

## Renal Palliative Care – Last Days of Life

### Introduction

- This guideline is an aid to clinical decision-making and good practice for patients with stage 4-5 chronic kidney disease (eGFR <30ml/min) who are deteriorating and at risk of dying.
- Survival after stopping renal replacement therapy in dialysis dependent patients is about 7-10 days; some patients with residual renal function may live much longer.
- If a patient is likely to stop dialysis, plan end-of-life care in advance.

### Initial assessment

- Identify any **potentially reversible causes** for the patient's deterioration. These may include:
  - dehydration
  - acute kidney injury
  - infection
  - delirium
  - opioid toxicity
  - hypercalcaemia

Start treatment, if appropriate for the individual patient and care setting; plan review.

- Discuss prognosis (patient is deteriorating and at risk of dying), agree **goals of care** and preferred place of care with the patient or a welfare attorney, and the family.
- Take account of any **advance/ anticipatory care planning** or documented patient wishes.
- An **individual care plan** will be agreed with the patient if possible or any welfare attorney, discussed with the family, and documented in the patient record.
- Clarify **resuscitation status**; consider a DNACPR form. (see: National policy)
  - o Explain to the patient/ family that all other appropriate treatment/ care will continue.
- Prompt and careful planning is needed for a safe discharge home or to a care home.
- If patient or family needs are complex, consider contacting the palliative care team for advice.

### Care planning and regular review

- Planned **review and documentation** of the care plan will make sure the best care is given as the patient's condition deteriorates, stabilises or improves.
- **Food and drinks**: support the patient to take these as long as they are able and want to.
- **Comfort care**: usually includes a pressure mattress, repositioning for comfort, eye care, mouth care, bladder and bowel care.
- **Medicines**: review and stop any treatments not consistent with the agreed goals of care.
  - o Choose an appropriate route: If the patient is able to swallow, consider prescribing liquid formulations, or change to the subcutaneous (SC) route.
  - o Consider the need for a SC infusion of medication via a syringe pump.
  - o Make sure **anticipatory medication** for common symptoms is available and prescribed for as required use, by the oral and SC routes (see below).
- **Investigations or clinical interventions**: consider benefit/ burdens (eg blood tests, radiology, vital signs and regular blood sugar monitoring).  
Make a clear record of any interventions that are not appropriate. Review regularly.
- **Assisted hydration/ nutrition**: consider the benefits and risks; review care plan regularly .
  - o Over hydration can contribute to distressing respiratory secretions. However, where indicated, a slow SC infusion may be considered on an individual basis.  
(see: subcutaneous fluids)
- Consider **emotional, spiritual/ religious, cultural, legal and family needs**, including those of children and people with cognitive impairment or learning disability.
- **Bereavement**: identify those at increased risk; seek additional support.

### Communication

- Discuss the care plan with the patient, if possible, and the family. Explain what changes to expect in the patient's condition. (see leaflet: *What happens when someone is dying.*)
- Make sure key family members are aware of the care plan. Record a plan of how and when to contact the family if the patient deteriorates or dies.
- Handover care plan to other team members; hospital at night team, GP, district nurses, out-of-hours community services.

## Anticipatory prescribing

All patients should have as required medication for symptom control available:

- **Opioid analgesic: alfentanil** SC hourly (100-250micrograms, if not on a regular opioid).
- **Anxiolytic sedative:** midazolam SC 2mg to 5mg, hourly.
- **Anti-secretory medication:** hyoscine butylbromide (Buscopan) SC 20mg, hourly.
- **Anti-emetic:** levomepromazine SC 2.5mg to 5mg, 8 hourly.

## Pain (see dose conversion chart below)

- Paracetamol or an NSAID (benefits may outweigh risks in a dying patient) can help bone, joint, pressure sore, inflammatory pain.
- **Alfentanil** and **fentanyl** are the opioids of choice – no renal excretion of parent drug or metabolites.
  - o Morphine / diamorphine are renally excreted as is oxycodone to a lesser extent; these opioids accumulate and can cause significant toxicity with repeated doses.
  - o A single dose can be given if the patient is not opioid toxic while a supply of alfentanil or fentanyl is obtained.
- No regular opioid: alfentanil SC 100-250micrograms hourly, as required.
- Fentanyl patch: continue the patch, use the correct SC alfentanil dose for breakthrough pain.
- Other opioids should be converted to a subcutaneous infusion of alfentanil in a syringe pump with the correct SC alfentanil dose, hourly as required (see chart).

