

DYSPNOEA IN PALLIATIVE CARE: THE WHY, WHAT AND HOW FOR PRIMARY CARE PHYSICIANS?

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ABSTRACT

Dyspnoea is the subjective experience of breathing discomfort, made up of distinct sensations varying in intensity. It is caused by multiple factors in palliative patients, such as infections, anaemia or anxiety. Tools like the Visual Analogue Scale (VAS), Numerical Rating Scale (NRS) and the Modified Borg scale, together with Functional Assessment Scales like the Medical Research Council Dyspnoea Scale and Baseline Dyspnoea Index (BDI) are used to measure the severity of Dyspnoea. Oxygen therapy can provide comfort for patients and can increase survival in selected COPD patients. An N=1 trial of supplemental oxygen is encouraged for patients with dyspnoea. Other non-pharmacological interventions such as breathing training and walking aids have been proven to be effective in managing dyspnoea. Studies have shown that oral or parenteral opioids are useful for relieving dyspnoea. They are safe to use in titrated doses. However, morphine should be used cautiously in patients with impaired renal and liver functions. Benzodiazepines are not recommended for first-line treatment, and should be administered after consult with a palliative physician. Effort should always be made to correct reversible causes. Family education is important to alleviate the stress of caring for patients with dyspnoea.

Keywords:**Palliative Care; Dyspnoea; Family Physicians****SFP2016; 42(3): 42-44****INTRODUCTION**

Family medicine embraces the ethos of cradle-to-grave¹ care. A family physician equipped to deal with the symptoms at the end of a patient's life is able to fulfil this ethos. Dyspnoea is a common and distressing symptom in palliative care patients.² This includes patients with cancer or advanced organ failure.^{4,5} Therefore a family physician may inevitably have to manage patients with dyspnoea. There is now some evidence on the use of medications like opioids for the treatment of dyspnoea and these evidences are incorporated in several national guidelines.^{6,7,8}

DEFINITION

Dyspnoea is a subjective sensation. The American Thoracic society defines dyspnoea the following way⁹:

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"Dyspnea is a term used to characterize a subjective experience of breathing discomfort that is comprised of qualitatively distinct sensations that vary in intensity. The experience derives from interactions among multiple physiological, psychological, social, and environmental factors, and may induce secondary physiological and behavioral responses."

A patient who is breathing rapidly may not feel subjectively dyspnoeic while another who has normal respiratory rate may be feeling severe dyspnoea. A good example would be how we feel when we run. Despite tachypnoea, use of accessory muscles of respiration and other signs of respiratory distress, most people would not report themselves as experiencing dyspnoea. It is therefore important to note the subjective nature of the sensation of dyspnoea.

WHY BOTHER ABOUT DYSPNOEA: THE BURDEN OF DYSPNOEA

Dyspnoea has both physical and psychological effects on patients and their families. Patients with dyspnoea have a worsened functional status,¹⁰ resulting in increased dependence on caregivers, and this causes further functional decline. Often, their daily activities are limited by the symptom. In addition, patients with dyspnoea are more likely to be depressed or anxious.¹¹ Such burdens not only affect patients, but their families as well. Dyspnoea itself is a poor prognostic marker but has been shown to be associated with increased mortality amongst cancer patients.¹²

What Causes Dyspnoea

Palliative patients commonly have multiple causes for dyspnoea. It is important to rule out reversible causes of dyspnoea such as infections, anaemia etc. In a case series of 100 palliative patients, the majority has at least one reversible cause of dyspnoea.¹³ It is also important to note that although anxiety is a common contributing factor to dyspnoea, it is rarely the sole cause.¹⁴

How to Measure Dyspnoea

There are many validated tools to assess dyspnoea in palliative care. Practical tools that can be used in the outpatient clinics include the Visual Analogue Scale (VAS), Numerical Rating Scale (NRS) and the Modified Borg scale. These are simple-to-administer scales that measure the intensity of dyspnoea. Functional assessment scales such as the Medical Research Council Dyspnoea Scale and Baseline Dyspnoea Index (BDI) exist but are not commonly used outside the research setting.

Many physicians would use an ordinal intensity scale mentioned above in combination with some questions on functional assessment as part of their measurement of dyspnoea severity. These functional assessments include effort tolerance, ability to ambulate, the comfort level of speaking or eating, and the quality of sleep. The measurement of dyspnoea is not only important to determine the severity of the symptom, but also to measure the response to treatment.

