Managing breathlessness in patients with lung cancer


Abstract
Breathlessness is one of the most common and difficult symptoms to manage in advanced cancer. Despite the development of non-pharmacological interventions and a shift away from a medical approach to its management, symptom control remains suboptimal. Practitioners need education and support to deliver the best possible care for patients experiencing breathlessness. This article provides an overview of the interventions available to improve quality of life for these patients and explores the need for greater implementation of non-pharmacological interventions.

Author
Lindsay Cairns
Oncology staff nurse, Northern Centre for Cancer Care, Freeman Hospital, Newcastle upon Tyne. Correspondence to: lindsay.cairns@nuth.nhs.uk

Keywords
Breathlessness, lung cancer, non-pharmacological interventions, pharmacological interventions, quality of life.

Review
All articles are subject to external double-blind peer review and checked for plagiarism using automated software.

Online
Guidelines on writing for publication are available at www.nursing-standard.co.uk. For related articles visit the archive and search using the keywords above.

Breathlessness is extremely common in patients with lung cancer and other primary cancers and, along with pain and fatigue, is a core symptom that can persist at the end of life (Solano et al 2006). Studies have shown that 10-15% of patients with cancer (predominantly lung, but also breast and prostate cancer) have breathlessness at diagnosis, and 65% will experience breathlessness at some point during their illness (Reuben and Mor 1986, Bredin et al 1999). Although the majority of people with lung cancer experience breathlessness as death approaches (Ripamonti 1999), management of this symptom remains unsatisfactory (Booth et al 2008).

The effect of breathlessness on the patient
Breathlessness may pervade every aspect of life, making it difficult to manage, and its effect on patients should not be underestimated (Gysels et al 2007). It restricts general functioning as well as social functioning, leading to a loss of independence and of role (Zhao and Yates 2008, Twycross et al 2009). This can result in frustration, anger and depression. Furthermore, when individuals perceive difficulty in breathing, intense and primitive feelings of fear and panic may be evoked (Gallo-Silver and Pollack 2000), leading to feelings of anxiety, hopelessness and fear of impending death (Twycross et al 2009). Medical terminology tends to focus on descriptions of breathlessness as being difficulty in breathing or dyspnoea, but for individuals who experience it, this does not cover the entire experience of breathlessness (Hoyal et al 2002). Patients may describe breathlessness as ‘like suffocating’ or as a ‘tightening feeling of fear in your chest and mind’, or they may feel like they are taking their last breath (Prigmore 2005). This distinction highlights the gap in understanding what breathlessness means to the individual experiencing it and the clinician treating it.

The Medical Research Council (MRC) dyspnoea scale (Fletcher 1960) and the Dyspnoea-12 scale (Yorke et al 2010) were designed to measure the severity of breathlessness.
Breathlessness in patients with cancer usually begins episodically. However, it can become constant in rapid disease progression. Patients with cancer who experience breathlessness have a poor prognosis (Booth et al 2008). The pathophysiology of breathlessness is complicated and is not understood fully (Watson et al 2009). It may result from cancer, comorbidities such as chronic obstructive pulmonary disease (COPD) or the treatment administered. Causative factors include infection or pneumonia, tumour obstruction, anaemia and fibrosis following pulmonary embolism, chemotherapy (specifically bleomycin) or radiotherapy (Booth et al 2008).

In advanced cancer, breathlessness is usually multifactorial, and the underlying causes are likely to be irreversible (Booth et al 2008). This further compounds the difficulty of understanding and treating breathlessness.

Opioids

Opioids are considered the gold standard for reducing ventilatory demand (Breaden 2011). They are most beneficial in patients who are breathless at rest rather than on exertion (Twycross et al 2009). They work by decreasing respiratory effort (Twycross et al 2009) and oxygen consumption (Abernethy et al 2008). Abernethy et al (2003) found that individuals with breathlessness who received morphine experienced a significant decrease in dyspnoea without reducing their respiratory rate.

