MIL Oxford University Hospitals NHS NHS Trust

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This Medicines Information Leaflet is produced locally to optimise the use of medicines by encouraging prescribing that is safe, clinically appropriate, and cost-effective to the NHS.

Symptom Management for Palliative and End of Life Patients (Adult) using the Subcutaneous Route

Patients who have complex symptoms or who are nearing the end of their life may benefit from having their symptoms managed using a subcutaneous (SC) route. This can be achieved by a continuous subcutaneous infusion (CSCI) via a syringe driver and/or anticipatory as-required injectables. For most drugs administration via SC route or CSCI is off-label but recognised standard practice in palliative care (see Procedure for the use of unlicensed and 'off-label' medicines). If the drug is on the OUH Formulary and endorsed by the Palliative Care Formulary it is considered accepted practice for use within OUH[1,2].

As required (PRN) medication

A range of injectable anticipatory as-required medicines can be prescribed to manage a patient's symptoms. Placement of a subcutaneous cannula for anticipatory medication reduces the need for repeated injections. A Saf-T intima subcutaneous cannula is the cannula of choice in OUH. Following administration of a subcutaneous bolus medication the Saf-T intima cannula should be flushed with a maximum of 0.5mls Water for Injection. Recommended anticipatory (PRN) medications:

Drug	Indication	Dose	Frequency
Morphine sulfate	Pain	2.5mg	prn 2 hourly
OR			
Oxycodone*	Dyspnoea	1.25mg	prn 2 hourly
Haloperidol**	Delirium, agitation or nausea/ vomiting	0.5mg	prn 8 hourly
Midazolam 10mg/2ml	Restless/ agitation	2.5mg	prn 1 hourly
Hyoscine butylbromide	Respiratory secretions	20mg	prn 4 hourly

* Oxycodone is the opioid of choice in renal failure, please use if eGFR less than 40ml/minute.

**Caution required where risk of prolonged QTC interval. NOT indicated in people with Parkinson's and related diseases (see Parkinson's end of life MIL).

If the patient is already taking a morphine or oxycodone the PRN dose is usually 1/6th of the 24-hour dose.
For patients with normal renal function morphine sulfate is the opioid of choice in the OUH[2]. For patients with renal impairment (eGFR less than 40ml/minute) oxycodone should be used. See Anticipatory Medications for End-of-Life Care Renal Patients for more information.

If a patient requires three consecutive PRN doses of **morphine, oxycodone** or **midazolam** in a 6-hour period without symptom control, please seek advice from palliative care team.

CSCI via syringe driver

Indications for CSCI

If two or more PRN doses of one SC medication are required in a 24-hour period, a CSCI is required for symptom control. It may also be reasonable to use a CSCI for symptom control in other cases such as:

- Rapid symptom escalation
- Nausea and vomiting or intestinal obstruction.
- Loss of oral route and malabsorption
- Reduced consciousness

Advantages of using a CSCI via syringe driver

- Steady plasma drug concentration for good symptom control,
- Control of multiple symptoms with one syringe driver using appropriate drug combinations,
- IV access may be difficult to obtain in dying patients,
- Reduces need for repeated injections and usually needs loading only once a day.

Careful explanation for the rationale for use of a CSCI is essential to avoid patient and/or family misperceptions.

Prescribing a syringe driver

The syringe drivers used at OUH are the CME T34 and the BD Bodyguard T. Standards set for their use within OUH are available in the CSCI clinical protocol :

- total volume 21ml
- diluent water for injection unless otherwise directed
- CSCI to run over 24 hours
- No more than 3 drugs should be added to the syringe unless advised by palliative care team.

What to include in a CSCI?

This will vary with clinical need and should be assessed on an individual patient basis. A CSCI should be considered for patients at the end of life if they have required 2 or more PRN doses of anticipatory medications for symptom control. CSCI may also be required to replace regular opioid or antiemetic medications.

Pain

For patients on regular opioid who can no longer take this orally convert oral morphine to CSCI dose by dividing total daily dose (modified release preparations and any PRNs) by 2.

e.g Morphine sulfate MR 30mg BD PO = morphine sulfate 30mg/24 hours via CSCI

SC PRN dose will be 1/6th of 24-hour dose.