**Myoclonus** or muscle stiffness/ spasm: midazolam SC infusion, 5mg to 20mg over 24 hours.

## Breathlessness

- May be due to pulmonary oedema, acidosis, anxiety or lung disease.
- Continue any oral diuretic if able to swallow. Avoid fluid overload; consider ultrafiltration.
  - o Oxygen can improve breathlessness, but only if the patient is hypoxic. If oxygen is needed for symptom control, nasal prongs may be better tolerated than a mask.
  - o A table or handheld fan should be tried, and a more upright position can help.

Intermittent breathlessness/ distress	Midazolam SC 2mg to 5mg hourly, as required &/ or lorazepam sublingual 500micrograms, 4-6 hourly, as required. Opioid: alfentanil SC hourly, as required. - no regular opioid: alfentanil SC 100-250micrograms.
Persistent breathlessness/ distress	Midazolam SC 5mg to 20mg + alfentanil SC 500 micrograms (if no previous opioid use) via a syringe pump. Titrate doses if needed.

## Respiratory tract secretions

- Reduce the risk by avoiding fluid overload; review any assisted hydration / nutrition (IV/SC fluids, feeding) if symptoms develop.
  - Changing the patient's position may help.
  - Intermittent SC injections often work well or medication can be given as a SC infusion.
- 1<sup>st</sup> line: hyoscine butylbromide SC 20mg, hourly as required (up to 120mg/ 24hours).  
2<sup>nd</sup> line: glycopyrronium bromide SC 100micrograms, 6-8 hourly as required.

## Nausea / vomiting (see: Nausea / Vomiting, Subcutaneous medication)

- Nausea is common due to uraemia and co-morbidity.
- If already controlled with an oral anti-emetic, continue it as a subcutaneous infusion or use a long acting anti-emetic: haloperidol SC 0.5mg to 1mg 12 hourly, or 1mg to 2mg once daily.  
levomepromazine SC 2.5mg 12 hourly, or 5mg once daily.
- Treat persistent nausea with levomepromazine SC 5mg to 12.5mg once or twice daily or use 5mg to 25mg over 24 hours in a syringe pump.

**Agitation/ delirium**

- Common and may worsen as uraemia increases; needs active management

Mild delirium/ hallucinations	Haloperidol SC 2mg, once daily	
Established terminal delirium/ distress	1 <sup>st</sup> line midazolam SC 20mg to 30mg over 24 hours in a syringe pump + midazolam SC 5mg hourly, as required.	2 <sup>nd</sup> line midazolam SC 40mg to 80mg over 24 hours in a syringe pump + levomepromazine SC 12.5mg, 12 hourly and 12.5mg, 6 hourly as required. Stop any haloperidol.

**Anxiety/distress:** midazolam SC 2mg to 5mg, hourly, as required.

- Try to address psychological and family concerns causing patient anxiety.

**Practice points**

- Opioid analgesics should not be used to sedate dying patients.
  - Sudden increases in pain or agitation; exclude urinary retention or other reversible causes.
- Avoid renally excreted opioids (codeine, dihydrocodeine, morphine, diamorphine, oxycodone).
- Subcutaneous infusions of medication provide maintenance treatment only. Additional doses of medication by SC injection will be needed if the patient's symptoms are not controlled, or when starting a SC infusion in an unsettled patient.
- Midazolam SC infusions are usually titrated in 5mg to 10 mg steps. Up to 5mg can be given in a single SC injection (1ml). Single SC doses can last 2-4 hours. Useful as an anticonvulsant.
- As uraemia worsens, the patient may become more agitated and need an increased dose of midazolam, and in some cases additional levomepromazine.
  - Terminal secretions can be controlled in about 60% of cases; fluid overload, recent aspiration and respiratory infection increase the incidence.

**Resources**

Patient leaflet on website: *What happens when someone is dying*.

Other relevant guidelines are: Last days of life, Subcutaneous medication, Alfentanil, Fentanyl.

**Key references**

1. Bunn R, Ashley C. *The renal drug handbook* Oxford, Radcliffe Medical Press 2004
2. Chambers J. *Supportive care for the renal patient* Oxford, OUP 2004
3. Dean M. Opioids in renal failure and dialysis patients. *J Pain Symptom Management* 2004; 28(5): 497-504

**Further reading:** <http://www.palliativecareguidelines.scot.nhs.uk>

### A guide to opioid doses for dying patients with acute renal impairment or stage 4-5 chronic kidney disease (GFR < 30ml/min)

- Use this chart as a **guide**. The doses are **approximate** and not exact equivalent doses.
- Always prescribe an appropriate opioid drug and dose for breakthrough pain.
- Avoid renally excreted opioids (codeine, dihydrocodeine, morphine, diamorphine, oxycodone)
- Check the information about individual drugs: see Fentanyl patch, Alfentanil.
- Reduce the dose by up to 30% when changing opioid if the patient is opioid toxic, frail or elderly and re-titrate.
- Particular care is needed when changing between opioids at higher doses or when the dose of the first opioid has been rapidly increased as these patients are at greater risk of adverse effects.