Anxiolytics

There is uncertainty about the contribution of anxiety to breathlessness. Reducing anxiety may help patients to cope better with breathlessness (Twycross et al 2009). Abernethy et al (2008) suggested that benzodiazepines such as diazepam and lorazepam could be useful in patients whose anxiety substantially aggravates their breathlessness as they provide relief from anxiety, thereby removing anxiety as a stimulus to breathlessness. However, non-pharmacological approaches to managing anxiety may be more beneficial in certain patients, for example those with panic attacks, as most episodes settle within several minutes, which is much quicker than the time it takes for an anxiolytic to take effect (Twycross et al 2009).

Nebulised drugs and bronchodilators

Nebulised drugs have some benefits in reducing the feeling of breathlessness. In particular,
bronchodilators such as salbutamol can improve breathlessness caused by bronchoconstriction (Twycross et al 2009). Nebulised morphine is not recommended, particularly because of potential adverse effects such as unexpected respiratory depression (Twycross et al 2009). Furosemide could reduce the sensation of breathlessness. It has a preventive effect on bronchoconstriction and alleviates the sensation of dyspnoea in artificial conditions, such as breath holding in healthy participants (Nishino et al 2000). Ong et al (2004) suggested that furosemide could provide benefits for individuals with breathlessness caused by cancer, despite their research being conducted on patients with COPD. This contradicts the work of Wilcock et al (2008), who found no beneficial effect in using nebulised furosemide for patients with cancer-related breathlessness in a randomised controlled trial. However, Nishino et al (2000) stated that further investigation is required to ascertain whether inhaled furosemide has a clinical benefit in the treatment of patients with severe breathlessness. Abernethy et al (2008) suggested that further evidence is required to support the use of furosemide in the clinical setting.

**Oxygen therapy**

While oxygen therapy is useful in correcting hypoxia, breathlessness is not always related to hypoxia. This means there will be some variation in the response of individuals to oxygen therapy (Twycross et al 2009). Additionally, physiological indicators used to measure breathlessness such as arterial blood gases, oxygen saturation and spirometry often do not correlate with the individual’s perceived severity of breathlessness. Patients may feel breathless out of proportion to their physical disability (Abernethy et al 2008).

**Difficulties managing breathlessness**

The effectiveness of pharmacological therapies in the management of breathlessness has been debated (O’Driscoll et al 1999), and some interventions such as benzodiazepines, opioids and oxygen are often ineffective (Corner et al 1996, Bredin et al 1999). Corner (2008) argued that breathlessness can be disabling and terrifying, therefore addressing it as purely a physical problem does not help the individual deal with the intense fear of dying or with managing practical everyday activities that can trigger breathlessness.

Some patients feel healthcare professionals caring for them are unclear about the treatment of breathlessness and so stop asking them about the problem (Booth et al 2008). Dissatisfaction is common as patients feel care is delivered by a health system that shows little interest in palliative care. Perhaps this is owing to frustration and a sense of helplessness and failure on the part of many clinicians who believe that they will be judged on their ability to extend life (Taylor et al 2003).

Interest in palliative care as a specialty has increased (Taylor et al 2003), and this will hopefully improve patient satisfaction at the end of life. Abernethy et al (2008) suggested that the role of healthcare professionals working in palliative care is to improve patients’ experience of living and dying, as well as enhancing their health-related quality of life. Therefore clinicians who do not consider breathlessness and its significance are failing their patients.

Effective symptom management requires healthcare professionals to have an in-depth understanding of breathlessness and the different treatments available (Zhao and Yates 2008), as well as knowledge of the patient’s experience of breathlessness (Krishnasamy et al 2001).

Breathlessness results from a combination of different sensations. The variety and subjectivity of descriptors used by individuals to describe these sensations makes this symptom difficult to manage as there appears to be no discernible link between the aetiology and cause of the breathlessness (Booth et al 2008). The subjective nature of breathlessness makes it difficult to manage and highlights the need to adopt a more holistic approach to find out what being breathless means to each individual.

