

FAST FACTS AND CONCEPTS #376
MANAGEMENT OF CHRONIC DYSPNEA
Richard Weinberg MD and Briana Ketterer MD

Background: Dyspnea is the sensation of breathing discomfort or an uncomfortable awareness of breathing (see *Fast Fact #27* on acute dyspnea at the end of life). Chronic dyspnea usually refers to breathlessness lasting > 4-8 weeks and is prevalent in progressive illnesses such as chronic obstructive pulmonary disease (COPD) (56-98%), heart failure (88%), cancer (77%), and end-stage renal disease (ESRD) (11-82%) (1). The aim of this *Fast Fact* is to review management options for chronic dyspnea.

Pathophysiology: When dyspnea becomes chronic, sensory input from chemoreceptors and mechanoreceptors become integrated into the neural processing of the brain making it challenging to fully eradicate (2). While indirect corollary measures such as tachypnea or hypoxemia are often measured, patient self-report is the only reliable indicator of dyspnea (2). Breathlessness often triggers anxiety which in turn can compromise respiratory mechanics via rapid breathing, hyperinflation, increased dead space, and diaphragmatic flattening (3). Reduced physical activity and deconditioning often follows. Even though diagnosing a dyspneic patient with anxiety disorder is not accurate and can be stigmatizing, controlling the dyspnea-anxiety cycle is a key therapeutic goal in chronic dyspnea. Patient acknowledgement that breathlessness triggers anxiety and, that anxiety can worsen breathlessness, can provide insight and improve adherence with recommended therapeutic strategies (4).

Management of chronic dyspnea: The initial evaluation of chronic dyspnea should address the underlying etiology/chronic illness and correct hypoxemia if appropriate. Clinicians should consider whether disease-modifying therapies may improve the patient's quality-of-life (e.g. optimization of COPD; drainage of a malignant effusion, etc) and refer to appropriate specialists if indicated. For many patients, further optimization of the underlying illness is not achievable, and the therapeutic goal must shift to reducing symptom burden and improving the patient's capacity to cope with chronic dyspnea. The following measures should be considered at any stage of disease, not just when life expectancy is short.

Non-pharmacologic management: Multi-disciplinary regimens that integrate disease management, anxiety reduction, emergency contingent planning, self-mastery of breathing mechanics, and exercise training are most effective for chronic dyspnea (5-7). Components of these regimens usually include:

- Pulmonary rehabilitation: a structured 4-8-week program involving physical and/or occupational therapists to provide education, exercise training, and counseling. For patients able to tolerate exercise training, pulmonary rehabilitation has the strongest supporting evidence for reducing chronic dyspnea (8). Its value is unclear for severely debilitated patients in the last months of life.
- Patient education including the psych-social-spiritual impact of the dyspnea-anxiety cycle. This may be delivered in the home or clinic with the aid of trained staff or via self-directed manuals (9-14).
- Energy conservation techniques: reorganizing living spaces to reduce energy expenditure, prioritizing activities within their ability, and utilizing restorative aids such as walkers or canes (12).
- Cognitive behavioral therapy: delivered by trained therapists (9,10).
- Relaxation techniques: diaphragmatic and pursed lip breathing training, guided imagery (see *Fast Fact #221*) meditation, and music therapy (apps and online videos are available) (10,12,13).
- Acupuncture: data are limited due to sample size and blinding issues but suggest a potential role for COPD and cancer (15,16).
- *Oxygen and therapeutic room air:* supplemental oxygen in those with hypoxemia, including high-flow oxygen systems, have been associated with improved symptom control in appropriate patients with COPD and pulmonary fibrosis (see *Fast Fact #330*) (17). Therapeutic air by means of a fan to the face has shown benefit for cancer and COPD patients (18).

Pharmacologic Management: In general, medications should be reserved for intolerable dyspnea that is refractory to non-pharmacologic approaches. They are best viewed as therapeutic adjuncts which, when utilized judiciously, can improve function and quality-of-life long before a patient is nearing death (19).

- Opioids: Oral, subcutaneous, and intravenous opioids have long been regarded as the mainstay of pharmacologic treatment for chronic dyspnea. Multiple studies and systematic reviews have evaluated various short and extended-release opioids for chronic dyspnea. While results are somewhat mixed, opioids appear to be safe and moderately effective at low doses (oral morphine equivalent dose < 30 mg/day) for advanced COPD, interstitial lung disease, and advanced cancer, even when prognosis is anticipated to be several months or years (19-21). Randomized controlled trials in heart failure and pulmonary hypertension have not shown as much benefit (22,23). When utilizing opioids for chronic dyspnea relief, communication is vital to allay concerns amongst the patient, family, and clinicians. Extra caution is warranted in patients with sleep apnea and when concomitantly prescribed with benzodiazepines as increased mortality has been noted (24). Starting at low doses (e.g. short-acting morphine dose of 0.5-2 mg q4 hours as needed), monitoring for effect, and then titrating up at small intervals until the lowest effective dose is identified, allows for confidence that the treatment is safe and effective (25,26). If tolerated, consider a low dose, once daily, long-acting opioid (e.g. morphine ER 15-30 mg/day) (21,26). When prognosis is weeks or less, a more accelerated opioid titration strategy is usually required (*Fast Fact #21*).
- Benzodiazepines: A Cochrane systematic review found no convincing evidence for or against the use of benzodiazepines for chronic dyspnea (27). They have been associated with an increased mortality risk when co-prescribed with opioids (24). Many experts prescribe them for select patients for whom refractory anxiety is a significant component to their symptomatology.
- Antidepressants: Buspirone has not shown benefit in cancer patients with chronic dyspnea (28). One case series suggested that mirtazapine could benefit select patients with chronic dyspnea (29).

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Authors' Affiliations: University of Pittsburgh Medical Center, Division of General Medicine, Section of Palliative Care and Medical Ethics, Pittsburgh, PA

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