

# Palliative management of breathlessness



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## Background

Breathlessness is a subjective experience of breathing discomfort and is one of the most common symptoms in patients receiving palliative care.

## Objective

This paper reviews the palliative management of breathlessness.

## Discussion

Current management guidelines for the palliative management of breathlessness recommend treatment of reversible causes followed by non-pharmacological interventions such as breathing exercises, use of mobility aids, fans and focused psychological strategies. For those not responding, opioids might be considered with a reasonable starting dose being immediate release oral morphine 1–2.5 mg hourly as required (prn). Benzodiazepines, such as lorazepam 0.5 mg every 3–4 hours prn, might be used for the treatment of breathlessness-associated anxiety but do not have a role in the management of breathlessness per se. Systemic corticosteroids have limited evidence but can be considered in some cases. The use of home oxygen in patients who are non-hypoxic lacks evidence but might be used after consideration of patient preferences. Patients might benefit from a breathlessness management plan.

**BREATHLESSNESS** is a subjective experience of breathing discomfort triggered by biopsychosocial and environmental factors. It is experienced by most patients with a life-limiting condition and leads to increased work of breathing, reduced activity and distress. This paper provides an overview of treatment guidelines for the palliative management of breathlessness applicable to malignant and non-malignant disease. It examines the evidence for commonly used non-pharmacological interventions such as breathing exercises, mobility aids, energy conservation, psychological strategies and home oxygen. It also discusses the pharmacological management of breathlessness and provides guidance on the use of opioids, benzodiazepines and systemic corticosteroids. A sample breathlessness management plan is reviewed.

## Aim

This paper reviews the palliative management of breathlessness.

## CLINICAL CASE

Mr JS, a retired accountant aged 71 years with metastatic non-small cell lung cancer, is no longer receiving disease-modifying treatment. He was referred to a community palliative care service but declined their

involvement. He lives at home with his wife and sees his general practitioner (GP) monthly. Current medications include thyroxine 50 mcg/day and vitamin D 1000 IU/day.

Mr JS presents to his GP today reporting increasing breathlessness. The breathlessness started gradually about four weeks ago and is now affecting his ability to walk up the five steps to his front door. He denies infective or cardiac symptoms. Imaging is suggestive of disease progression, with enlargement of the right upper lobe primary cancer and progression of multiple metastases throughout all lung lobes. There is no evidence of a pulmonary embolus or infection. An echocardiogram is unremarkable.

Mr JS is commenced on morphine immediate release (IR) liquid 1–2.5 mg four hourly (q4h) as required (prn) for breathlessness. He is advised not to drive if affected, and a breathlessness management plan is completed. A follow-up appointment is scheduled in one week's time. At this appointment, Mr JS states that the morphine is working but reveals that he feels very anxious when he is breathless. Mr JS is encouraged to book a double appointment to discuss this further, at which time he is referred to a psychologist to assist with mindfulness and other cognitive approaches to the management of

breathlessness-associated anxiety. He is also prescribed oral morphine modified release (MR) 10 mg at night and lorazepam 0.5mg q4h prn after discussion of the possible side effects and advice about impact on driving.

## The palliative management of breathlessness

The word dyspnoea is derived from the Greek 'dys' meaning difficult and 'pneuma' meaning breath. 'Difficult breath', or breathlessness, is a subjective experience that patients might describe as 'smothering', 'choking', 'air hunger' or 'gasping'.<sup>1</sup> Most patients receiving palliative care report breathlessness at some point in their disease trajectories, with many experiencing associated increased work of breathing, reduced activity, isolation, anxiety, distress or feelings of panic.<sup>1-3</sup> Breathlessness might be triggered by biological, psychological, social or environmental factors.<sup>4</sup>

All patients with breathlessness should be assessed for reversible causes, if appropriate, with goals of care. Once these have been addressed, management can be divided into non-pharmacological and pharmacological treatment options.

### Non-pharmacological management

A range of non-pharmacological management strategies have been studied, including distractive auditory stimuli (music), acupuncture, progressive muscle relaxation, breathing exercises, energy conservation, mobility aids, fans, chest wall vibration, neuromuscular electrical stimulation, home oxygen and a range of supportive and cognitive behavioural strategies (Table 1).<sup>5</sup> Only those with evidence of benefit will be discussed here.

Breathing exercises or retraining (eg pursed-lip breathing) aim to alter respiratory muscle recruitment and improve performance while increasing expiratory time and vital capacity, decreasing dynamic hyperinflation and improving gas exchange. Breathing exercises over a four- to 15-week period have been shown to increase exercise tolerance, as measured by six-minute walk distance in patients with chronic obstructive pulmonary disease (COPD), but effect on breathlessness is less certain.<sup>6</sup>

Energy conservation, through activity pacing, frequent rest breaks and use of equipment (eg shower chairs), as part of a self-management program for breathlessness, improves health-related quality of life and decreases hospital admissions.<sup>7</sup>

