

SUBCUTANEOUS AUTOMATIC SYRINGE PERFUSION

Most of the patients in palliative care units will experience difficulties in taking oral medication, in the course of the disease. In such cases, patients can receive their medication either intrarectal or parenteral (intramuscular, intravenous or subcutaneous administration). Medication is frequently administered in the subcutaneous tissue, via injection or continuous perfusion. The continuous perfusion can be used for symptom control (opioids, antiemetics, anxyolitics, corticosteroids, anticholinergic drugs, s.o.). Some drugs can be mixed in the same syringe and administered together. Medication is slowly absorbed through adipose tissue and the plasma level of a drug is stable and it gives better symptom control. Subcutaneous perfusion is a less painful procedure compared to intramuscular injection; it can be easily performed at the patient's home and can be monitored by a proxy, properly advised by the palliative care team. Thus, the procedure is more easily accepted by the patient and the family.

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1.	Assess if patient is alive or not (<i>presence of consciousness, movements, speech, breathings</i>) <i>preserved vital functions; <input type="checkbox"/> cardiopulmonary arrest <input type="checkbox"/></i>		0 1 3
2.	Can you tell me your name, please..... (or, check patient's ID bracelet, if available) And your date of birth..... Thank you. (<i>This is done to avoid performing the procedure on the wrong patient as there may be several patients with the same name. Also, do not ask e.g. "Are you Mr. Smith?" to avoid receiving false confirmation from patients distracted by their symptoms or other reasons</i>). <i>Double-check in the medical records for Name: <input type="checkbox"/> DOB: <input type="checkbox"/></i>	ESSENTIAL	
3.	Provide a private space for the procedure. Tell the patient or the caregiver what we will do: I will place an automatic subcutaneous perfusion.		0 1 3
4.	<i>What the procedure consists of?</i> We have to place this butterfly somewhere, in your subcutaneous tissue; it may stay there for several days. The butterfly will be connected to this pump; thus your medication will be administered automatically, continuously, during 24 hours.		0 1 3
5.	<i>How can you contribute to the realisation of the procedure?</i> It doesn't take long to insert the butterfly. Stand still, relaxed, calm. You will feel a little prick. The device is generally well tolerated and it should not interfere with your common activities but by paying attention to it, the butterfly will remain in place for a longer time.		0 1 3
6.	<i>What is the utility of this manoeuvre?</i> Using this procedure the drugs that help you will enter your body in a constant and comfortable manner. It will ease your symptoms for a longer period of time. If you will still experience pain or other symptom (nausea, dyspnoea) we can give you at any time additional medication.	ESSENTIAL	
7.	Address to the patient and caregiver the questions: Do you understand what the procedure is about?		0 1 3

	<p>Do you have any other questions? Have you experienced this before?</p>		
8.	<p>Check the medical records of the patient :</p> <p>a. situations calling for automatic subcutaneous perfusion :</p> <ul style="list-style-type: none"> - uncontrolled nausea , vomiting - dysphagia - malabsorption - gastro-intestinal obstruction - intolerance of oral medication - poor compliance of oral medication - reduced level of consciousness - severe weakness - terminal patient - control of multiple symptoms requiring a combination of drugs <p>b. medication, doses, rhythm of administration.</p>		0 3 6
9.	<p>Have you ever used these drugs before? Are you aware to be allergic to any of them? Which one?</p> <p>This questions will be addressed to the patient / caregiver.</p>	ESSENTIAL	
10.	<p>Patient's and caregiver's consent must be documented in the medical records.</p> <p>Do you give your consent for this procedure to be done?</p>	ESSENTIAL	
11.	<p>Prepare the materials and their integrity and validity:</p> <ul style="list-style-type: none"> a. the syringe driver b. the syringe -> a 20 ml Luer syringe c. the butterfly (23 or 25 G needle) d. vials of medication e. 0.9 % sodium chloride for dilution f. alcohol swabs g. occlusive transparent dressing 		0 1 3
12.	<p>Prepare the syringe :</p> <p>a. check prescribed medication:</p> <ul style="list-style-type: none"> 1. type and name <input type="checkbox"/> 2. dose <input type="checkbox"/> 3. expiry date <input type="checkbox"/> 4. macroscopic appearance / conformity <input type="checkbox"/> <p>b. compatibility of associated medication if multiple drugs must be combined in the syringe <input type="checkbox"/></p> <p>c. draw prescribed medication \pm diluent in the syringe, to prescribed volume <input type="checkbox"/></p>	ESSENTIAL	
13.	<p>Labelling :</p> <ul style="list-style-type: none"> a. complete the details of the drug/s b. ensure the label doesn't interfere with the mechanism of the pump 		0 1 3

