white safety shield to loosen the needle.
b. Confirm that needle bevel is facing up and that catheter is not over the bevel before insertion.
c. Remove the vent plug, add the needleless connector or administration set tubing and prime the set with infusate, ensuring tubing is air-free.
d. Flush the infusion set with a volume equal to the volume of the infusion set.
e. Perform hand hygiene and apply gloves.
f. Cleanse site with chlorhexidine 2% with 70% alcohol and allow to air dry.
g. Grasp the textured sides of the wings and pinch them together (pebbled side down).
h. Use thumb and index finger to gently pinch the skin around the selected site to identify the subcutaneous tissue.
i. Insert the full length of the catheter and needle through the skin at a 30 to 45 degree angle. Remove the needle by laying the wings flat on the skin surface and pulling the white safety shield in a straight, continuous motion.
j. Discard the needle in the sharps container.
k. Apply transparent occlusive dressing over catheter site, ensuring the insertion site is observable at all times. The catheter shall be anchored well to avoid displacement. Ensure that the injection port is accessible. Loop the extension and secure into place with tape.
l. Date infusion site and note needle gauge. Discard all used supplies.
m. Do not access end cap that is left in place after needle is withdrawn – use leur-lock/needleless connector only.

Baxter Sub-Q-Set:

a. Remove end plug, add the needleless connector or administration set tubing and prime the set with infusate, ensuring tubing is air-free. Flush the infusion set with a volume equal to the volume of the infusion set.
b. Perform hand hygiene and apply gloves.
c. Cleanse site with chlorhexidine gluconate 2% with 70% alcohol and allow to air dry.
d. Remove the needle cover and peel the adhesive protector off the disc.
e. Use thumb and index finger to gently pinch the skin around the selected site to identify the subcutaneous tissue.
f. Insert the needle into the subcutaneous tissue of the selected abdominal site at a 90 degree angle.
g. Apply transparent occlusive dressing over catheter site, ensuring the insertion site is observable at all times. The needle must be anchored well to avoid displacement. Ensure that the injection port is accessible. Coil the line under the dressing.
h. Date infusion site and note needle gauge. Discard all used supplies.

6. A smart pump shall be utilized for the infusion of all fluid and medication
7. Document the following; site selection, skin assessment and if initiating fluids, the rate and type in the electronic medical record (EMR).
8. Check the infusion site one hour after initiation, and every four hours thereafter, for signs of leakage, edema, and disconnection.
9. One infusion site can be used for up to 1.5 litres of fluid in 24 hours. Do not exceed three litres of fluid divided between two sites in 24 hours.
10. If the site is used for intermittent doses of medications only, check site prior to medication dose, and after each dose. Maximum medication volume to be injected into the site at one time should not exceed 2.5 mL. Flush the line and with 0.3 mL of 0.9 % sodium chloride after each dose of medication.
11. Subcutaneous Administration sets shall be dedicated to one medication.

Note: Haloperidol is not compatible with 0.9% Sodium Chloride, subcutaneous administration sets for haloperidol shall be primed with haloperidol and not flushed between doeses.

Note: Medications containing hyaluronidase can be given in volumes larger than 2.5 mL in a single subcutaneous injection site. The nurse shall use manufacturer recommendations for injection site and volumes.

SPECIAL CONSIDERATIONS:

1. A subcutaneous site used for hypodermoclysis shall be rotated a minimum of every 72 hours to reduce risk of complications. Sites used for intermittent medication administration shall be changed every 7 days. All sites shall be changed when showing signs of leakage, swelling, inflammation, or pain.
2. Fluid can be delivered subcutaneously at a rate of 1 mL per minute at one site. The flow rate may be gradually increased, in increments of 20 mL per hour, to reach the prescribed rate. This ensures that the chosen site can absorb the solution at the planned rate.
3. Adverse events include:
    a. Local edema
    b. Local catheter reactions
    c. Pain or discomfort at site
    d. Cellulitis
    e. Puncture of blood vessels
    f. Pulmonary edema
    g. Changes in serum electrolytes
    h. Skin red and/or inflamed, the skin is white and/or hard or blood is present in the administration site
    i. Infection of the cutaneous tissue

CROSS REFERENCES:

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