Management of Dyspnoea

Often, a family physician may see a patient presenting with chronic dyspnoea. Several questions may occur to the physician. When do we use oxygen for symptom relief? Is there any evidence in non-pharmacological therapy for dyspnoea? When should we use opioids? Are opioids safe to use? The following questions are answered below.

Oxygen Therapy

Oxygen therapy is frequently employed in the hospitals due to its availability. In the community, supplemental oxygen commonly comes in the form of an oxygen concentrator. While the cost of buying or renting an oxygen concentrator is not exorbitant, the electrical consumption of this equipment can be hefty.

Supplemental oxygen can improve both survival and quality of life in patients with chronic obstructive pulmonary disease who are hypoxic. For palliative care patients with other life-limiting illnesses, oxygen use may help relieve symptoms, but is unlikely to prolong survival.

Multiple small studies on the use of supplemental oxygen versus medical air (room air) for the control of dyspnoea in the palliative care setting showed conflicting results. This was the same in both the hypoxaemic and the non-hypoxaemic patients.

A large randomised controlled trial studied oxygen versus medical air for non-hypoxaemic patients. Both groups of patients had improved dyspnoea and quality of life scores to the same extent. This suggested that the airflow itself rather than oxygen might improve dyspnoea. There are some suggestions that using a handheld fan may have similar efficacy in reducing dyspnoea. However, small studies on the use of handheld fans for treating dyspnoea have not been conclusive.

Many physicians will report that some patients seem to benefit greatly from supplemental oxygen. This group of patients however could not be consistently identified in the studies. While the RCT above found that patients who are more breathless benefited more from oxygen compared to room air, other studies showed that hypoxaemic patients benefited more from oxygen. Given the complex mechanism of dyspnoea, it is not surprising that the subgroup of patients who may find oxygen useful cannot be easily classified into categories. In view of this, an N=1 trial of supplemental oxygen is useful to

determine who may benefit from this intervention.

Other Non-pharmacological Interventions for Dyspnoea

There is a good Cochrane review on non-pharmacological interventions for breathlessness in advanced stages of malignant and non-malignant diseases. Most studies have found that breathing training and walking aids are effective for dyspnoea. Chest wall vibrations and neuromuscular electric stimulation may be useful, but would require a skilled therapist. Other interventions such as handheld fans, counselling and relaxation techniques do not have sufficient evidence to suggest for or against their use.

Opioids

There is good evidence from a meta-analysis that oral or parenteral opioids are useful for relieving dyspnoea in patients.¹⁶ Morphine is the most commonly studied opioid in the trials and has been found to be equally useful in both the oral and parenteral forms.¹⁷ Low doses of morphine may be sufficient to help with dyspnoea. A 2011 pharmacovigilance trial showed that the majority of patients required 10mg per day for dyspnoea relief.¹⁸

Opioids are safe to use in titrated doses and studies have shown that opioids do not cause a clinically significant respiratory depression or iatrogenic blood gas changes.^{19,20}

Practices of starting opioids vary in different places. Many physicians would start an opioid-naïve patient on oral morphine (syrup) 2.5mg every 4 hours with the option of adding 2.5mg of oral morphine every 4 hours as needed as breakthrough dose. Morphine should be used with caution or avoided in patients with renal and liver impairment. All patients who are on opioids should be prescribed laxatives in order to prevent opioid-induced constipation.

Benzodiazepines

Benzodiazepines have been studied both alone and in combination with opioids for the relief of dyspnoea.²¹ The results were mixed and use of benzodiazepines for relieving dyspnoea should be second line, and preferably done in consultation with a palliative physician.

CONCLUSION

Dyspnoea is common and can be disabling in palliative care patients. Most of these patients have multiple causes of dyspnoea, and there must be an attempt to correct the reversible causes. Breathing exercises and walking aids can be useful to patients and they can be given an N=1 trial of oxygen to determine if they may benefit symptomatically from supplemental oxygen.

Opioids are useful for the relief of dyspnoea and physicians should consider using them in titrated doses to control chronic

dyspnoea. The family physician is well placed to manage not only the symptoms, but also the psychological and social burden of dyspnoea on the patient and his family.

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LEARNING POINTS

- **Dyspnoea is a subjective sensation.**
 - **Patients with dyspnoea experience adverse physical and psychological effects.**
 - **Tools like the Visual Analogue Scale (VAS), Numerical Rating Scale (NRS) and the modified Borg scale are used to measure the severity of dyspnoea.**
 - **Dyspnoea can be managed with supplemental oxygen, breathing training and walking aids.**
 - **Opioids are the first-line medication used for relieving dyspnoea.**
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