Hypodermoclysis for Supportive Management in PHC LTC Residents with Positive COVID-19 Diagnosis

Site Applicability:

PHC Long Term Care Sites

Practice Level:

RN, RPN

Need to Know:

Hypodermoclysis will be considered in exceptional situations as part of supportive care management for a resident with positive COVID-19 and an individualized care plan will be developed:

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

- There must be written orders from the Most Responsible Provider identifying the type of solution, amount to be infused, infusion time and length of therapy.
- A short time frame such as 1 to 3 days is set for a trial period and then a re-assessment is done according to pre-established outcome goals.
- Parenteral solutions used for hypodermoclysis include:
    - 0.9% normal saline or 3.3% dextrose and 0.3% saline (2/3 & 1/3).
- Use a separate (second) subcutaneous site or sites if a resident requires subcutaneous medication.
- Infusion rate depends on the resident's need and capabilities to absorb the solution.
- Usually the subcutaneous route can infuse at a rate of 50 to 75 mL/hr or less with a daily maximum volume infused of 1000 mL to 1500 mL.
- No medication is to be added to the hypodermoclysis infusion.

  Suggested rate of infusion for Supportive management in COVID-19 is 30 to 50 mL/hr.
- 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 Q24 hours.

Equipment and Supplies

- IV solution
- IV tubing
- IV pole
- Alcohol swabs
- #24G needleless subcutaneous butterfly
- A Needleless Connector/luer lock cap
- 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 COVID-19 illness
- 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
- 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:

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, upper back, upper chest (avoid upper arms with hypodermoclysis). Behavioural issues, spasticity, tissue integrity, and resident preference should be considered when choosing a site (refer to: Practice standard: B-00-12-10060 – Subcutaneous Butterfly Insertion Maintenance and Medication Administration)
4. Attach a Needleless Connector/ luer lock cap.
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:
    - Open drip chamber and calculate rate as ordered **OR**
    - Open up the clamp if using regulator and dial the rate as order by MD.

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 each shift and change subcutaneous butterfly q48hours and as needed.
14. When infusion is complete, disconnect and discard tubing and solution bag in appropriate receptacle.

D. Documentation

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

E. 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.
- Notify MRP of resident's response to hypodermoclysis.
- Determine every two to three days the burdens versus benefits of hydration and determine ongoing requirements.

Expected Client/Family Outcomes

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

Resident/Family/SDM 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, supportive management during a time-limited condition.

References

1. Walsh, Gabrielle (2005). Hypodermoclysis. An alternate method for the Rehydration In long-Term Care. Journal of Infusion Nursing. 28/2. p. 123 – 129.
2. Adapted from VCH (2011). Hypodermoclysis – Guidelines for providing fluids via the subcutaneous route in Residential Care, p. 1-6.

Definitions

Hypodermoclysis (HDC) is the infusion of isotonic fluids into the subcutaneous space for rehydration or for the prevention of dehydration[1].

Hypodermoclysis is a method used to administer fluids subcutaneously to residents who require hydration to prevent or treat non-emergent dehydration due to insufficient oral intake. It is a less-invasive hydration method than the intravenous method, and suited to Long-term Care setting.

Fluid is transferred from the subcutaneous space to the circulatory system via diffusion and perfusion. It is a preferred route for persons with limited vascular access and may be used to prevent dehydration in those that have decreased consciousness or for other complex situations such as inadequate oral intake due to COVID-19.

It is a simple, safe, and effective method to manage hydration within the Long-term Care Home and thereby may eliminate visits to the hospital for IV treatment for dehydration.

Subcutaneous sites are easy to access, easy to initiate and maintain, persons present with less pain and fewer complications than IV administration, it costs less and requires less nursing time than IV administration[1].

The infusion can easily be turned off thus allowing the resident more mobility and control than with an IV.

In the terminal phase of an illness, food and fluid intake decline as part of the normal process of dying. There may be a resident/family belief that dehydration is distressing at the end of life but the hospice palliative care view is that dehydration is not uncomfortable and may even be beneficial. Therefore the clinical situation, client and family beliefs around hydration, understanding, and goals of care should be carefully evaluated prior to initiation of hypodermoclysis.

Comfort for the resident is most important and if hypodermoclysis can alleviate symptoms such as dehydration, nausea and vomiting, then it is a benefit to the resident.

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