

Management of Dyspnea in a Patient With Lung Cancer

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Nine months prior, S.P., a 64-year-old woman, was diagnosed with stage IV non-small cell lung cancer with distant metastases to the bone. Her large tumor burden had compressed both her trachea and esophagus several months earlier, leading to gastrostomy-tube placement for nutrition and tracheostomy for airway management. Palliative radiation was used to shrink the tumor size and allow for removal of the tracheostomy tube, leaving an open area covered with gauze in the middle of her neck—a reminder of her previous struggles with breathing. Unfortunately, the cancer progressed and S.P. was admitted to the hospital for evaluation and management of dysphagia.

On morning rounds, S.P. was found sitting straight up in bed, expressing fright, and gasping in an attempt to catch her breath. The 2 L per minute of oxygen she was receiving by nasal cannula provided no relief, as she mouthed “help me.” Backup was called immediately and an oxygen mask placed because of an initial oxygen saturation reading of 88% by pulse oximeter. Despite an increase to 94% on oxygen, S.P. continued to gasp while anxiously holding the nurse’s hand.

S.P. was clearly in a panic as the nurse asked her to try pursed-lip breathing while demonstrating the technique in sync with her attempts. Despite increased oxygen saturation and pursed-lip breathing, S.P. was still in distress. Morphine had been ordered as needed in anticipation of a dyspneic event, but S.P. initially refused, believing she would become too lethargic, prompting the need to find other measures to provide relief.

Supportive care was required to aid S.P.’s fear and dyspnea. The lights in her room were dimmed, the door closed, and soft music played to help subdue her anxiety. Although her breathing did

improve slightly, she still became tired from the work of breathing and then agreed to a dose of 1 mg IV morphine, which provided some relief within 10 minutes of administration. The palliative care team was consulted, and the interdisciplinary team continued using pharmacologic and nonpharmacologic techniques to manage S.P.’s dyspnea. She was groggy at times, but her breathing became more comfortable until she peacefully passed away a few days later without any distress.

Assessment of Dyspnea in Patients With Lung Cancer

Intractable shortness of breath commonly affects those with cancer at the end of life, and limited understanding of the exact causes of dyspnea makes treatment and management more difficult (Pinna, Vargas, Moralo, Correas, & Blanco, 2009). Although dyspnea can be present in many patient populations, those with primary lung cancer or with metastases to the lungs note the most prevalence (Houlihan, Inzeo, Joyce, & Tyson, 2004; Temel, Pirl, & Lynch, 2006). Investigating the experience of breathlessness in those with lung cancer, O’Driscoll, Corner, and Bailey (1999) discussed the correlation between breathing and life, and the fear associated with shortness of breath and impending death. Many of the participants in this descriptive study expressed significant anxiety and panic during periods of dyspnea, epitomizing the importance of managing this frightening symptom.

Bruera, Schmitz, Pither, Neumann, and Hanson (2000) asserted that the amount of tumor involvement in the lung and measures of oxygen saturation do not necessarily correlate with levels of dyspnea and, therefore, are not appropriate objective measures for breathlessness in patients. A person may have oxygen saturation greater than 90% and

still experience severe dyspnea, indicating that dyspnea is more than simply hypoxemia (Tanaka, Akechi, Okuyama, Nishiwaki, & Uchitomi, 2002). Dyspnea appears to be related to organic causes as well as psychological distress and pain, making it multifactorial and often difficult to adequately treat (Tanaka et al., 2002). Difficulty breathing can lead to an emotionally distressing response, including anxiety or panic (Gilman & Banzett, 2009). In turn, anxiety and distress can lead to shortness of breath in a relatively healthy person, demonstrating the important interplay between emotions and breathing. Assessing the individual’s experience with dyspnea is necessary to appropriately evaluate and manage this often debilitating symptom (O’Driscoll et al., 1999).

Physiologically, Gilman and Banzett (2009) asserted that a difficult component of dyspnea is air hunger, which can occur because of a difference between the body’s autonomic drive to breathe based on metabolic requirements, and the body’s ability to meet that need, which may be diminished because of the tumor burden within the lungs. The sensation of increased work to breathe may be exacerbated because of weakened respiratory muscles from treatment-induced myopathy or an inhibition of airways, leading to discomfort in a patient with lung cancer. Respiratory pneumonitis from previous thoracic radiation can be a factor in dyspnea in patients with lung cancer because of airway inflammation; pulmonary emboli also can be a cause of shortness of breath (Dudgeon, Kristjanson, Sloan, Lertzman, & Clement, 2001).

