Symptomatic Management of Dyspnea

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Objectives

- **Review mechanisms of dyspnea**
- **Review disease states that frequently cause dyspnea**
- **Review treatments by disease state**
- **Review treatments for dyspnea at end of life**

Physiologic Mechanisms of Dyspnea

- Increased respiratory drive
- Impaired mechanics
- Multifactorial mechanisms

Obstructive Disorders: Small Airways

Includes Asthma, COPD, bronchiectasis

- Treatments:
  - Bronchodilators (PRN, scheduled)
  - Consider steroids, antibiotics for exacerbations
  - Pulmonary rehabilitation
- Advanced treatments
  - Lung Volume Reduction Surgery (COPD)
  - Bronchial thermoplasty (asthma)
  - Lung Transplant (COPD, bronchiectasis)

Obstructive Disorders: Medium/Large Airways

Fixed/Non-variable:

- **Tracheal/bronchial stenosis**
  - **Bronchoscopic or surgical laser, cryotherapy, resection**
  - **Sometimes stent placement**
- **Extrinsic tracheal/bronchial compression**
  - **Treat lesion (chemotherapy, resection, radiation)**
  - **Stents generally NOT helpful**

Obstructive Disorders: Medium/Large Airways

Variable mechanical obstruction

- **Tracheobronchomalacia**
  - **Cough training, airway hygiene**
- **Vocal cord paralysis**
  - **Speech therapy, possibly vocal cord injections**
  - **Consider Tracheostomy for airway protection**
- **Paroxysmal Vocal Fold Dysfunction ("VCD")**
  - **Speech (laryngeal control) therapy**

Intrinsic Pulmonary Restrictive Disorders

- **ILD**
  - **Hypersensitivity = avoidance**
  - **GERD = Acid suppression**
  - **Autoimmune = Immunosuppression**
- **IPF**
  - **Pirfenidone, Nintedanib, (N-acetylcysteine)**
  - **Pulmonary rehabilitation**
  - **Oxygen if indicated**
  - **Lung transplant**

Extrinsic (Nonpulmonary) Restrictive Disorders

- **Obesity/Obesity Hypoventilation Syndrome**
- **Diaphragm paralysis, Spinal cord injury**
  - **May consider diaphragm pacemaker**
- **Neuromuscular conditions:**
  - **Amyotrophic Lateral Sclerosis (ALS)**
  - **Myasthenia Gravis, Guillain-Barré, Botulism**
  - **Paraneoplastic Syndromes**
  - **Myositis/Myopathy/Neuropathy**

Pulmonary Hypertension: WHO Groups

- **Group I: (Pulmonary Arterial Hypertension)**
  - **Includes Idiopathic, Familial, Drug-induced, associated with connective tissue disease, HIV, etc.**
- **Group II: Left heart disease (systolic, diastolic, valvular)**
- **Group III: Lung disease/Hypoxia**
- **Group IV: Chronic Thromboembolic Disease**
- **Group V: Other/Unclear/Multifactorial**
  - **Includes sarcoidosis, metabolic diseases, chronic dialysis-associated**

Pulmonary Hypertension: Treatments

- **Treat underlying cause if present**
- **Oxygen if indicated**
- **Pulmonary rehabilitation**

- **Phosphodiesterase type 5 inhibitors**
- **Endothelin receptor antagonists**
- **Prostaglandins**
- **Soluble guanylate cyclase activators**

Pulmonary Hypertension: Treatments

- **Pulmonary thromboendarterectomy (CTEPH only)**
- **Atrial septostomy (palliative, worsens hypoxemia)**
- **Lung transplant**

Pleural Effusion

- **Possible causes: malignancy, para-pneumonic, empyema, CHF, trauma (CVC, surgery, MVC), etc.**
- **Treat underlying cause if possible**
- **Long-term may consider:**
  - **PRN thoracentesis**
  - **pleurodesis**
  - **tunneled indwelling pleural catheter (PleurX®)**

Alveolar Filling Processes

- Pulmonary edema
- Aspiration
- Pneumonitis/Pneumonia
- Alveolar hemorrhage
- Massive hemoptysis
- Pulmonary Alveolar Proteinosis
- Acute Respiratory Distress Syndrome

Effects of Advanced Lung Disease

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Psychosocial Effects

- Symptoms (breathlessness) causing anxiety/panic
- Depression, Anxiety, Insomnia

