Breathlessness in advanced disease 2: patient assessment and management

Breathlessness is a common problem in advanced disease. This article looks at pharmacological and non-pharmacological ways to manage this symptom.

LEARNING OBJECTIVES

1. Understand the role of assessment in the management of breathlessness.
2. Be aware of the common treatments involved in management of breathlessness in advanced disease.

TREATMENT

Management of breathlessness in advanced disease remains difficult, because there is a poor evidence base (Booth et al, 2004). Problems with existing research includes a lack of standardised definitions (Renwick, 2001), difficulties measuring breathlessness specifically (Bausewein et al, 2007), and design flaws of many studies (Dorman et al, 2009).

To be effective, management of breathlessness in advanced disease needs to involve both the patient and those close to them. Carers in particular often lack support (Gysels and Higginson, 2009) and have reported needing information on breathlessness, guidance on how to manage dyspnoea, and design flaws of many studies (Dorman et al, 2009). The ward nurse is well placed to identify the needs of carers when their relatives are admitted. Giving individualised information and providing written notes for what to do during a severe attack can reduce anxiety and allow patients to take steps to regain control of their breathing (Twycross et al, 2009; Booth, 2006).

MORPHINE

Although expert opinion recommends that morphine can be used safely for the management of dyspnoea in malignant and non-malignant disease, healthcare professionals are reluctant to use it (Borton, 2008). The evidence for using morphine has been questioned and in one critical review, studies were found to be limited in terms of data collection, sample size and a lack of control groups (Jantarakupt and Porock, 2005).

Nevertheless, the studies consistently found the risk of respiratory depression was low when small doses of morphine were used (Jantarakupt and Porock, 2005). This finding is supported by other research.
(Clemens and Klaschik, 2007) and by clinical experts (Twycross et al, 2009).

The mechanism by which morphine palliates dyspnoea is not fully understood (Borton, 2008), but it is thought to:
- Decrease the response of central and peripheral chemoreceptors to hypercapnia and hypoxaemia;
- Reduce anxiety by acting on the receptors in the higher brain centres that respond to emotional distress;
- Have a hypotensive effect that reduces preload on the heart and decreases pulmonary oedema (Jantarakupt and Porock, 2005).

Misconceptions about morphine are common (Jantarakupt and Porock, 2005). Although the risk of respiratory depression is low, it should still be considered a potential side effect by practitioners and monitored appropriately (Borton, 2008). Carers may be concerned about side effects such as nausea, vomiting, constipation and dry mouth. Time should be taken to explain the benefits and risks of morphine for breathlessness (Twycross et al, 2009).

Doses should start at a low level and be titrated upwards according to response and side effects (Borton, 2008; Jantarakupt and Porock, 2005). For those already taking morphine, the overall dose may need to be increased by 30-50% (Borton, 2008). Doses are typically smaller than those required for pain management and should take account of route of administration, age and renal function (Jantarakupt and Porock, 2005).

Parenteral opioids are used when the oral route is not appropriate (Borton, 2008), and administration by continuous subcutaneous infusion avoids the “peaks and troughs” associated with oral medication (Twycross et al, 2009).

**BENZODIAZEPINES**

Although benzodiazepines are widely used for breathlessness, evidence regarding their effectiveness is unclear (Booth, 2006). Simon et al (2010) found no evidence that benzodiazepines relieved breathlessness in advanced cancer or COPD. However, a lack of well conducted studies limited this small review.

Overall, benzodiazepines are recommended as a second or third line treatment when opioids and non-pharmacological measures have failed (Simon et al, 2010).

Benzodiazepines may:
- Be beneficial as they relieve anxiety (Twycross et al, 2009);
- Encourage relaxation of the respiratory muscles, reducing respiratory drive by decreasing pulmonary ventilation (Davis, 2005).

Respiratory depression is a complication of benzodiazepines as well as opiates (Borton, 2008) and the risk of excessive sedation necessitates close monitoring with older adults and those with poor renal function (Simon et al, 2010). Diazepam, lorazepam and midazolam are the most commonly used benzodiazepines (Borton, 2008). Midazolam can be given parentally. Navigante et al (2006) notes that it works more rapidly than other benzodiazepines with a shorter duration of action. Navigante et al (2006) suggest that midazolam may improve the efficacy of morphine used to manage dyspnoea when the two drugs are used together.