**Monitor the patient carefully; if in doubt – seek advice**

		Change to alfentanil or fentanyl				Oxycodone <sup>1</sup>		Alfentanil <sup>2,3</sup> injection		Fentanyl patch <sup>4</sup>
		Morphine <sup>1</sup>				Diamorphine <sup>1</sup>				
4 hourly oral dose	24 hour total dose	4 hourly SC dose	24 hour total SC dose	4 hourly oral dose	24 hour total oral dose	24 hour total SC dose <sup>1</sup>	SC as required dose, hourly, in micrograms	24 hour SC driver/ pump dose	Patch strength	micrograms/ hour
2 - 3mg	15mg	1mg	5mg	1 - 2mg	7 - 8mg	5mg	100-200	500 micrograms	Do not use	
5mg	30mg	2mg	10mg	2 - 3mg	15mg	7 - 8mg	200-250	1mg (1000 micrograms)	12	
10mg	60mg	2 - 3mg	20mg	5mg	30mg	15mg	300-500	2 mg	25	
15mg	90mg	5mg	30mg	7 - 8mg	45mg	20mg	500	3 mg	37	
20mg	120mg	7 - 8mg	40mg	10mg	60mg	30mg	Seek advice	4mg	50	
30mg	180mg	10mg	60mg	15mg	90mg	45mg	Seek advice	6mg	62	
40mg	240mg	10mg	80mg	20mg	120mg	60mg	Seek advice	Seek advice	75	

<sup>1</sup> If it is not possible to obtain alfentanil, a single 4 hourly dose of morphine SC, diamorphine SC or oxycodone SC may be given as an interim measure but should not be repeated. A continuous subcutaneous infusion should not be used.

<sup>2</sup> Alfentanil clearance is reduced in liver impairment; reduce dose and titrate.

<sup>3</sup> Alfentanil is supplied as 500micrograms/ ml. If higher SC breakthrough doses or a SC infusion dose over 6mg are needed – seek advice.

<sup>4</sup> Fentanyl is approximately four times more potent than alfentanil and longer acting. Fentanyl clearance may be reduced in severe liver impairment, and it can accumulate in chronic kidney disease.

Fentanyl SC injections can be used for breakthrough symptom control if alfentanil is ineffective due to its short duration of action.

The low concentration of the fentanyl preparation limits the SC injection dose to a maximum of 50 micrograms (1ml).

Fentanyl SC 50 micrograms is approximately equivalent to alfentanil SC 200-250 micrograms. **Seek advice.**

## Subcutaneous Alfentanil infusion in a McKinley T34 Syringe Pump

### Diluent: Water for injections

- The figures in these tables are not clinical doses to prescribe. Most patients do not need such large amounts of medication.
- Refer to the relevant guidelines to obtain the usual dose range for each of the medications.
- Use the minimum effective dose and titrate according to response.
- Use the table to check for concentrations that are stable for 24 hours; their use is unlicensed.

Drug Combination	Concentrations of two drug combinations that are physically stable for 24 hours	
	17ml in 20ml syringe	22ml in 30ml syringe
Alfentanil Cyclizine	4mg 150mg	5mg 150mg
Alfentanil Glycopyrronium bromide	5mg 1200 micrograms	8mg 1200 micrograms
Alfentanil Haloperidol	7mg 10mg	10mg 10mg
Alfentanil Hyoscine butylbromide	5mg 120mg	8mg 120mg
Alfentanil Hyoscine hydrobromide	7mg 1200 micrograms	10mg 1200 micrograms
Alfentanil Levomepromazine	7mg 40mg	10mg 50mg
Alfentanil Metoclopramide	2mg 60mg	3mg 80mg
Alfentanil Midazolam	3mg 50mg	5mg 60mg
Alfentanil Octreotide	6mg 800 micrograms	8mg 900 micrograms
Drug Combination	Concentrations of three drug combinations that are physically stable for 24 hours	
	17ml in 20ml syringe	22ml in 30ml syringe
Alfentanil Haloperidol Midazolam	4mg 5mg 35mg	6mg 5mg 45mg
Alfentanil Hyoscine butylbromide Levomepromazine	5mg 120mg 25mg	7mg 120mg 25mg
Alfentanil Metoclopramide Midazolam	3mg 35mg 20mg	3mg 45mg 30mg
Alfentanil Levomepromazine Midazolam	3mg 80mg 30mg	5mg 100mg 40mg

1. Dickman A: *The syringe driver: continuous subcutaneous infusions in palliative care*. 2nd Edition, 2005. OUP.
2. Palliative care drug information online <http://www.palliativedrugs.com/>