



Managing
breathlessness
in palliative care

Breathlessness is a complex and subjective symptom that is common among people with a terminal illness. Once reversible causes have been exhausted, management of breathlessness requires a flexible approach, however, low-dose morphine is the first-line pharmacological treatment. Patient anxiety, preferences and individual circumstances are also likely to affect management decisions.

Breathlessness – complex for clinicians, frightening for patients

Breathlessness (dyspnoea), is one of the most common symptoms experienced by people who are nearing the end of life.¹ It is reported as being the most debilitating symptom by 95% of people with Chronic Obstructive Pulmonary Disease (COPD), and is also common in patients with lung fibrosis, heart failure and terminal cancer.²

Breathlessness is caused by a complex interaction of signals from the chest walls, lungs, upper airways and central nervous system. Activity, anxiety level and previous experiences all influence a patient's perception of breathlessness. While there is often an obvious reason, for some people no cause is found despite thorough assessment. Breathlessness is described by patients as "hard work", "painful", "frightening" or a "continuous fight".³

The initial aims of management are to reduce the level of breathlessness and treat any underlying conditions that may be aggravating the breathlessness. For example, furosemide can be given by several routes, including subcutaneously, to reduce fluid overload occurring secondary to congestive heart failure or dexamethasone can be given for partial obstruction of the airways. Referral for drainage of pleural effusions or abdominal ascites may also be considered where appropriate.⁸ However, once all reversible causes have been addressed and pharmacological treatments are maximal, breathlessness, if still present, is considered to be refractory.

Goals of care when treating refractory breathlessness

Once breathlessness is refractory, the goal of treatment becomes symptom relief. Treatment should begin with non-pharmacological interventions, then consider low-dose

morphine, and if appropriate, benzodiazepines (if anxiety is a factor) or oxygen treatment (if hypoxaemic). However, clinicians should individualise their approach, as treatment effectiveness varies between patients, and other interventions may be trialled on an individual basis.

Non-pharmacological treatments of breathlessness

Non-pharmacological treatments should be considered first-line for treating breathlessness in people with a terminal condition. The acceptability and effectiveness of treatments will depend on individual patient circumstances and preference.

A Cochrane review found evidence supporting the use of physiotherapy in the treatment of breathlessness, e.g. pursed-lip breathing training where the respiratory rate is decreased and vital capacity increased, as well as evidence for walking aids for patients who are mobile.⁴ However, the number of studies was insufficient to conduct a meta-analysis. Electrical muscle stimulation was also shown to be effective, although this is not widely available.⁴ A small study of 50 patients found that a handheld fan directed at the face reduced the sensation of breathlessness.⁵

Cognitive behavioural approaches, where available, can provide some relief from breathlessness.⁶ This includes relaxation and modification of negative thoughts.⁶

There is no strong evidence for recommending other non-pharmacological treatments for breathlessness, however, any intervention that improves the patient's psychological state may provide some degree of symptom relief, e.g. acupuncture or music therapy. Encouraging the patient to maintain a small level of activity (if able), may also be helpful.

Strategies aimed at improving patient comfort include:⁷

- Positioning the patient to maximise their comfort, e.g. elevating the head and torso, or lying with the affected lung downwards if only one lung is dysfunctional
- Using a humidifier
- Reducing the room temperature
- Eliminating irritants such as smoke or allergens
- Opening a window to create a draft
- Providing a window view if possible
- Providing reassurance

 The Asthma Foundation's "Breathe easier with COPD" booklets provide a list of techniques and practical ways of dealing with the stress and limitations of breathlessness.

Morphine for breathlessness

Morphine is the most widely studied and extensively used medicine for the treatment of breathlessness in patients with a terminal condition.¹

How does morphine reduce breathlessness?

The exact mechanism by which morphine alleviates breathlessness is unknown, however, opioid-induced vasodilation in pulmonary vasculature has been demonstrated in animal studies.¹ Endogenous circulatory opioids (e.g. endorphins) have been shown to improve breathlessness during exercise in people with COPD.¹

Overcoming potential barriers to morphine use

Health professionals in primary care may be reluctant to use morphine in the management of breathlessness because of concerns about respiratory depression.⁹ Opioids can relieve breathlessness by decreasing the respiratory rate without causing hypercapnia or hypoxia.¹ A study comparing the effects of morphine or hydromorphone on breathlessness in 15 opioid-naive and 12 opioid pre-treated patients, found no higher risk of respiratory depression or hypercapnia in the opioid-naive group.¹⁰ As of 2009, there were no reported cases of respiratory depression from the use of oral, low-dose, strong opioids in patients with breathlessness.³

Lack of guidelines may make clinicians feel that treatment of breathlessness with morphine is more suited to a hospital or hospice setting.⁹ In response, the American College of Chest Physicians released a consensus statement in 2010 recommending that opioids should be used and titrated for the relief of breathlessness in patients with progressive lung or heart disease and a limited prognosis.¹¹

Patients and their family/ whānau may be concerned about their ability to administer morphine, or about the presence of narcotics in the home. Clear written and explained instructions regarding dose titration and regular phone follow-up in the first weeks of treatment may provide reassurance. Safety concerns can be addressed by discussing the maximum ten-day dispensing requirement and by suggesting patients request pharmacists use child resistant closures on tablet and liquid containers.