Wheeled walkers and rollators, but not walking sticks, increase exercise tolerance and decrease breathlessness during a six-minute walk test, possibly by stabilising the ribcage and increasing accessory muscle recruitment.<sup>5</sup> Air flow directed to the cheek might also be beneficial in the management of breathlessness.<sup>8</sup>

Oxygen via a nasal cannula has not been shown to be more beneficial than room air via nasal cannula (medicalised air) for the symptomatic relief of breathlessness in individuals who are non-hypoxic;<sup>9</sup> however, home oxygen might be prescribed for patients who are non-hypoxic after consideration of patient preferences. Therapy should only be continued if there is clear indication of benefit. Smoking is an absolute contraindication to home oxygen, and caution must be exercised in patients who retain carbon dioxide. Home oxygen can be subsidised by the relevant state- or territory-based program for patients who meet the eligibility criteria (Table 2). The power supplier should be advised if home oxygen is in use to ensure maintenance of power supply in the event of outage.

Focused psychological strategies such as cognitive behavioural therapy (CBT)

**Table 1. Non-pharmacological interventions for the palliative management of breathlessness**

Intervention	Comments	Example
Breathing exercises/retraining <sup>6</sup>	<ul style="list-style-type: none"> <li>• Increase exercise tolerance</li> <li>• Effect on breathlessness uncertain</li> </ul>	<ul style="list-style-type: none"> <li>• Pursed-lip breathing</li> </ul>
Energy conservation <sup>7</sup>	<ul style="list-style-type: none"> <li>• Improves quality of life</li> <li>• Decreases hospital admissions</li> </ul>	<ul style="list-style-type: none"> <li>• Pacing</li> <li>• Use of equipment (eg rails, shower chair)</li> </ul>
Walking aids <sup>5</sup>	<ul style="list-style-type: none"> <li>• Increase exercise tolerance</li> <li>• Decrease breathlessness</li> </ul>	<ul style="list-style-type: none"> <li>• Four-wheeled walker</li> <li>• Rollator</li> <li>• NOT single-point sticks</li> </ul>
Air movement across the face <sup>8</sup>	<ul style="list-style-type: none"> <li>• Might decrease breathlessness when directed to the cheek</li> <li>• Study conducted with hand-held fans, but room fans and open windows might also be beneficial</li> </ul>	<ul style="list-style-type: none"> <li>• Hand-held fans</li> </ul>
Oxygen <sup>9</sup>	<ul style="list-style-type: none"> <li>• No benefit above medicalised air if patient not hypoxic</li> <li>• Needs to be assessed on an individualised basis</li> </ul>	
Focused psychological strategies <sup>10</sup>	<ul style="list-style-type: none"> <li>• Decrease breathlessness, anxiety and depression</li> </ul>	<ul style="list-style-type: none"> <li>• Cognitive behavioural therapy</li> </ul>

**Table 2. Oxygen suppliers by state or territory (further information about eligibility criteria is available from the organisation's website)**

State	Oxygen supplier
New South Wales	Enable NSW
Queensland	Medical Aids Subsidy Scheme
South Australia	SA Health Home Oxygen Therapy
Tasmania	Home Oxygen Program administered by the Royal Hobart and Launceston General Hospitals
Victoria	State-wide Equipment Program
Western Australia	Respiratory Health Network
Australian Capital Territory	ACT Equipment Scheme
Northern Territory	Territory Equipment Program

might improve breathlessness as well as decrease anxiety and depression in patients with COPD.<sup>10</sup>

### Pharmacological management

#### Opioids

The neural pathways that process breathlessness are closely correlated with those that process pain. Both are richly innervated with opioid receptors and have extensive limbic system involvement.<sup>11,12</sup> Opioids have historically been an accepted treatment for chronic breathlessness, with guidelines supporting the use of immediate release morphine or equivalent (eg 1–2.5 mg PO q1hr prn).<sup>13,14</sup> There are sustained release morphine formulations listed on the Pharmaceutical Benefit Scheme for the management of breathlessness; however, a recent randomised controlled trial (RCT) in patients with COPD failed to find an improvement in activity or worst breathlessness with the introduction of sustained release morphine.<sup>15</sup> Given this, we would suggest opioids be reserved for use in patients with limited treatment options.

Opioids are generally considered safe in the treatment of breathlessness due to cardiorespiratory or malignant disease, including for patients with type 2 respiratory failure.<sup>16,17</sup> Treatment-emergent adverse events are often mild and self-limiting.<sup>16</sup> Possible side effects include constipation, pruritus, mental fogging, drowsiness and respiratory depression, with immune suppression associated with

longer-term use.<sup>15</sup> Isolated reports of respiratory failure exist.<sup>15,17</sup> Caution should be exercised in those with pulmonary hypertension.<sup>14</sup> Disease progression can be difficult to distinguish from adverse drug reactions.

As there is high interpatient variability with respect to tolerance and effect of opioids, we recommend cautious dose selection and slow titration with regular monitoring and follow-up. The elderly and those with impaired renal or hepatic function require extra care. Those with morphine intolerance or impaired renal function might require an alternative opioid. Fentanyl, oxycodone or hydromorphone are suitable alternatives, with fentanyl preferred for patients with severe renal impairment.<sup>18</sup> Sublingual and transdermal fentanyl products are contraindicated in patients who are opioid-naïve. Where possible, there should be one opioid prescriber (Table 3).