Corner (2008) stated that encouraging patients to discuss their stories of illness and breathlessness is essential to develop a therapeutic nurse-patient relationship, where the clinician helps the individual to work through his or her fears and anxieties in relation to breathlessness. This illustrates a move away from the traditional medical model of care to a more patient-centred approach that aims to understand the distress breathlessness can cause patients.

**Non-pharmacological interventions**

Breathlessness is being understood increasingly in terms of its physical, emotional, psychological and functional effects. The move to a more holistic approach to patient care is positive. Nurses are ideally placed to use a combination of pharmacological and non-pharmacological interventions to improve the patient’s quality of life. Approaches that consider the patient holistically through decreasing symptoms and improving quality of life reaffirm that treatment should aim to relieve distress (Abernethy et al 2008).

These interventions aim to address physical signs and symptoms as well as the
Breathing exercises and positioning
Incorporating breathing exercises into treatment is advocated because they are easy to do and can have a positive effect on the way patients feel about their breathlessness. Breathing exercises such as diaphragmatic or deep breathing are considered to be effective in helping the lungs function optimally and promote feelings of relaxation and stress reduction. Diaphragmatic breathing is effective as the more the abdomen moves when breathing the more the lungs are filled and emptied, improving gaseous exchange of oxygen and carbon dioxide (Gallo-Silver and Pollack 2000).

Gaseous exchange is suboptimal when an individual is hyperventilating, thereby increasing feelings of breathlessness. pursed lip breathing is advocated because it promotes a fully exhaled breath and allows the individual to feel the exhaled breath on the chin, which acts a cue to reinforce the need for a full exhalation (Gallo-Silver and Pollack 2000).

Patient positioning can have a significant effect on breathing. Henderson (2008) recommended supported high side lying, upright sitting with arms supported on pillows, sitting leaning forwards with the individual’s arms supported on pillows and standing leaning forward with the arms supported by a windowsill or wall. Positioning works by allowing the abdominal contents to fall away from the diaphragm, thereby enabling the diaphragm to move freely and increase lung capacity. Positioning also supports the accessory muscles and therefore reduces accessory muscle fatigue (Henderson 2008).

Activity planning
The amount of energy individuals use on everyday activities can be reduced through activity planning. Nurses are well placed to offer advice on strategies to conserve energy and avoid triggering breathlessness. Macmillan Cancer Support (2011) offers useful guidance on how to achieve this. For example, positioning chairs in the house so they can be used by patients to take a rest in between activities, avoiding lifting and carrying heavy items, and sitting down to do everyday tasks such as washing, dressing and preparing food. Individuals need to feel that they do not have to adhere to a particular routine, so bathing or showering should be done when the patient feels he or she has the most energy to do so. This can be challenging in the hospital setting as wards often have set routines. Nurses need to be aware of this and encourage patients to shower or bathe when they most feel like doing so.

Complementary therapies
Individuals with cancer are making increasing use of complementary therapies in conjunction with mainstream treatment to manage symptoms and increase quality of life (Vickers and Cassileth 2001). Massage is commonly used in cancer care, and while massaging directly over tumour sites is discouraged, there are no other adverse effects (Corbin 2005). Most studies conclude that massage can reduce anxiety and distress (Fellowes et al 2004), and similar results have been found for aromatherapy (Wilkinson et al 1999).

Acupuncture is commonly used in symptom management. Filshie et al (1996) conducted a pilot study that explored the safety and efficacy of acupuncture in 20 patients who were breathless at rest and whose breathlessness was directly related to primary or secondary malignancy. Most patients reported marked symptomatic benefit from treatment in relation to breathlessness, relaxation and anxiety at least up to six hours after acupuncture. Lewith et al (2004) conducted a study on the use of standardised acupuncture versus transcutaneous electrical nerve stimulation in patients with COPD and found that the acupuncture technique did not show specific efficacy in disabling breathlessness, but participants did experience clinically significant benefit from both treatments. Most researchers advocate further research in the area of complementary therapies in relation to symptom management in general (Joske et al 2006).

