Hypodermoclysis – Guidelines for providing fluids via the subcutaneous route in Long-Term Care

Site Applicability

All VCH Long-Term Care Homes

Practice Level

Basic skills for the following professions (within their respective scope of practice):

- RN, RPN, LPN

Policy Statement

Hypodermoclysis will only be considered in exceptional situations to supplement resident's usual intake of fluids and an individualized care plan will be developed.

Need to Know

- Parenteral solutions used for hypodermoclysis include: 0.9% normal saline or dextrose and saline (2/3 - 1/3).
- Use a separate (second) subcutaneous site or sites if a client requires subcutaneous medication.
- No medication is to be added to the hypodermoclysis fluid being infused.
- Infusion rate depends on the resident's need and capabilities to absorb the solution. Where possible, continue to offer oral fluids regularly.
- **Recommended Rate:**
    - 30 - 50 ml/hr **in frail elders,**
    - up to 75 ml/hr in younger more robust residents
- If resident is not absorbing, change the site and consider reducing rate or discontinuing infusion and discuss with MRP, and obtain new order as required.
- Infusion sites in the frail or elderly should be changed only as needed, but maybe rotated depending on how easily the fluid is absorbed
- Change the tubing Q72 hours for intermittent and continuous delivery
- Change solution bag at least q 24 hours

Background

Definition: Hypodermoclysis (HDC) is the infusion of isotonic fluids into the subcutaneous space for rehydration or for the prevention of dehydration. (Walsh, 2005)

For a resident to receive hypodermoclysis the following must be met:

- A responsible attending physician/Nurse Practitioner is to be identified and willing to follow the resident.
- There must be written orders from the physician/Nurse Practitioner giving the type of solution, amount to be infused, infusion time and length of therapy. No medication is to be added to the hypodermoclysis infusion.
- A short time frame such as 3 – 5 days is set for a trial period and then a re-assessment is done according to pre-established outcome goals. It is generally intended for periods of 7 – 10 days. After this time other arrangements need to be discussed.

Equipment and Supplies

- IV solution (usually normal saline or 2/3 dextrose / 1/3 normal saline)
- IV tubing
- IV pole and/or IV pump
- Alcohol swabs
- #24 needleless subcutaneous butterfly
- A cap to be placed on the end according to agency standard
- Transparent dressing and tape

Protocol

A. ASSESSMENT

Review history, present health status and goals of care to determine which of the following apply:

The **indications for hypodermoclysis** may include:

- Maintenance of an acceptable hydration level for those residents at risk for dehydration due to short-term conditions affecting resident's ability to maintain adequate hydration (e.g. infections, GI illness, partial bowel obstruction, resolving CVA).
- Maintenance of an acceptable hydration level for those residents at risk for dehydration due to long-term conditions that are not candidates for tube-feeding (e.g. ileostomy with unpredictable output).
- Reduction in palliative symptoms such as nausea, vomiting or confusion.

The **contraindications for hypodermoclysis** include:

- Residents with coagulation defects or are extremely emaciated or have extreme edema.
- The need for emergency hydration in life-threatening situations.
- Should be used cautiously in residents with heart conditions or renal failure due to the risk of circulatory over-load.
- Should be used cautiously where skin may have been previously injured (burns, scars, radiotherapy) due to decreased absorption.

The **benefits of dehydration** at end of life may include:

- Less need for elimination.
- Reduction in pulmonary secretions may result in less coughing or choking.
- Decreased GI secretions may result in less vomiting.
- Decreased discomfort from peripheral edema.

The **risks associated with hydration** may include:

- Increased peripheral edema.
- Increased pulmonary and gastrointestinal secretions.
- Pain/discomfort.

B. OBSERVATION

- Inspect the insertion site each shift for redness, tenderness, bruising, weeping, bleeding and swelling. Change the site if any of these are present. If there is difficulty absorbing the infusion fluid, the rate may need to be reduced or the site changed.
- If considering the use of an IV pump, prior to the first pump-facilitated infusion first observe that the volume to be infused is well absorbed by doing one or more gravity-infused sessions.
- Monitor for any increase in pain, peripheral edema, shortness of breath, cough or nausea/vomiting.
- When changes in condition are noted, review rationale for intervention and benefits to the resident.