Dyspnea often is under recognized by healthcare professionals and often under reported by patients (Roberts, Thorne, & Pearson, 1993). Roberts et al. (1993) found that patients experiencing dyspnea often were unaware of management options and typically decrease

their activity as a way to alleviate the symptom, leading to isolation and diminished quality of life. According to Gaguski, Brandsema, Gernalin, and Martinez (2010), no gold standard exists for the measurement of dyspnea; however, healthcare professionals should implement an appropriate assessment tool to address this often overlooked symptom with their patients. Using tools with demonstrated validity, such as the numeric rating scale, for severity of dyspnea can help to alert healthcare professionals to the need for intervention in patients with dyspnea and potentially lead to better management of this symptom (Gaguski et al., 2010; Gift & Narsavage, 1998; Webb, Moody, & Mason, 2000).

Clinical Management and Treatment

Ideally, a healthcare professional would treat the underlying cause of the dyspnea to relieve it; however, in advanced-stage cancer, doing so is not always possible and symptom management is used to provide respite (Wickham, 2002). Interventions applicable to managing symptoms of dyspnea are outlined in Figure 1.

Oxygen therapy is recommended for cases of dyspnea associated with hypoxia, and use of the face mask is suggested only in acute situations, as it can cause a feeling of claustrophobia and worsened air hunger (Bruera, de Stoutz, Velasco-Leiva, Schoeller, & Hanson, 1993; Wickham, 2002).

Nonpharmacologic interventions, such as optimal positioning for lung expansion, diaphragmatic breathing, or pursed-lip breathing, can be beneficial to the patient experiencing initial dyspnea

(Gallo-Silver & Pollack, 2000; LaDuke, 2001). Calmly explaining that tachypnea decreases the ability for oxygen to enter the lungs and that good expansion will improve oxygen levels can help the patient understand why breathing techniques can be useful (Gallo-Silver & Pollack, 2000). Gallo-Silver and Pollack (2000) recommended educating patients newly diagnosed with non-small cell lung cancer on techniques of diaphragmatic breathing so that they would be prepared to manage symptoms of dyspnea if they arise.

In a review of the use of complementary therapies in the treatment of dyspnea (Pan, Morrison, Ness, Fugh-Berman, & Leipzig, 2000), acupuncture, acupressure, education about coping strategies, and relaxation techniques were all shown to possibly provide benefits for patients. Anxiety can be the result of dyspnea or potentiate dyspnea, so benzodiazepines and removal of environmental stimuli can improve anxiety and possibly improve breathlessness in the case where anxiety is prevalent (Wickham, 2002).

Opioids have consistently demonstrated effectiveness in treating shortness of breath; however, barriers exist to their use because of misconceptions of patients and healthcare workers that they will potentiate death or that they are effective for pain management alone (Ben Ahron, Gafter-Gvili, Paul, Leibovici, & Stemmer, 2008; Webb et al., 2000; Wickham, 2002). Healthcare professionals must educate patients on opioid use and potential side effects so that symptom management can be attained (Wickham, 2002). Therapeutic thoracentesis and pleurodesis also can provide relief in patients experiencing dyspnea because of effusions and fluid overload (Antunes, Neville, Duffy, & Ali, 2003).

Implications for Nursing Practice

Nurses have the opportunity to assess for changes in ease of breathing in their patients and educate them on methods to improve the often distressing symptom of dyspnea while providing psychosocial support (Bredin et al., 1999). With appropriate assessment and early intervention, the quality of life of patients with lung cancer experiencing dyspnea can significantly improve (Wickham, 2002). Gaguski et al. (2010) demonstrated that implementing the use

of a standardized dyspnea assessment scale is manageable in the healthcare setting and can help to guide nurses in their evaluation and treatment of dyspnea. Gilman and Banzett (2009) suggested that assessment of dyspnea be completed with vital signs in patients with lung cancer or other respiratory conditions to expedite treatment measures for early dyspnea and, in turn, improve quality of life in patients.