#### Benzodiazepines

Benzodiazepines might assist in the management of breathlessness-associated anxiety, but there is no evidence to support their use in the management of breathlessness per se (Table 3).<sup>19</sup> Their use might also be associated with drowsiness.<sup>19</sup> A reasonable starting dose would be lorazepam 0.5–1 mg orally or sublingually q6–8h prn, or oxazepam 7.5–15 mg orally q6–8h prn. If a regular anxiolytic is required, an antidepressant or other standard medications should be considered.<sup>13</sup>

#### Systemic corticosteroids

There is limited evidence to guide the use of systemic corticosteroids in the palliative management of breathlessness (Table 3). Current guidelines suggest they can be offered to patients where airway obstruction or inflammation is likely to be contributing to the breathlessness.<sup>20</sup> Discussion of the management of acute airway obstruction falls outside the scope of this paper. For patients receiving palliative care who have lymphangitis carcinomatosis or another suspected inflammatory component to their breathlessness, it is reasonable to trial dexamethasone 4–8 mg daily, orally or subcutaneously. Prescription of a proton pump inhibitor and trimethoprim-sulfamethoxazole as *Pneumocystis jirovecii* pneumonia prophylaxis should be considered if treatment will exceed 20 mg prednisolone daily for four or more weeks.<sup>21</sup> There is no consensus regarding duration of treatment, but it is our practice to cease the steroid after 3–5 days if there is no evidence of benefit. If there is evidence of benefit, treatment is continued for the minimum duration necessary before being weaned or ceased.<sup>22</sup> Dexamethasone doses less than 4 mg daily used for less than five days can be ceased without tapering; however, all other patients should be weaned or, if ceased without tapering, monitored for adverse effects and then tapered if they occur.<sup>22</sup>

### Breathlessness management plan

Patients receiving palliative care might benefit from a breathlessness management plan such as the example shown in Box 1.

It is important to safety net with a clear plan recorded as to when the patient should contact their GP, community palliative care service or ambulance. For example, 'If you still feel breathless after one hour and you are concerned, take morphine IR liquid 1–2.5 mg. If you still feel breathless after three doses of morphine IR liquid 1–2.5 mg taken hourly, please contact your health provider'.

### Conclusion

Breathlessness is a subjective experience of breathing discomfort experienced by most patients with a life-limiting disease. Palliative management includes treatment of reversible

**Table 3. Pharmacological interventions for the palliative management of breathlessness**

Intervention	Comment	Example
Opioids <sup>13</sup>	<ul style="list-style-type: none"> <li>Introduction of short-acting opioid with addition of long-acting if using often</li> <li>Consider use in patients with limited treatment options</li> </ul>	<ul style="list-style-type: none"> <li>Morphine IR liquid 1–2.5 mg orally q1h prn (maximum of 3 doses q1h)</li> <li>Morphine SR capsule (Kapanol) 10 mg po nocte</li> </ul>
Benzodiazepines <sup>13,18</sup>	<ul style="list-style-type: none"> <li>Evidence for the treatment of breathlessness-associated anxiety only</li> </ul>	<ul style="list-style-type: none"> <li>Lorazepam 0.5–1 mg q3–4h prn</li> <li>Oxazepam 7.5–15 mg q3–4h prn</li> </ul>
Systemic corticosteroids <sup>19,20</sup>	<ul style="list-style-type: none"> <li>Limited evidence of benefit but can be trialled</li> <li>Indicated in the management of airway obstruction (not discussed here)</li> </ul>	<ul style="list-style-type: none"> <li>Dexamethasone 4 mg orally or subcutaneously mane (wean if no clinical benefit)</li> <li>Higher doses required for airway obstruction</li> </ul>

IR, immediate release; po, orally; prn, as required; q1h, hourly; q3–4h, every 3–4 hours; SR, sustained release.

causes, non-pharmacological interventions and opioids. Home oxygen, benzodiazepines and systemic steroids might be effective in some patients, but response should be closely monitored. Patients might benefit from a breathlessness management plan.

## Key points

- Breathlessness is a common symptom in patients receiving palliative care.
- Non-pharmacological strategies such as energy conservation, walking aids and CBT might be helpful.
- Opioids can be used in the palliative management of breathlessness.

## Box 1. An example of a breathlessness management plan

When you feel breathless:

- Move into a comfortable position (eg sitting upright, leaning forwards with your elbows resting on a table)
- Position a fan so it is blowing air across your face or open the window
- Breathe slowly in through your nose (3–5 seconds) and out through your mouth with pursed lips (5 seconds)
- Apply home oxygen if prescribed by your doctor
- Take morphine immediate release liquid 1–2.5 mg orally
- Take lorazepam 0.5 mg sublingually if you feel anxious

- Benzodiazepines might assist in the management of breathlessness-associated anxiety.
- Patients might benefit from a breathlessness management plan.

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