- Self-consciousness (cough, oxygen, slow moving)
- Dependence on others (ADLs), Social isolation
- Changes in relationships

- Desperation
- Feeling cheated of future
- Loss of purpose/self-determination

Symptoms: Depression, Anxiety

- Associated with
  - increased dyspnea
  - lower performance status
  - worse quality of life ratings

- Anxiety associated with dyspnea and related fear

- Limited evidence for effectiveness of pharmacologic management in advanced lung disease

Symptoms: Fatigue, Anorexia

- Energy conservation
- Pulmonary rehabilitation (includes nutrition)

Consider Corticosteroids

- May suppress inflammation in asthma, COPD, ILD
- May reduce risk of exacerbations
- May improve fatigue, appetite, sense of wellbeing

Symptoms: Cough

- Smoking cessation
- Bronchodilators
- Cough suppressants
- Mucolytics
- Physiotherapy
- Antisecretories
- Other causes of cough

Symptoms: Dyspnea - Nonpharmacologic

- Fan to face
- Cognitive/Behavioral strategies
  - Slow breathing exercises
    - pursed lip breathing
    - diaphragmatic breathing
    - singing
  - Dyspnea self-management education + exercises
  - Distractive auditory stimuli [music]

Symptoms: Dyspnea - Oxygen

- Hypoxia does not correlate with dyspnea severity
- Oxygen does not change dyspnea (hypoxic/non-hypoxic)

- No difference in overall dyspnea with oxygen vs air
- Oxygen complications: epistaxis, nose irritation, drowsiness

Oxygen has limited symptom benefit for most patients

Symptoms: Dyspnea - Opioids

Given with appropriate caution,

- **Safe & effective for dyspnea**
- **Effective for both opioid-naïve and opioid-tolerant**
- **Do not hasten death at end of life**

- **Multiple administration routes studied for dyspnea**
  - **Oral (good evidence)**
  - **Parenteral (good evidence)**
  - **Nebulized opioids (few studies; limited evidence)**
  - **Transmucosal fentanyl (very limited to no evidence)**

Symptoms: Dyspnea - Benzodiazepines

- **Precise/best role less clear than that of opioids**
- **Often used in advanced lung disease**

- **Can help especially if anxiety causes/is caused by dyspnea, cannot be broken with non-pharmacologic coping mechanisms**
  - **Possible synergy with opioids?**
  - **Some may respond better to benzodiazepines than to opioids**

When to consider hospice?

- **“The Surprise Question”**
- **General indicators**
  - **Decline**
  - **Decreasing activity**
  - **Comorbidities**
  - **Weight loss**
  - **Admissions**
  - **Falls**

Hospice eligibility* for Pulmonary Disease

Severe chronic lung disease with both:

- **Disabling dyspnea at rest**
  - **poor/no bronchodilator response**
  - **decreased functional capacity**
- **Progression of ESLD evidenced by**
  - **increasing ED visits/hospital admissions, or**
  - **increasing home visits prior to initial certification**

Hospice eligibility* for Pulmonary Disease

- **Supporting documentation**
  - **Resting hypoxemia on room air OR Hypercapnia**
  - **Right heart failure due to pulmonary disease**
  - **Unintentional weight loss over preceding 6 months**
  - **Resting tachycardia**

Introduction to Hospice

Objectives

- **Describe what hospice is**
- **Describe what hospice is not**
- **Dispelling hospice myths**

Hospice IS:

- **Specialized, patient-centered care for patients facing life-limiting illness, including care for**
  - **Physical needs (including symptom management)**
  - **Emotional needs**
  - **Social needs**
  - **Spiritual needs**

Hospice is ALSO:

- **Specialized care and support for the patient's family and caregivers**
- **A way of focusing on the patient's (and family's) quality of life**

Hospice cares for patients:

- **With many different diagnoses**
- **Who may die in 6 months or less**
- **Wherever they are**

Hospice patients:

- **Need not be DNR**
- **Can be hospitalized if necessary**
- **Can see their own physician(s)**

Hospice provides:

- **Medications for symptom management**
- **Home medical supplies/equipment**
- **Home visits by physician, nurses, aides, social workers, chaplains, volunteers, therapists**
- **Education to family/caregivers on how to care for patient and for themselves**
- **Bereavement care to surviving family & friends**

