PALCARE
There's no place like home

THE JIMMY S BILIMORIA FOUNDATION

PALLIATIVE CARE
GUIDELINES
FOR A HOME SETTING IN INDIA

SUBCUTANEOUS FLUIDS

INTRODUCTION

Hypodermoclysis or subcutaneous infusion is a simple, safe and effective practice of fluid administration into the subcutaneous tissue in multiple care settings to assist hydration, when oral and intra-venous routes of administration are inappropriate or unavailable.

Advantages

- Low cost
- Simple - ease of administration and maintenance
- More acceptable and convenient
- Minimal risk of complications e.g. infection, thrombophlebitis
- Useful in multiple care settings - especially home care

Subcutaneous infusion is not useful in emergencies like severe dehydration and shock, where rapid infusion of fluids is necessary.

Indications:

- Mild to moderate dehydration when oral intake is compromised, and patient is not terminally ill
- When intravenous administration of fluids in inappropriate, difficult or unavailable and hydration is indicated for symptom control
- When oral intake is not tolerated - nausea and vomiting, gastrointestinal tract obstruction, dysphagia etc.
- Opioid toxicity
- Sedation, confusion

Contraindications:

- Absolute
  - Anasarca
  - Sites with compromised skin integrity - infection, inflammation, scar, lymphoedema, previously irradiated site
  - Severe thrombocytopenia
  - Patient refusal

- Relative contraindications
  - Coagulation disorders
  - Risk of pulmonary oedema, cardiac failure

- Hepatic failure
- Renal failure

Adverse effects:

- Local (rare) - erythema, hematoma, oedema, skin hardening, extravasation, pruritus, pain, inflammation, and infection
- Systemic (rare) - fluid overload, cardiac overload

ASSESSMENT

- Assess whether hypodermoclysis is indicated in the management of symptoms or reversible medical conditions
- Assess the risks and benefits before initiating
- Assess and rule out emergency situations like severe dehydration, shock or metabolic imbalances, when rapid infusion of fluids is necessary
- Assess for presence of any contraindications to hypodermoclysis
- Assess the necessity of starting subcutaneous fluids at the end of life respecting the patient's goals and preferences and views of the family

MANAGEMENT

Recommendations

- Consider a therapeutic trial of subcutaneous fluids
  - if the patient has or is likely to develop a distressing symptom secondary to dehydration; e.g. delirium or thirst
  - if the patient has a symptom or reversible medical condition secondary to dehydration
- If a therapeutic trial of subcutaneous fluids is considered to manage the patients' symptoms secondary to dehydration, then, this should be clearly explained to patient and/or family before starting hypodermoclysis
- Discuss in detail with the patient and family the benefits, risks with subcutaneous fluid administration and address any concerns of patient and family, on a regular basis
- Preferred sites of administration are:
  - Abdomen (circumference around the navel with about four fingers around it), upper chest - above the breast and scapular area, lateral aspect of the thigh, deltoid area of upper arm
- Avoid using the following sites:
  - intercostal space in cachectic patients
  - area near mastectomy or stoma

  - limbs with lymphoedema
  - irradiated sites
  - abdomen - if ascites is present
  - bony prominence
  - near a malignant ulcer/wound
- Only hypotonic or isotonic fluids should be administered subcutaneously - 0.9% normal saline is commonly used, but 0.45% saline can be administered
- Subcutaneous fluid administration should be limited to a rate of 1 mL/minute; up to a maximum of 1000 mL/24 hours
- Fluid administration can be done - overnight/continuously/as boluses over few hours; within acceptable infusion rate to suit the convenience of the patient
- The subcutaneous cannula insertion, securing the access site and fluid administration should be done initially by nurse/professional - trained, qualified, and able to perform the procedure
- Fluid administration should be delegated to the caregiver and guidance regarding the nursing care should be taught to the caregiver
- Subcutaneous infusion tubing set should be changed every 24 hours
- Subcutaneous cannula should be changed every 3-5 days
- Regularly review (every 48 hours) the puncture site for local adverse reactions
- Regularly review for systemic adverse reactions - fluid overload, cardiac overload
- If the site is infected/inflamed - change the site and treat infection/ inflammation appropriately

Technique

- Preparation
  - Explain the procedure to the patient and caregiver/family and ensure that the patient and caregiver/family understand the procedure
  - Identify the site for insertion of subcutaneous cannula for hypodermoclysis
  - Assemble the infusion fluid bag and subcutaneous infusion tubing set and hang the same from the drip stand
  - Prime the line with the fluid
- Procedure
  - Wash hands
  - Apply gloves
  - Prepare the insertion site using simple aseptic technique with spirit or alcohol swipe
  - Pinch the skin fold on the site chosen, grasping the skin firmly
  - Insert the subcutaneous 24G cannula into the skin at an angle of 45 degrees, bevel up and release the skin fold; remove the stylet
  - Secure the subcutaneous cannula with transparent occlusion dressing
  - Connect the primed infusion set to the subcutaneous cannula
  - Adjust the flow rate to the drip rate prescribed

- Post-procedure
  - Make sure the drip rate is as prescribed
  - Date and initial the occlusive dressing
  - Date and initial the subcutaneous infusion tubing set
  - Check patient and infusion after one hour to ensure that the infusion site is correct, there are no signs of oedema, leakage, disconnection or fluid collection distal to the site, and that patient does not show signs of fluid overload
  - Apply gentle massaging distal to the site to enhance absorption of fluid
  - Document infusion fluid, infusion site and infusion rate

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