Initiating opioids for breathlessness

First-line pharmacological treatment is oral morphine. Initially low doses may be given on an as-needed basis, e.g. 2 mg of an oral solution pre-measured in a syringe or 2.5 mg immediate release tablet (one-quarter of a 10 mg tablet). An example of a more structured regimen is: 2 – 2.5 mg, given four to six hourly.¹² This dose can be increased in steps of 30% if tolerated.¹²

Where patients require regular dosing of morphine for breathlessness, consider switching to a sustained-release formulation. A study of 83 opioid-naive patients with breathlessness, found 10 mg of sustained-release oral morphine once daily was safe and effective for 70% of patients who responded to morphine for the treatment of breathlessness.¹³ The sustained-release dose can be calculated by summing all the morphine doses given over a 24 hour period. Oral morphine solution can also be used for acute relief, as required.

If oral medication is unsuitable for the patient, then subcutaneous morphine is an alternative at a dose of 1 – 2 mg, given four to six hourly.¹² A syringe driver may also be considered, depending on the required dosing frequency. Patients who are concurrently taking regular opioids for analgesia can be given additional small doses of morphine for breathlessness, as required, e.g. using one quarter of the patient's current four-hourly breakthrough pain dose.¹²

In practice, it is unlikely that patients will receive significantly more benefit by increasing the total morphine dose for breathlessness over 20 mg in a 24 hour period.

Switching to another opioid. If morphine is unable to be used due to allergy or intolerable adverse effects, a different strong opioid can be trialled. Oxycodone can be initiated at a dose equipotent to morphine, however, there is no evidence that oxycodone is as effective as morphine for relief of breathlessness (although a major study is underway). Oxycodone is between 1.5 and two times more potent than morphine due to its increased bioavailability. For example,

if the patient was taking 10 mg oral morphine, they would require approximately 5 mg of oxycodone.

Nebulised opioids are not recommended for the treatment of breathlessness in a community setting, due to a lack of evidence supporting their efficacy.²

Benzodiazepines for breathlessness

There is no evidence that benzodiazepines reduce breathlessness, however, they can be very effective at reducing the anxiety associated with breathlessness,¹² and may be considered if non-pharmacological treatments and morphine have not been effective.

Lorazepam 0.5 mg (half a 1 mg tablet), every four to six hours, as required, is an appropriate starting dose.¹² Oral diazepam, 2 – 5 mg given at night is appropriate where there is continuous anxiety.¹² In some cases clonazepam, e.g. 0.5 mg at night or as required, may also be considered. Clonazepam has a relatively long half-life which can result in a cumulative effect occurring over time.

Intranasal midazolam (unsubsidised), a short-acting benzodiazepine, is rapidly absorbed and a useful alternative if administration via other routes is not appropriate for treating breathlessness that is caused by anxiety, or for calming a highly anxious patient.¹⁴ Peak plasma concentrations occur within ten minutes.¹⁴ The short-acting nature of this medicine means that it is less likely to accumulate in the body and the rapid speed of onset reduces the likelihood that multiple doses will be administered. The preparation is made in the pharmacy by pouring midazolam injection (15 mg/3 mL) into a nasal spray bottle.¹⁴ It can be prescribed at one to two sprays in each nostril, per hour as required. Each spray delivers 0.5 mg of midazolam.¹⁴

Oxygen treatment for breathlessness

Oxygen treatment is not beneficial to most patients with breathlessness, and should only be considered for patients with established hypoxaemia ($\text{PaO}_2 \leq 55 \text{ mmHg}$).¹⁶

Oxygen treatment in a hypoxic patient aims to avoid hypercapnia and may reduce polycythaemia, improve sleep quality and prevent right heart failure.¹⁶ Oxygen treatment in a community setting requires authorisation from a respiratory physician.

