

**CONTROLLED DOCUMENT****Guidelines for the use of subcutaneous hydration in palliative care (hypodermoclysis)**

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## **1 Scope of Guideline**

1.1 This guideline has been produced to support the administration of subcutaneous fluids to palliative care in patients in UHB

1.2 It has been produced to ensure consistent practice, use and equitable access to subcutaneous fluids across UHB.

## **2 Guideline Background**

2.1 Hypodermoclysis is a technique used for the subcutaneous administration of large volumes of fluids and electrolytes in order to achieve fluid maintenance or replacement. It is used in mildly dehydrated patients who are unable to tolerate sufficient oral intake and where intravenous access may be difficult to obtain or is inappropriate.

2.2 Artificial hydration is not routinely indicated in palliative care. The goals of treatment should be established with the patient and family and reviewed regularly.

2.3 Solutions outlined in this guideline are only licensed for intravenous use therefore their use in this way is in an unlicensed procedure. However the effective use of infusion fluids in this way has been well documented.

## **3 Guideline Statements**

### **Patient Selection**

3.1 Possible indications for use

- a. Dehydration contributing to poor renal clearance of opioids which are causing symptoms of toxicity.
- b. Dehydration due to drowsiness due to reversible causes (e.g. infection).
- c. Inability to swallow e.g. advanced head and neck tumour, unsuitable for gastrostomy or other artificial feeding tube.
- d. Symptoms due to dehydration that are not responding to other treatment (e.g. intractable nausea or vomiting).

e. To meet fluid requirements in the short term when oral intake is inadequate and maintaining an intravenous line is difficult or inappropriate.

3.2 Confusion and restlessness can be occasionally aggravated by dehydration. However, quality evidence for use of hypodermoclysis in these patients is lacking

### 3.3 Cautions/ contraindications

- a. Risk factors for fluid overload, ascites, heart failure, peripheral oedema due to hypoalbuminaemia.
- b. Severe renal or hepatic failure.
- c. Severe dehydration, shock or any condition requiring the rapid administration of fluids, in large volumes or when careful titration and monitoring of fluids is required (these patients should be given intravenous fluids).
- d. Major bleeding or coagulation disorders.
- e. If the patient is imminently dying hydration may not improve survival or symptom management and may increase the risk of distressing respiratory secretions.
- f. For medication induced dry mouth.
- g. Patient refusal.

## 4 Patient and carer information - managing expectations

4.1 For patients to give informed and valid consent they should have a clear understanding of the following:

- a. the purpose of using subcutaneous fluids
- b. that the underlying disease process will continue and that further deterioration may be due to this rather than reduced fluid intake
- c. how the decision will be made to stop the infusion (if appropriate)
- d. possible development of peri-tumour oedema, cerebral oedema, peripheral oedema and ascites
- e. possible increase in airway secretions causing a 'death rattle'
- f. possible increase in gastrointestinal secretions causing increase in nausea and vomiting
- g. possible need for a urinary catheter

4.2 Discussion with patients/carers around the use of a 'therapeutic trial' of subcutaneous fluids with defined outcome measures e.g. improvement in symptom control (ideally as reported by the patient) should be explored prior to administration of fluids. It may be necessary to have a discussion that fluids might give an 'artificial sense of hope' in dying patients and this may need to be explored further . ( 5 )

## 5 Initiation and administration of the infusion

5.1 Ideally, wherever possible, patients deemed likely to benefit from subcutaneous fluids should be referred to the Specialist Palliative Care team. However, where a delay may be incurred that is detrimental to the patient the usual ward team may choose to commence the infusion concurrently to referring to the specialist palliative care team on extension 14548

5.2 Once referred, the Specialist Palliative Care team may be involved in assisting the ongoing review of care for patients receiving subcutaneous fluids.

5.3 Administration of subcutaneous fluids can be commenced by any registered nurse who is competent to administer subcutaneous injections and insertion of a subcutaneous needle. No formal training is required as the skills required to site a subcutaneous needle and to care for an infusion set are covered in current syringe driver training.

5.4 The fluid of choice is sodium chloride 0.9%, which can be given as an infusion or in boluses up to a maximum of 2 litres per 24 hour period (see below). Other fluids or medications should not be administered via this route.