Use of fans
Facial cooling can reduce the sensation of breathlessness with no adverse effects. It is simple to use and helps to reduce anxiety and stress during an episode of breathlessness (Schwartzstein et al 1987, Galbraith et al 2010). The mechanism by which this works remains unclear. However, some organisations do not allow the use of fans because the air they circulate could spread infection.
Research on non-pharmacological interventions

Corner et al (1996) conducted a randomised controlled study of 34 patients in a nurse-led clinic to investigate the effect of a non-pharmacological intervention on breathlessness in patients with lung cancer, focusing on breathlessness ratings and patient functioning. Interventions incorporated breathing retraining, relaxation, adapting and coping strategies, and counselling. Distress caused by breathlessness improved, as did functional capacity and the ability to perform activities of daily living.

Bredin et al (1999) conducted a similar study with 119 patients in six hospital settings in the UK. The aim was to evaluate the effect of an individualised care package and to establish the feasibility of implementing this in treatment centres. They compared the standard care offered to individuals with a package of care tailored to each patient’s needs. The care package involved an assessment of the patient, advice and support on the management of breathlessness, training on breathing control and muscle relaxation, distraction exercises and exploration of the meaning of breathlessness for each patient. Patients assigned to the intervention group experienced significant improvement in their breathlessness compared with those who received standard care.

Implications and limitations of non-pharmacological interventions

The aim of non-pharmacological interventions is to work in collaboration with patients using a range of strategies to complement pharmacological treatments for breathlessness (Corner et al 1996). Such interventions proved successful in the studies conducted by Corner et al (1996) and Bredin et al (1999), and again when replicated by physiotherapists (Hately et al 2003). However, there are several considerations to take into account.

Practitioners involved in palliative and end of life care need training in these interventions. Froggatt and Walford (2005) developed a course to equip healthcare professionals with skills for patient assessment, meeting the psychological and social aspects of breathlessness, and in-service planning and delivery. While the practitioners attending the

References


Fletcher CM (1960) Standardised questionnaire on respiratory symptoms: a statement prepared and approved by the MRC Committee on the Aetiology of Chronic Bronchitis (MRC breathlessness score). British Medical Journal. 2, 1665.


course found that it assisted them to develop skills in managing breathlessness, gaps still persist in transferring theory to practice. Johnson and Moore (2003) found that many practitioners experienced difficulties in the organisational aspect of introducing interventions to their area and with becoming confident in using the techniques within their existing role. Also the complex and intensive nature of the interventions raises questions about how feasible it is to use these in clinical practice (Zhao and Yates 2008).

Conducting research with patients who require palliative care can be ethically challenging (Dorman et al 2009). The nature of breathlessness in lung cancer and the rapid decline towards death means it is difficult for patients to participate in clinical research (Booth et al 2008). Corner et al (1995) proposed that many interventions are implemented too late in the disease trajectory for patients with lung cancer, with severe breathlessness being the trigger to start them. If breathing techniques and exercises are offered early enough, they can assist the patient to feel more in control of this symptom (Hoyal et al 2002). Therefore it is advisable to offer interventions at an early stage in the disease process.

Patients with lung cancer have access to a cancer specialist nurse who should be vigilant to signs of poor symptom management and initiate non-pharmacological interventions at an early stage.

Conclusion
Nurses have a responsibility to improve the management of breathlessness in patients with lung cancer. While non-pharmacological interventions have been developed to improve quality of life in individuals with this debilitating condition, they are sometimes difficult to implement or are not used in the clinical setting. Further research, education and training are required to promote and encourage their use. It is essential that healthcare practitioners receive support from their colleagues, line managers and other members of the multidisciplinary team to deliver the best possible care and relieve distress in this group of patients NS

References