In patients who are not significantly hypoxaemic, there is currently no evidence that oxygen reduces breathlessness.¹⁷

Bronchial secretions – The “death rattle”

In the last days and hours of a person’s life, bronchial secretions can accumulate in the throat and cause a choking sound referred to as the “death rattle”. This can cause discomfort for the patient and distress for their family and friends. First-line treatment for bronchial secretions in this circumstance is hyoscine butylbromide (buscopan), 20 mg subcutaneously given hourly as required.¹² This can be delivered via a syringe driver and is compatible with most other medicines commonly administered via this route in palliative care. Subcutaneous hyoscine hydrobromide 400 mcg up to every two hours or glycopyrronium (not subsidised) 200 mcg up to every four hours are other treatment options.^{12, 15}

N.B. The reason these medicines are used are because of their anticholinergic properties, which dry secretions. However, this also causes the discomfort of a dry mouth therefore the benefits need to be weighed with the adverse effects.

 An article on using syringe drivers in palliative care will appear in the next edition of Best Practice Journal.



A blinded study of 239 patients randomly assigned to either domiciliary oxygen or room air via a nasal cannulae for 16 hours per day, found small improvements in breathlessness for both treatments, but no difference between the two.¹⁸ This suggests that the movement of air across the face alone may provide symptom relief. A Cochrane review found no overall improvement in breathlessness among patients with cancer using oxygen, however, some individuals felt better breathing oxygen.¹⁹

Patient attitudes may vary towards long-term oxygen treatment, as it is restrictive and impacts on patient and carer routines. Some patients may also be concerned about the unhealthy appearance that cylinders and masks present to family, or dislike the technical focus on the machines and oxygen readings.³ Other patients may find reassurance in the potential 'life-line' of oxygen supply.

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Advanced Care Planning – communicating with the patient before hospital admission

Despite the best efforts of carers and clinicians in the community, patients with terminal conditions often require hospital or hospice admission in the final days of their life. Admitting staff may have had no previous contact with the patient and may be unaware of the patient's wishes. Health professionals in primary care, who have a long-standing relationship with the patient, can enable continuity of care by initiating Advanced Care Planning. This involves proactive discussions about the expected course of the patient's disease and its prognosis, including the patient's preferences for care at the end of life – both medical and spiritual. A folder containing information about the patient's medicines, contacts, decisions and wishes can then be left with the patient. This allows admitting staff to ensure that the treatment and care they provide are consistent with the patient's values and goals.

 "A Good Death" is a thirty minute documentary, produced by Professor Robin Taylor and Dr Paul Trotman, following a patient with COPD, and his family, during the last months of his life. The film focuses on end of life care and Advanced Care Planning, and is available at: www.agooddeath.co.nz

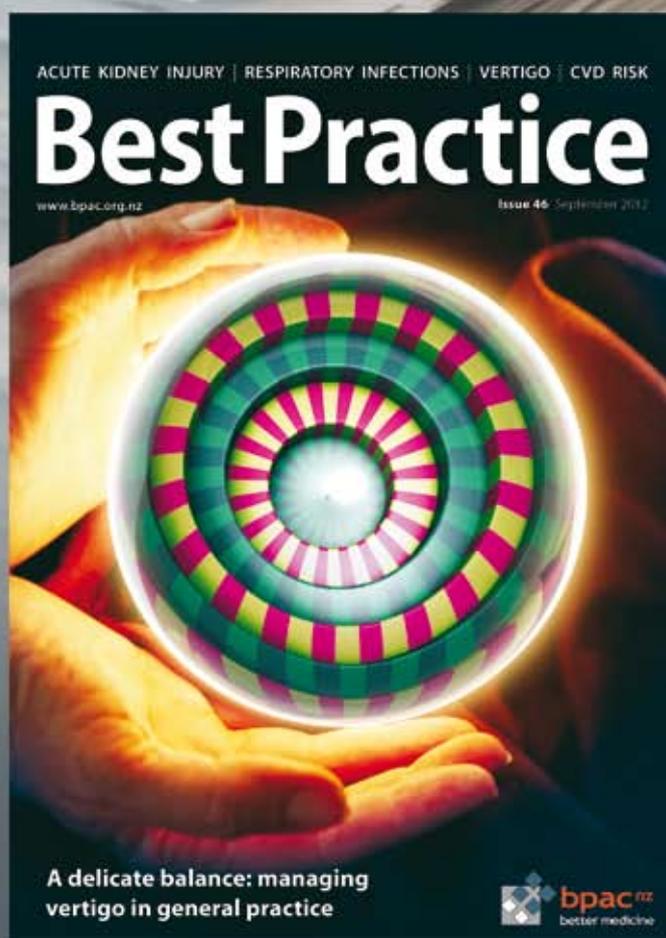
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