<b>Infusion Regimen Maximum continuous infusion rate:</b>	up to 100ml/hour
<b>Maximum infusion volume:</b>	usually two litres over 24 hours with a maximum of 1.5 litres at any one site <sup>1,6</sup>
<b>Maximum bolus dose:</b>	500ml over one hour

The infusion may be given:

- >Continuously
- >Overnight
- >In boluses of 500ml per hour, two to three times each day with or without hyaluronidase

5.5 The following equipment will be required:

- >standard intravenous infusion set, for example solution set orange Y-site luer lok (Codan- 370001). NHS catalogue code FSC039
- >sodium chloride 0.9% one litre infusion bags
- >hyaluronidase 1,500units ampoules
- >drip stand
- >cannula with a safety system (the use of Teflon or Vialon cannula instead of metal needles reduces insertion site complications and the need for frequent needle changes)
- >a clear adhesive dressing
- >70% alcohol wipe for skin cleansing
- >label to date the intravenous infusion set

5.6 When choosing the site for infusion placement the following should be considered:

- >patient comfort and safety
- >loose subcutaneous tissue allows ease of larger volume of fluid
- >whether the patient is mobile

5.7 The abdomen, chest and lateral aspects of the upper arm or thigh are recommended sites.

The following sites should be avoided:

- a. Lymphoedematous / oedematous tissue as absorption will be restricted and problems with skin integrity could increase risk of infection
- b. Bony prominences
- c. Areas of skin with a rash, broken skin, areas of inflammation or infection
- d. Sites of tumour
- e. Peripheral limbs (distal to knees or elbows)
- f. Recently irradiated skin sites

5.8 Subcutaneous fluids should only be infused via gravity using a drip stand, standard IV giving set connected to a long tube butterfly needle: or preferably a Teflon catheter i.e. softset via luer lock connections and calculating the drip rate and **not** infused using a pump

5.9 The drip rate should be as per fluid prescription chart. The following formula may be used to calculate the required drops per minute, but the number of drops per ml for the particular giving set being used must be known (on the giving set pack)

The number of drops per ml for the giving set can usually be found on the packet. Typically a clear , standard giving set will deliver 20 drops per ml

Example

You are asked to administer 1000ml of fluid over 24 hours

$1000 \text{ ml} / 24 \text{ hours} = 41.6 \text{ mls per hour}$

The drop rate per minute =  $41.6 / \text{DRD}$  ( where DRD = Drop Rate Denominator

DRD in this example is 60 / number of drops per ml as indicated on giving set  
DRD in this example is  $60 / 20 = 3$

Drop rate per minute in this example is  $41.6 / 3 = 13.9$  drops per minute

5.10 Patients undergoing subcutaneous fluid infusion should undergo a clinical assessment at least every 24 hours. At each clinical assessment the appropriateness of the infusion should be actively considered and the reasons for the decision documented. The infusion should be checked at each visit for flow rate, site integrity and leakage

5.11 Administration of subcutaneous fluids should be recorded in the patient's care plan in accordance with the Trust's Medicines Management Policy. In

addition to the date and time of commencement of infusion, the following should be recorded:

- a. insertion site, including whether cannula has been re-sited and condition of surrounding skin
- b. type of cannula and giving set used
- c. expected time of end of infusion and actual time infusion ended, plus reasons for any variance
- d. patient's response to therapy and any adverse effects observed

5.12 The giving set should be changed every 72 hours or more frequently if the site is changed.

5.13 Further details of the procedure associated with the administration of subcutaneous fluids can be obtained in The Royal Marsden Hospital Manual of Clinical Nursing Procedures ( 4 )

## **6 Managing complications**

6.1 Where infused sodium chloride 0.9% is not being adequately absorbed hyaluronidase 1500 units may be given to improve absorption. It may be of benefit to patients in whom sites become quickly oedematous. It should not be used routinely as it can cause local irritation or systemic allergic reactions.

6.2 To use hyaluronidase, dissolve 1500 units in 1ml water for injection or sodium chloride 0.9% and inject subcutaneously directly into the site to be used, then commence the infusion. Administer daily before infusion starts.

6.3 If a site becomes inflamed or infected, change infusion site, device or dressing and treat the inflammation/infection as appropriate to the patient's condition.

6.4 Accidental bolus of infusions rarely occur and does not require further management, however a delay in the commencement of the next bag of sodium chloride 0.9% (so as not to go over the 2 litres in 24 hours) will be required.

6.5 Further information on the use of subcutaneous fluids can be obtained from the UHB specialist palliative care team on extension 14548.

## **References**

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5. Care of dying adults in the last days of life. NICE guidelines (NG31) December 2015