References

An Official American Thoracic Society Statement: Update on the Mechanisms, Assessment, and Management of Dyspnea Am J Respir Crit Care Med. 2012 Feb 15; 185(4): 435–452.
Guidelines for the diagnosis and treatment of pulmonary hypertension. European Heart Journal. 2009; 30: 2493–2537.
Bajwah S, Higginson IJ, Ross JR, Wells AU, Birring SS, Riley J, Koffman J. The palliative care needs for fibrotic interstitial lung disease: a qualitative study of patients, informal caregivers and health professionals. Palliat Med. 2013 Oct;27(9):869-76. doi: 10.1177/0269216313497226.
Kreuter M, Herth FJ. Supportive and palliative care of advanced nonmalignant lung disease. Respiration. 2011;82(4):307-16. doi: 10.1159/000330730.
von Leupoldt A, Taube K, Lehmann K, Fritzsche A, Magnussen H. The impact of anxiety and depression on outcomes of pulmonary rehabilitation in patients with COPD. Chest. 2011 Sep;140(3):730-6. doi: 10.1378/chest.10-2917.
Janssens T, De Peuter S, Stans L, Verleden G, Troosters T, Decramer M, Van den Bergh O. Dyspnea perception in COPD: association between anxiety, dyspnea-related fear, and dyspnea in a pulmonary rehabilitation program. Chest. 2011 Sep;140(3):618-25. doi: 10.1378/chest.10-3257.
Galbraith S, Fagan P, Perkins P, Lynch A, Booth S. Does the use of a handheld fan improve chronic dyspnea? A randomized, controlled, crossover trial. J Pain Symptom Manage. 2010 May;39(5):831-8. doi: 10.1016/j.jpainsymman.2009.09.024.
Norweg A, Collins EG. Evidence for cognitive-behavioral strategies improving dyspnea and related distress in COPD. Int J Chron Obstruct Pulmon Dis. 2013;8:439-51. doi: 10.2147/COPD.S30145.
Clemens KE, Quednau I, Klaschik E. Use of oxygen and opioids in the palliation of dyspnoea in hypoxic and non-hypoxic palliative care patients: a prospective study. Support Care Cancer. 2009 Apr;17(4):367-77. doi: 10.1007/s00520-008-0479-0.

References

LeBlanc TW, Abernethy AP. Building the palliative care evidence base: Lessons from a randomized controlled trial of oxygen vs room air for refractory dyspnea. J Natl Compr Canc Netw. 2014 Jul;12(7):989-92.
Edwards MJ. Opioids and benzodiazepines appear paradoxically to delay inevitable death after ventilator withdrawal. J Palliat Care. 2005 Winter;21(4):299-302.
Currow DC, McDonald C, Oaten S, Kenny B, Allcroft P, Frith P, Briffa M, Johnson MJ, Abernethy AP. Once-daily opioids for chronic dyspnea: a dose increment and pharmacovigilance study. J Pain Symptom Manage. 2011 Sep;42 (3):388-99. doi: 10.1016/j.jpainsymman.2010.11.021.
Boyden JY, Connor SR, Otolorin L, Nathan SD, Fine PG, Davis MS, Muir JC. Nebulized Medications for the Treatment of Dyspnea: A Literature Review. J Aerosol Med Pulm Drug Deliv. 2014 Jun 10. [Epub ahead of print]
Pinna MA, Bruera E, Moralo MJ, Correas MA, Vargas RM. A Randomized Crossover Clinical Trial to Evaluate the Efficacy of Oral Transmucosal Fentanyl Citrate in the Treatment of Dyspnea on Exertion in Patients With Advanced Cancer. Am J Hosp Palliat Care. 2013 Nov 20. [Epub ahead of print]
Allcroft P, Margitanovic V, Greene A, Agar MR, Clark K, Abernethy AP, Currow DC. The role of benzodiazepines in breathlessness: a single site, open label pilot of sustained release morphine together with clonazepam. J Palliat Med. 2013 Jul;16(7):741-4. doi: 10.1089/jpm.2012.0505.
http://www.goldstandardsframework.org.uk/cd-content/uploads/files/General%20Files/Prognostic%20Indicator%20Guidance%20October%202011.pdf Accessed 9/2/14.
An official American Thoracic Society clinical policy statement: palliative care for patients with respiratory diseases and critical illnesses. Am J Respir Crit Care Med. 2008 Apr 15; 177(8): 912-27.