

Workbook for the use of Syringe Drivers in Palliative Care (adults)

The objective of this workbook is to explore the use of syringe drivers in palliative care. It is aimed at providing ward nurses in the Oxford Radcliffe Hospitals NHS Trust a tool for self guided learning. The answers are provided.

The registered nurse will gain knowledge to complete this workbook through the following Oxford Radcliffe Hospitals NHS Trust resources:

- The Infusion Device Training organised by the manager of the equipment library at the John Radcliffe Hospital
- The Oxford Radcliffe Hospitals NHS Trust 'Procedure for the use of Syringe Drivers in Palliative Care Situations
- Oxford Radcliffe Hospitals NHS Trust policy for the use of syringe drivers in palliative care

Questions

1 What is a syringe driver?

2 What are the differences between the Graseby MS26 and the Graseby MS16A syringe drivers?

MS26

MS16A

Which is recommended for use in palliative care and why?

3 List some indications for using a syringe driver. Illustrate these with examples from your own practise, where possible.

- 7** How do you check the syringe drivers safety system and alarm are working?
- 8** When first setting up a syringe driver or when replacing the infusion line, what must you do before measuring the syringe to set the rate?
- 9** Name some common sites for insertion of the syringe driver infusion line needle
- 10** When a syringe driver is in use, what should be regularly checked and how often?

- 15** A patient is taking 60mg M/R morphine bd. What would the prn dose of oral morphine be?
- 16** What is the prn dose of oral morphine, if taking 100mg M/R morphine bd?
- 17** If a patient has 30mg diamorphine in a syringe driver and complains of pain, what s/c prn dose would you administer?
- 18** If a patient has 20mg diamorphine in a syringe driver and complains of pain, what s/c prn diamorphine dose would you administer?
- 19** Mr Jones has been taking 90mg M/R morphine twice daily. Unfortunately he is too weak to swallow and a decision is made to change to a syringe driver. Calculate the dose of diamorphine he is to receive in the syringe driver.
- 20** What would Mr Jones' prn dose of s/c diamorphine be for breakthrough pain?
- 21** Mrs Smith has been taking 140mg diamorphine in a syringe driver. She is no longer unconscious and is able to swallow. Calculate the dose of M/R morphine she would need.
- 22** Calculate the prn dose of oral morphine for Mrs Smith.

Answers

1

A small, portable battery powered infusion pump. It pushes the plunger of a syringe forward at a constant rate over a set period of time (usually 24 hours) to administer drugs subcutaneously.

2

The MS26 delivers in mm per 24 hours, meaning it is usually set to run over 24 hours. It is green in colour. Indicator lamp flashes every 25 seconds. Has a boost button that is not recommended for use in palliative care.

The MS16A delivers in mm per hour, meaning it is usually set to run over an hour. It is blue in colour. Indicator lamp flashes every second. The MS26 is recommended for use in palliative care because of its technical simplicity. Using one model reduces the risk of error.

3

- Difficulty or unable to swallow due to profound weakness / low energy levels
- Sleepiness / unconscious / coma
- Persistent nausea and vomiting
- Intestinal obstruction
- Poor alimentary absorption (rare)

4

- Good symptom control with steady levels of plasma concentrations without peaks and troughs
- Permits better control of nausea and vomiting
- Control of multiple symptoms often possible using a combination of drugs
- Avoids repeated injections
- Avoids need for IV access
- Ambulant patients maintain their mobility and independence
- Syringe needs re-loading once a day

5

- Anticipate the patient's medication requirements over the next 24 hours
- PRN medication is prescribed to manage any breakthrough distress
- Some patients find the syringe driver heavy
- It is regarded by some as a last resort, or a sign of impending death.
- Prepare the patient and family, explaining how the device works, allowing them to ask questions and voice anxieties. Be aware that this discussion may be the catalyst for realising that the patient won't get better - or the patient and family may assume that death is imminent, but the medical team are using the syringe driver temporarily for a short symptom control episode
- Also remember that some patients won't have the energy for long explanations or discussions and other patients/families won't want these
- Be sensitive to the individual situation.

6

- Syringe driver Graseby MS26
- Clear plastic cover
- Holster (carry bag)
- Rate adjuster key or paperclip
- Butterfly needle with 100cm line
- 9 volt alkaline battery
- Luer lock syringe
- Transparent film dressing
- Suitable diluent
- Prescription and syringe driver chart

7

- 1) Insert the battery. The alarm will sound for about 15 seconds and then fade
- 2) Press and hold down the start/boost button. The motor will turn and stop after 10 seconds
- 3) Keep holding down the button. The alarm will continue for about 15 seconds
- 4) Once the alarm has finished, releasing the button starts the syringe driver
- 5) Do not use the syringe driver if the motor does not stop or the alarm does not sound
- 6) The indicator lamp should flash every 25 seconds

8

Prime the line

9

- Upper chest
- Upper arm
- Anterior abdomen
- Anterior aspect of thigh

10

- Site condition
- Leakage
- Rate setting
- Volume remaining (in ml)
- Appearance of contents of syringe and line – checking no crystallisation and precipitation is present
- Battery – is the lamp flashing
- The above should be checked every four hours

11

- Precipitation can appear as clouding of fluids
- Precipitation can appear as separation of fluids
- Crystallisation can appear as sugar or thin sparkly strands
- All of the above can occur in the fluid within the syringe and or the infusion line

12

- A prn dose of opiate should be equivalent to a four hourly dose of the 24 hour total
- This is one sixth of the total 24 hour dose (there are six fours in twenty-four)

13

- Don't use the boost button to administer a breakthrough dose of medication
- Each press on the boost button provides 0.23mm of plunger travel and is difficult to administer an accurate dose, or one that is adequate
- If more than one drug is in the syringe, all medications will be administered
- If the boost button is pressed often enough, the infusion will empty early which could further add to poor symptom control if unnoticed.

14

- Liaise with the district nurse as early as possible
- Identify syringe driver to be used and arrange loan if appropriate
- Ensure details are recorded correctly such as drugs and doses, what time the syringe will need re-loading
- Ensure there are adequate supplies of luer lock syringes, lines and dressings
- Allow patients and families time to discuss fears and anxieties
- Ensure the patient/family know who to contact if there are any problems at home

15

$60 \times 2 = 120$ divided by 6 = 20mg oral morphine

16

$100 \times 2 = 200$ divided by 6 = 33.3, so a dose of 30mg to 35mg would be given

17

30 divided by 6 = 5mg s/c diamorphine

18

20 divided by 6 = 3.3, which would usually be rounded up to the nearest 'easy' dose of 5mg s/c diamorphine. However, it would not have been incorrect to try 2.5mg s/c diamorphine and assess the result.

19

$90 \times 2 = 180$ divided by 3 = 60mg diamorphine

20

60 divided by 6 = 10 mg s/c diamorphine

21

$140 \times 3 = 420$ divided by 2 = 210mg M/R morphine BD

22

420 divided by 6 = 70mg oral morphine prn