	c. ensure the label doesn't obscure visual scales d. ensure the label doesn't interfere with the sensors in the pump		
14.	Prepare the pump : a. insert the battery b. place the syringe into the pump correctly c. measure the content of the syringe on the scale of the pump d. set, on the screen of the pump, the correct rate / duration of time / total volume for drug administration.		0 3 6
15.	Record on the infusion check chart , before priming the line : a. drugs names and dosages b. total volume in millilitres c. rate per hour to be infused		0 3 6
16.	Set up the line for infusion, following the steps: Inspect the patient and choose the right place , (considering the following principles : - at cachectic patients , the abdomen is the preferred site , except ~3 cm peri-umbilical - at patients with ascites , the site is the upper anterior chest wall above the breast away from the axilla - at agitated patients the site is the upper back around scapula - upper arms - outer aspect of thigh - consider rotation of the sites Sites NOT to be used : - areas affected by lymphedema (risk of infection or poor absorption) - sites over bony prominences (diminished subcutaneous tissue leads to poor absorption) - sites near joints (movements can displace the butterfly and cause discomfort) - skin infections - local erythema , ulcerations , wounds - previously irradiated skin (radiotherapy causes sclerosis of small blood vessels reducing skin perfusion) - sites of tumours - skin folds)		0 3 6
17.	Wash hands. Put on gloves.	ESSENTIAL	
18.	Disinfect the skin with betadine, chlorhexidine or alcohol and wait for the skin to dry.		0 1 3
19.	Connect the butterfly to the syringe and instil solution in order to remove the air from the butterfly cannula.		0 1 3
20.	Grasp the skin firmly to elevate the subcutaneous tissue. Insert the butterfly cannula with the point just beneath the epidermis. The angle of insertion may need to be about 30 degrees for a thin person and around 45 degrees at persons with consistent subcutaneous tissue. A deeper infusion prolongs the life of the infusion site.		0 1 3
21.	Release the skin.		0 1 3
22.	Form a loop with the tube of the butterfly cannula to prevent accidental disconnecting at patient's movements.		0 1 3

23.	Cover the butterfly cannula with an occlusive transparent dressing that allows the inspection of the site every 4 hours.		0 1 3
24.	Connect the pump to the line. (ATTENTION: Do NOT connect the syringe to the patient before installing it in the automatic device. Do NOT connect the pump before recording : - the name of the drug/s - the dosage of the drug/s - the rate per hour - the total volume - the time of priming the line)		0 1 3
25.	Start the infusion by pressing the ON/OFF button. Pay attention to the acoustic signal and the light appearing on the screen.		0 1 3
26.	Dispose the empty vials (in the cutting / stabbing sharps waste container), the cotton swabs, the gloves (in the infectious noncutting / non-stabbing non-sharps waste container) and the removed butterfly cannula (if present) and used needles in the appropriate box.		0 1 3
27.	Wash your hands with soap and water.		0 1 3
28.	Please keep this butterfly as it was placed by us. (the patient and/or the caregiver will be advised not to remove the cannula).		0 1 3
29.	You can request and receive extra medication if your symptoms won't be properly controlled.		0 1 3
30.	Ensure the patient's safety - adjust the bed, lift the lateral limiters.		0 2 4
31.	Recheck patient condition (at least every four hours) by observing him or, if it is appropriate, by starting a dialogue: How are you? Are you comfortable? Is your pain controlled? Do you have any problem? Re-evaluate if it is necessary Check if the syringe driver is working properly and if there are complications (<i>redness, blood in the cannula, s.o.</i>) at the site of injection		0 3 6
32.	Ensure the pump is working (the light is ON, the sound is heard).		0 1 3
33.	Notice the remaining volume in the syringe correlated to the remaining time.		0 1 3
34.	Notice the aspect of the content of the syringe (clarity, change of colour, deposits).		0 1 3
35.	Check the aspect of the infusion site , noticing (if present): a. haematoma b. local pain c. local swelling d. local redness	ESSENTIAL	

	e. leakage at the insertion site f. presence of blood in the cannula g. displacement of the cannula . Any complication must be written in the patient's medical record.	
	Total score: 100	<input type="radio"/> %
		<input type="radio"/> %
		<input type="radio"/> %

Legend: - unfulfilled criterion; – partially fulfilled criterion; – completely fulfilled criterion

(score according to column P)

References:

1. NHS Trust Oxford Radcliffe Hospital Clinical protocol for the use of syringe drivers in palliative care (adults) <http://www.palliativedrugs.com/download/SDprotocol.pdf>
2. Ministry of Health. 2009. *Guidelines for Syringe Driver Management in Palliative Care in New Zealand*. Wellington: Ministry of Health. <https://www.health.govt.nz/system/files/documents/publications/syringe-guidelines-jul09.pdf>
3. The State of Queensland, Queensland Health, 2010 *Guidelines for syringe driver management in palliative care*’. Second edition 2010 https://www.health.qld.gov.au/_data/assets/pdf_file/0029/155495/guidelines.pdf