C. INTERVENTIONS

Procedure for establishing site and infusing fluid: (see also Appendix A for Troubleshooting Tips)

1. Wash hands and prepare a clean working area.
2. Prepare resident for procedure.
3. Insert a needleless subcutaneous butterfly into the resident. Good sites include the thighs, abdomen, and arms. Behavioural issues, spasticity, tissue integrity, and resident preference should be considered when choosing a site.
4. Attach a cap according to agency standard.
5. Place a transparent dressing over site. Label site with date, time and initials.
6. Open up IV tubing package and clamp the tubing.
7. Spike tubing into infusion bag. Prime tubing.
8. Cleanse the hub of the access device cap with alcohol and allow to dry.
9. Connect IV tubing to the catheter via the needleless access cap.
10. Initial infusion is generally by gravity with close observation to ensure accuracy of drip rate set.
    a. For gravity infusions: Open drip chamber and calculate rate as ordered.

    Formula for Rate Calculation:

    $$\frac{\text{mL/hour} \times \text{drop factor}}{\text{60 mins}} = \text{Drip rate}$$

    *Drop Factor is stated on the IV tubing packaging.

    b. For pumps: Feed tubing into pump, set infusion rate and volume to be infused.
11. Change the tubing Q72 hours for intermittent and continuous delivery
12. Change solution bag at least q 24 hours
13. Monitor site at least once per shift and change site weekly or more frequently, if indicated.
14. When infusion is complete, disconnect and discard tubing and solution bag in appropriate receptacle.

Expected Client/Family Outcomes

The resident will maintain a hydration and electrolyte level or comfort level in keeping with their goals of care.

Patient/Client/Resident Education

The resident and family should be included in the decision making process regarding the goals of care and educated regarding the risks and benefits of hydration.

The goals and duration of therapy must be communicated to the resident and family prior to initiation of an infusion. These goals may include such measures as reduction of nausea or confusion at end of life, temporary support during a time-limited condition when there is otherwise good quality of life, or on-going support in unusual circumstances where tube-feeding is not an option.

Evaluation

- Daily assessment of resident's condition and insertion site are required to determine the resident's response to hypodermoclysis.
- Factors to consider include whether there is increased edema, shortness of breath, reduction of symptoms and improved quality of life. (see Appendix A for Troubleshooting Tips)
- Notify family physician, Hospice Nurse Practitioner and/or Hospice CNS of client's response to hypodermoclysis.

- Determine every two to three days the burdens versus benefits of hydration and determine ongoing requirements.

Documentation

Document

Care Plan:

- Resident's goals of care
- Expected benefits of treatment to resident in what time period
- Site of s/c butterfly, date it was inserted/changed
- Type of infusion; amount to be infused
- Side effects of infusion (edema, chest sounds) and signs and symptoms of infection at site
- Goal to review rationale for treatment and benefits for resident when there is a change in condition

Progress Record:

- Summary of discussion held with resident and supports regarding goals of care and this treatment option
- Resident's previous experience with hypodermoclysis
- Summarize resident's response to treatment and any adverse symptoms such as shortness of breath, edema, pain, cough or nausea/vomiting
- Indicate when, or if, blood work was taken and if the results have implications for resident's condition
- Condition of site(s), skin condition
- Fluid Intake

Fluid Intake Record

- Record oral and fluid via hypodermoclysis on this form

Related Documents

- Coastal HSDA (2007). PCG S-02: Subcutaneous Butterfly Cannula: Insertion, Maintenance and Medication Administration
- Richmond Hospital (Acute Care) (2007). Subcutaneous Butterfly Cannula: Insertion, Maintenance and Medication Administration
- Vancouver Acute PCG M-100: Medication Administration, Subcutaneous (Intermittent and Continuous).
- Vancouver Community Palliative Care Program (2004). Saf-T-Intima SC Needle

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Developed by

Developer Lead: Clinical Practice Leader, Residential Practice Team, Vancouver-Community

Other members:

CNS, Hospice Team, Vancouver-Community
Clinician, Purdy Pavilion, Vancouver-Community
Educator, Richmond Minoru/Lions Manor
CNS – Elder Health, Coastal
Educator, Elder Health, Coastal
Educator, Residential Practice Team, Vancouver-Community
Practice Leader Dietetics, Vancouver-Acute
Pharmacist, Residential, Vancouver-Community

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Health Authority & Area Specific Interprofessional Advisory Council Chairs (HA / AIAC)
Operations Directors
VCH Professional Practice Directors

Final Sign-off & Approved for Posting by

Chief Nursing Officer & Executive Lead Professional Practice - VCH

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Appendix A

Troubleshooting Tips

Complication	Intervention
Infusion stops	• Check to see if tubing is kinked or clamped • Raise the height of the infusion • Change site of subcutaneous butterfly
Site is leaking	• Change site of subcutaneous butterfly
Site is red and sore	• Change site of subcutaneous butterfly • Culture any discharge
Pooling of fluid at the infusion site	• Inform Physician, Nurse Practitioner. Stop the infusion and change site of subcutaneous butterfly or decrease the infusion rate
Sporadic drip rate	• Adjust the height of the solution bag