

5.5 Subcutaneous Therapy

Key Points

1. Subcutaneous therapy offers an alternative to intravenous therapy.
The SQ line is easier and less painful to place and has less risk of infection than the IV line. It is easy to use at home, gives the patient more freedom and control, and eliminates the need for painful and frequent IM injections.
2. SQ therapy offers an alternative to oral medications.
SQ lines are useful when patients cannot take medications orally because of nausea/vomiting, delirium, seizures, changing level of consciousness, dysphagia, or esophageal obstruction.
3. SQ lines offer many clinical advantages in the palliative setting.
The SQ line can be used for intermittent or continuous infusions to supply constant plasma levels, avoid first-pass metabolism, and present less danger of overhydration. All licensed nurses (both RN and LPN) can use SQ lines.
4. Disadvantages of SQ lines include inflammation at infusion site, logistical burdens, clinical limitations, and relative contraindications.
Logistical burdens include necessity for needles, syringes, and possibly pumps, as well as nursing and pharmacy backup. Some medications and treatments cannot be given SQ. Relative contraindications include severe thrombocytopenia and edema.
5. Proper placement of an SQ line includes specific procedures for explaining, prepping, priming, inserting, securing, injecting, flushing, checking, and changing.
Explain procedure to patient. See handout for complete description of the placement and care of SQ Line.
6. Appropriate medications for an SQ line include opioids, antiemetics, sedatives/anticonvulsants, corticosteroids, H₂ blockers, antihistamine, hormones, and diuretics.
Opioids used in SQ lines include morphine and hydromorphone. See handout for complete list of appropriate medications for SQ therapy.
7. Inappropriate medications for use in SQ lines include chlorpromazine (thorazine), prochlorperazine (compazine), and diazepam.

Subcutaneous Therapy



The Palliative Response

Alternative to Intravenous Therapy

- Easier to place
- Less painful to place
- Less risk of infection
- Easy to use at home
- Gives patient more freedom and control
- Eliminates need for painful and frequent IM injections

Alternative to Oral Medications

- Nausea and vomiting
- Last days of life
- Delirium
- Seizures
- Changing level of consciousness
- Dysphagia
- Esophageal obstruction

Clinical Advantages

- Can be used for intermittent or continuous infusions
- Provide constant plasma levels
- Avoids first-pass metabolism
- All licensed nurses (both RN and LPN) can use
- Less danger of overhydration

Clinical Advantages

- Avoids problems secondary to continuous IV fluids
 - Edema*
 - Ascetes*
 - Pleural effusion*
 - Pulmonary congestion*
- Hypodermoclysis
 - May provide parenteral hydration, when appropriate, with normal saline*

Disadvantages

- Side effects
 - May cause inflammation at infusion site*
- Logistics
 - Requires needles, syringes and possibly pumps*
 - Requires nursing and pharmacy backup*

Disadvantages

- Clinical limitations
Some medications/treatments cannot be given SQ
- Relative contraindications
Severe thrombocytopenia
Severe edema

Placing a SQ Line Sites

- Bed-confined patients
Abdomen
Upper chest
- Ambulatory patients
Abdomen
Upper thigh
Outer aspect of the upper arm

Special Considerations

- Cachectic patient
Avoid the chest
Risk of pneumothorax
- Large volumes (e.g.,
hypodermoclysis)
Abdomen is usually a better option
- Large surface area
- Fluids can diffuse

Placing a SQ Line Preparation

- Explain procedure to patient
- Prep skin with betadine and then alcohol
23–25 gauge butterfly with adapter and Hep lock plug
- Prime tubing and butterfly with 0.5ml of saline (volume of tubing is 0.3ml)

Placing a SQ Line Procedure

- Insert needle into SQ tissue at 45-degree angle
- Secure with opsite
- Inject medications at room temperature
- Flush with 0.5ml saline after each use
- Check site daily
- Change if inflammation or at 72 hours per policy

Subcutaneous Infusions Methods

- Intermittent with syringe
- Infusion pump (for relatively low volume)
Special programmable pump
Usually uses concentrated medications (typically morphine)
- Continuous basal rate
- PCA (patient-controlled analgesia) in form of bolus
- Hypodermoclysis
Uses typical IV infusion pump for rehydration

Subcutaneous Therapy

Appropriate Medications

- Opioids
Morphine
Hydromorphone
- Antiemetics
Haloperidol
Metochlopramide
Promethazine

Subcutaneous Therapy

Appropriate Medications

- Sedatives/Anticonvulsants
Lorazepam
Midazolam
Phenobarbital
- Corticosteroids
Dexamethasone

Subcutaneous Therapy

Appropriate Medications

- H2 blockers
Ranitidine
- Antihistimines
Benadryl
Vistaril
- Hormones
Octreotide
- Diuretics
Furosimide

Subcutaneous Therapy

Inappropriate Medications



Hypodermoclysis

- Use Normal Saline or D5 1/2 NS vs. D5
- Subcutaneous tissue of the abdomen
- Infusion rate as tolerated
May be 30 to 50cc/hour
May be able to significantly rehydrate an individual in 24–48 hours

Subcutaneous Therapy

A Palliative Response

- In home setting
- When IV access is difficult to obtain

Subcutaneous Therapy

Selected Readings

Administration

Moriarty, D. and E. Hudson. "Hypodermoclysis for Rehydration in the Community." *British Journal of Community Nursing* 6 (2001): 437–643.

Obenour, P. "Administering an S.C. Medication Continuously (Subcutaneous Infusion)." *Nursing Library*, 1998: June.

O'Doherty, C. A., E. J. Hall, L. Schofield, and G. Zeppetella. "Drugs and Syringe Drivers: A Survey of Adult Specialist Palliative Care Practice in the United Kingdom and Eire." *Palliative Medicine* 15 (2001): 149–154.

Torre, M. C. "Subcutaneous Infusion: Mon-metal Cannulae versus Metal Butterfly Needles." (Review) *British Journal of Community Nursing* 7 (2002): 365–369.

Alternative Administration Routes

Bruera, E. "Alternate Routes for Home Opioid Therapy." *Pain Clinical Updates: International Association for the Study of Pain*, 1993; 1(2).

McCaffery, M. and C. Pasero. "How to Choose the Best Route for an Opioid." *Nursing*, 2000: December.