

## 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