For patients who are not on a regular opioid but have required PRN SC medications for pain, review total PRN requirement over 24 hours and commence CSCI at this dose.

If the patient has a fentanyl or buprenorphine transdermal patch in situ, leave the patch in place and consult hospital palliative care team for advice on how to manage increased analgesic requirements.

Nausea and vomiting

Therapy should be targeted using the most appropriate medication. If a patient is taking regular antiemetics and can no longer tolerate orally these should be replaced in CSCI.

As a guide, consider the following doses

1ST LINE: **Haloperidol** 1.5-2.5mg/24 hours (maximum 5mg/24 hours) – broad receptor targets, useful for biochemical causes for nausea or where nausea and delirium present. NOT indicated in people with Parkinson's and related diseases (see Parkinson's end of life MIL).

2ND LINE: **Cyclizine** 75-100mg/24 hours (maximum 150mg /24 hours) – may be more effective for central causes of nausea (such as head injury, raised intracranial pressure due to cerebral bleed or metastases)

3RD Line: **Metoclopramide** 30-60mg/24 hours (maximum 100mg/24 hours) – where nausea may be related to gastric stasis or constipation. . NOT indicated in people with Parkinson's and related diseases (see Parkinson's end of life MIL).

Restlessness and agitation

Assess cause carefully – management of delirium differs from agitation.

Terminal agitation: Midazolam (prescribe with 10mg/2ml concentrated version) 10mg/24 hours (Maximum 40mg/24 hours)

Delirium: consider adding **Haloperidol** 2.5-5mg/24 hours (maximum dose 5mg/24 hours)

Respiratory tract secretions

If the patient is unconscious and not distressed by respiratory tract secretions, repositioning and explanation to the family may be sufficient. Hyoscine can dry secretions, making them more difficult to expectorate and cause a dry, uncomfortable mouth and urinary retention. If considered necessary, suggest starting with PRN Hyoscine and if effective consider a CSCI.

Usual starting dose would **be Hyoscine butylbromide** 40-60mg/24 hours (maximum dose 120mg/24 hours).

Note OUH do not use hyoscine hydrobromide due to known side effects of sedation and confusion.

Dyspnoea

For opioid naïve patients start with PRNs of appropriate opioid and assess effect. If symptoms respond to PRNs:

Morphine sulfate 10mg/24 hours
Or
Oxycodone 5mg/25 hours

For patients already taking an opioid by CSCI for pain, increase the opioid by 25%.

If the patient is very anxious trial Midazolam 2.5mg SC PRN and review effect. If effective, add Midazolam 5-10mg/24 hours via CSCI.

To prescribe a CSCI in EPR

Use the continuous subcutaneous infusion (via syringe driver) PowerPlan in EPR. This will present common drug combinations, listing one, two and three drug combinations including the correct diluent.

Recording CSCI

CSCI checks should be recorded 4 hourly in interactive view as per OUH protocol.

Medications via CSCI

For information on medications that can be given via CSCI, compatibility and usual doses please see the OUH protocol. Compatibility information is available via the PCF and online via Medicines Complete[4].

Discharge from OUH with a CSCI

For patients who are dying and can be appropriately discharged to their preferred place of death e.g. home, community hospital or nursing home, then please refer to the information on the OUH Palliative Care intranet site about discharging a patient from OUH with a CSCI in situ.

Hospital Palliative Care Team

If symptoms are not controlled or other medicines are being considered for use via a CSCI then contact the hospital palliative care team.

For urgent advice within our usual working hours call the team on ext. 21741 (Monday – Sunday 0800 – 1800).

Out of hours: Please contact on call palliative medicine doctor via switchboard.

To refer a patient to the OUH inpatient palliative care team **for routine review** please use the referral form found in EPR (requests and prescribing, select refer to palliative care team).

References

1. *PCF Online – available via Medicines Complete*
2. *OUH* Procedure for the use of unlicensed and 'off-label' medicines
3. *OUH T34 syringe driver guidelines*
4. *Compatibility charts – Drug Compatibility Checker via Medicines complete*

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