Smoking cessation is beneficial in patients with cancer because smoking is associated with increased pain and dyspnea (Ditre et al., 2011; Videtic et al., 2003). In patients experiencing dyspnea, the nurse can assist with a smoking cessation plan that can be beneficial in decreasing morbidity.

A study by Roberts et al. (1993) ascertained that inconsistencies exist in the knowledge of nurses in caring for patients with dyspnea that can lead to decreased confidence in how to address this symptom. Fears and knowledge deficits among nurses should be addressed and increased educational opportunities provided to better prepare nurses to manage these patients. Many nurses are afraid to involve the palliative care team in patients with refractory dyspnea because of the fear that this is correlated with hospice; however, palliative care teams can provide symptom management options for all patients and can be an invaluable resource for the nurse (Martin, 2011).

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Digital Object Identifier: 10.1188/12.ONF.257-260

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- Acupressure
- Acupuncture
- Diaphragmatic breathing
- Dyspneic assessment scale
- Early recognition of symptom
- Guided imagery
- O₂ via nasal cannula
- Opioids
- Pursed-lip breathing
- Relaxation techniques
- Repositioning to support lung expansion
- Smoking cessation

Figure 1. Interventions for Dyspnea

of nursing intervention for breathlessness in patients with lung cancer. *BMJ*, 318, 901–904.

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Clinical Highlights: Dyspnea in Patients With Lung Cancer

Definition of Dyspnea

Dyspnea has been described as a subjective experience of breathlessness or air hunger in which a person is consciously aware of difficulty with breathing (LaDuke, 2001; O'Driscoll, Corner, & Bailey, 1999). Dyspnea often is associated with anxiety and panic and an impending sense of doom. Dyspnea can greatly decrease quality of life in patients with lung cancer (O'Driscoll et al., 1999). Objective measures such as laboratory data and oxygen saturations do not adequately measure levels of dyspnea because it is a multifactorial state that incorporates both physiologic and psychological experiences of patients (Bruera, Schmitz, Pither, Neumann, & Hanson, 2000). Tools to measure dyspnea are underused by healthcare professionals and, often, dyspnea is under reported, leading to undertreatment and unnecessary suffering (Gaguski, Brandsema, Gernalin, & Martinez, 2010; Roberts, Thorne, & Pearson, 1993).

Treatment and Management

Nonpharmacologic treatments such as diaphragmatic and pursed-lip breathing, as well as acupuncture, acupressure, and relaxation techniques, can be beneficial in mild dyspnea, particularly in its initial stages (Gallo-Silver & Pollack, 2000; Pan, Morrison, Ness, Fugh-Berman, & Leipzig, 2000). Oxygen therapy can be beneficial in dyspnea related to hypoxia. Using a nasal cannula with humidification decreases the feeling of claustrophobia associated with the face mask (Wickham, 2002). Benzodiazepines appear to provide benefit in anxiety associated with dyspnea (Wickham, 2002).

Opioids have proven efficacy in the treatment of dyspnea, and healthcare professionals and patients must be educated on the benefits to ensure that appropriate use can be achieved (Ben Ahron, Gafter-Gvili, Paul, Leibovici, & Stemmer, 2008; Webb, Moody, & Mason, 2000; Wickham, 2002).

Nursing Implications

Adequate assessment of patients for dyspnea will allow earlier intervention and improved outcomes (Gaguski et al., 2010). Incorporating the use of valid scales, such as the numeric rating scale, can help standardize care and allow the nurse to better assess and treat breathlessness (Gaguski et al., 2010; Gift & Narsavage, 1998; Webb et al., 2000). Educating patients on the potential for dyspnea and management techniques is important so that they are equipped to deal with this potentially stressful symptom and are aware of when to call for help (Wickham, 2002). Nurses can provide pharmacologic and nonpharmacologic interventions to greatly improve the quality of life of patients with lung cancer (Ben Ahron et al., 2008; Gallo-Silver & Pollack, 2000; Pan et al., 2000). Also, being educated regarding symptom management of dyspnea will help to allay fears that the nurse may experience when caring for a patient with dyspnea.

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