**OXYGEN AND FANS**

Oxygen is commonly used to treat breathlessness in advanced disease, although there is no evidence that it is effective (Uronis et al, 2008) and its place in palliative care remains controversial (Booth et al, 2004). In the author’s experience, failing to use oxygen or withdrawing it can raise concerns for patients and carers.

Booth et al (2004) found oxygen was beneficial for dyspnoea in advanced cancer and COPD, but noted a lack of evidence for its use in heart failure. More recently, Cranston et al (2008) failed to demonstrate that oxygen had a consistent benefit over piped air in advanced cancer.

There is a consensus that it is more beneficial to offer oxygen in short bursts as required, rather than continuously (Booth, 2006) and that oxygen should not be used when resting oxygen saturation is normal (Borton, 2008).

Jantarakupt and Porock (2005) argue that, even if oxygen does not actually diminish the sensation of dyspnoea, the fact that patients report less breathlessness with its use provides sufficient rationale.

However, oxygen treatment does have some drawbacks. Negative associations include:
- Drying effects on the oral and nasal mucosa (Borton, 2008);
- Complications associated with hypercapnic respiratory failure (Uronis et al, 2008);
- Psychological dependency;
- Physical restriction;
- Fire hazards (Booth et al, 2004).

Twycross et al (2009) suggest that it is the sensation of airflow, possibly with a cooling effect, that provides relief. Consequently, cool air from an open window or fan may also reduce the sensation of dyspnoea (Jantarakupt and Porock, 2005), and should be offered before oxygen is prescribed (Twycross et al, 2009, Booth, 2006).

Fans reduce the severity of breathlessness by cooling the face in the area of the trigeminal nerve (Booth, 2006). However, Bausewein et al (2008) could not judge the evidence for their use as research data was insufficient. Anecdotal evidence from work inonbreathlessnessclinicsuggeststhatfans are a very useful cheap intervention, have no side effects and offer patients a degree of control over their symptoms (Booth, 2006).

**NON-PHARMACOLOGICAL MEASURES**

There appears to be little research into the role of non-pharmacological treatments for breathlessness despite the integral part that they play in patient care (Booth, 2006).

Pulmonary rehabilitation (PR) is one example of a non-pharmacological approach that offers benefit to those with even severe disease, particularly patients with end stage COPD (Thomas et al, 2010; Clini and Ambrinoso, 2008). PR is an evidence based multidisciplinary intervention, including education, psychological support and techniques such as walking exercises and breathing strategies (Thomas et al, 2010; Clini and Ambrinoso, 2008).

Breathing strategies, positioning and relaxation techniques are commonly used in the inpatient setting.
Breathing strategies
Bausewein et al (2008) noted in their review that “breathing training” was supported by moderate strength evidence, but a specific definition of the term was not given. Breathing techniques, positioning and relaxation were all included under the heading.

A more relaxed, controlled breathing pattern can minimise the work of breathing and produce more effective ventilation than the shallow, rapid pattern of dyspnoea (Twycross et al, 2009). It can also re-establish a sense of control for the patient and break the cycle of increasing dyspnoea and panic (Jantarakupt and Porock, 2005). Similarly, deep inhalation through the nose followed by pursed-lip exhalation increases lung expansion and improves gas exchange (Twycross et al, 2009).

Positioning
There is little research regarding the effect of positioning on breathlessness (Jantarakupt and Porock, 2005). However, anecdotal evidence supports the beneficial effects of careful attention to positioning, even in the terminal phase of illness (Davis, 2005).

Leaning forward, for example sitting on the edge of the bed with arms folded on the bedside table, is a comfortable position that can reduce dyspnoea (Fig 1). In this position, there is less transdiaphragmatic pressure and the abdominal wall can move outward more easily (Jantarakupt and Porock, 2005). This provides more space for lung expansion and gas exchange.

REFERENCES


FIG 1. AN EXAMPLE OF A POSITION USED TO REDUCE DYSPNOEA

NURSING Learning
Nursing Times Learning offers cost effective, high quality online learning. For a unit on Non-Invasive Ventilation for Acute Hypercapnic Respiratory Failure, go to www.nursingtimes.net/ventilation