

Introduction

Dyspnea is a frightening symptom for dying patients and their families. Pharmacologic and non-pharmacologic interventions should focus on symptomatic relief and prevention of complications to ensure relief and patient comfort. Psychological and spiritual support is also needed to assist patients and their families who often experience fear and anxiety.

Assessment

Shortness of breath is a subjective symptom. The patient's perception of difficulty in breathing or having the sensation of air hunger is to be believed. If possible, document the degree to which this symptom is causing distress by asking the patient to rate the severity on a 0 – 10 scale. Using this scale, you should also document relief of dyspnea after any interventions.

Objective signs of dyspnea include:

- Resting tachycardia
- Increased respiratory rate
- Pursed-lip breathing
- Use of accessory muscles for respiration
- Supraclavicular retractions
- Hypoxemia

For patients with advanced disease in the hospice and palliative care setting, objective measures such as respiratory rate and oxygen saturation may not correlate with the sensation of breathlessness. Asking patients how short of breath they feel is the most accurate assessment of dyspnea severity.

Interventions and Treatments

Pharmacologic therapy is based on determination of etiology and collaboration. However in refractory dyspnea in patients with advanced cancer and pulmonary disease, the treatment of cause may not be possible (for instance, due to tumor invasion or tissue damage). The primary goal in palliative treatment is to decrease the sensation of dyspnea and increase patient comfort.

The American College of Physicians recommends that in patients with serious illness at the end of life, clinicians should use therapies with proven effectiveness to manage dyspnea, which includes systemic opioids in patients with unrelieved dyspnea and oxygen for short-term relief of hypoxemia. Also recommended are other pharmacological approaches such as bronchodilators and corticosteroids.



Chronic Obstructive Disease/Bronchospasm

Bronchodilators dilate the bronchi and bronchioles through relaxation of the smooth muscles resulting in decreased airway resistance and increased airflow.

- Albuterol via inhaler 1-2 puffs q 4-6 h and prn
- + ipratropium 1-2 puffs TID-QID
- If ineffective, consider same medications via nebulizer
- Nebulized saline may help patients with viscous secretions
- Consider benefit of steroid therapy via inhaler or oral dosing

Corticosteroids

Corticosteroids act in the inflammatory cascade and can improve airway function. They can be combined with bronchodilators in a single inhaler. Some of the more common inhaled steroids are Beclomethasone (QVAR), Mometasone (Asmanex), Fluticasone (Flovent) and Salmeterol combined with Fluticasone (Advair). Steroids may also be used to manage symptoms of dyspnea in patients with upper airway obstruction (from tumor), radiation pneumonitis or superior vena cava syndrome.

Fluid Overload

Congestive Heart Failure (CHF) & Pulmonary Edema

- Furosemide 20-40 mg. po x 1 and reassess
- If continued, consider potassium supplementation - 10 mEq/20 mg. of furosemide

Respiratory/Airway Congestion

Pharmacological treatment of respiratory congestion when the patient is actively dying should be based on relieving the cause of excessive respiratory secretions whenever possible. If the underlying cause of deep fluid accumulation is pneumonia or fluid overload, the anticholinergic agents listed below will not be effective. Anticholinergic agents act systemically and will dehydrate all mucous membranes. Attend vigilantly to oral and eye care to maintain comfort. Assess for urinary retention and bladder distention. Avoid suctioning which will be uncomfortable for the patient and irritate tissues stimulating increasing secretion. Consider oral suction only if upper airway secretions are visible and accessible.

- hyoscyamine (Levsin®) tablets or drops 0.125-0.25 mg po/sl every 4 h as needed
- scopolamine transdermal (Transderm-Scop®) apply 1-2 patches behind ear every 72 h
- atropine 0.3 mg sq every 4 h (max 1.2 mg every 4 h)
- glycopyrrolate (Robinul®) 1-2 mg po/sl every 4 h as needed

Remember that sublingual medications are also absorbed buccally. When administering SL medications turn the patient to one side to minimize additional fluid accumulation in the person's throat.



Hypoxemia

Oxygen Oxygen administration may help correct hypoxemia and relieve sensation of breathlessness. Even when oxygenating benefit is not certain, oxygen may continue to be psychologically comforting to patients and family members. Oxygen is usually most comfortably administered via nasal cannula, so this route is preferred.

Signs and Symptoms of hypoxia can include:

- Headache
- Fatigue
- Shortness of breath ($pO_2 \leq 88\%$ on room air)
- Cyanosis
- Restlessness
- Anxiety and agitation
- Resting tachycardia (≥ 100)

Opioids Opioids reduce the intensity of dyspnea even in hypoxic patients. Opioids also have an anxiolytic effect and help relieve anxiety. Some medical professionals are concerned that opioids will increase respiratory depression. However, whether patients are already on opioids or opioid naïve there is no evidence of respiratory depression (measured by respiratory rate, oxygen saturation or level of carbon dioxide) when doses are carefully titrated.

- Morphine sulfate 5 to 15 mg. po/sl q 3 h. prn
- If adverse CNS effects from oral morphine consider nebulized preservative free morphine 5-15 mg. q. 4 h prn, with or without albuterol
- If patient already taking opioids for pain, increase the equivalent of the person's 4 hour dose by 25% (or increase their current available break through dose by 25% and provide q 4 hours prn.

Non-pharmacological Interventions

- Position the patient upright to allow for better diaphragm efficiency and lung expansion.
- Direct cool air toward the person's face with a fan.
- Lower room temperature. Remove any constrictive covering or clothing.
- Offer patient/family appropriate psychosocial and spiritual care support.
- Ensure calm, quiet environment.



Collaborate with interdisciplinary team to confirm that symptoms are managed with the most effective combination of non pharmacological and pharmacological interventions. Evaluate and document all symptoms and effectiveness of interventions at each visit. Evaluate discontinuing medications if symptoms resolve.

References

Allard P, Lamontagne C, Bernard P, Tremblay C. How effective are supplementary doses of opioids for dyspnea in terminally ill cancer patients? A randomized continuous sequential clinical trial. J Pain Symp Manage. (1999) Apr;17(4): 256-65.

Clemens KE, Quednau I, Dlaschik E. Is there a higher risk of respiratory depression in opioid naïve palliative care patients during symptomatic therapy of dyspnea with strong opioids? J Palliat Med; (2008)11(2): 204-216.

Clemens KE, Quednau I, Dlaschik E. Use of oxygen and opioids in the palliation of dyspnea in hypoxic and non-hypoxic palliative care patients: a prospective study. Support Care Cancer (2009) 17(4): 367-377.

Kvale PA, Selecky PA, Prakash UB. Palliative care in lung cancer. ACCP evidence-based clinical practice guidelines (2nd edition). Chest (2007) 132(Suppl 3): 368-403 S.

Varkey B, Opioids for palliation of refractory dyspnea in chronic obstructive pulmonary disease patients. Curr Opin Pulm Med; (2010)16(2): 150-154. Lippincott Williams & Wilkins

Viola R et al. The management of dyspnea in cancer patients: a systematic review. Supp Care Cancer. 2008; 16:329-337.

