Background: Pulmonary hypertension (PH) encompasses a group of illnesses in which pulmonary vascular remodeling occurs due to cardiovascular, pulmonary, or thromboembolic complications. Pulmonary arterial hypertension (PAH), is a subtype of PH, in which the remodeling process is intrinsic to the pulmonary artery (1). This Fast Fact focuses on the unique palliative care aspects of PAH. Not all the content is generalizable to PH which often derives from more reversible medical etiologies.

Disease-Modifying Therapies: While advances in targeted, disease-modifying PAH treatments have contributed to a drastic improvement in 5-year survival (33% in 1991 to 66% in 2017) (2,3), such treatments have a significant impact on quality of life (QOL). Hypotension, nausea, flushing, headaches, and dizziness are common with most PAH therapies. Additional class-specific side effects include (4-9):

- Endothelin receptor antagonists (ERAs): e.g. bosentan, ambrisentan. They are associated with peripheral edema, elevated liver enzymes, and anemia-induced fatigue.
- Phosphodiesterase type 5 inhibitors: e.g. sildenafil. They modulate nitric oxide and are associated with visual impairment, heartburn, and severe hypotension when co-prescribed with nitrates.
- Prostacyclin analogs: They may cause jaw pain, diarrhea, and thrombocytopenia. Furthermore, drug administration can be burdensome. Epoprostenol requires continuous infusion via a central venous catheter. Iloprost requires a specialized inhalation apparatus and often >6 treatments per day.
- Heart-lung transplantation: While many PAH patients are referred for consideration of a potentially curative transplantation, most are ultimately declined as candidates.

Impact of Disease: Despite the improved 5-year survival rate, PAH patients experience comparable physical and emotional symptoms to spinal cord injuries and poorly responsive cancer (10). Generalized symptoms like fatigue, weakness, and social isolation are common, as are right-heart-failure-related symptoms such as chest pain, pre-syncope, shortness of breath, cyanosis, peripheral edema, and abdominal pain (5,10,11). Nearly half of adult patients with PAH note profound deficiency in overall QOL and emotional well-being (12); 15% suffer from major depressive disorder (13).

Supportive Care Interventions: Considering the morbidity from PAH and its treatments, supportive care interventions should occur in parallel with disease modifying therapies, no matter the goals of care.

- Nonpharmacologic: In early stages of PAH, supervised exercise may reduce fatigue and dyspnea (14). Appropriate screening and psychological counseling for depression is imperative (13). Seated positioning, increased air movement to the face via fan or open window, and bedside relaxation techniques have proven benefits for patients with dyspnea (See Fast Fact #27).
- Supplemental oxygen: improves survival and dyspnea but only when oxygen saturation is < 90% (15).
- Pharmacologic: Low-dosed opioids (e.g. morphine 5 mg orally or 2 mg IV or SC) and benzodiazepines (e.g. lorazepam 0.5 mg orally/IV or SC) are commonly used to treat dyspnea and comorbid anxiety, especially when the patient’s goals of care are comfort-focused. However, neither has been studied in a randomized fashion in PAH. IV or SC diuretics (see Fast Fact #353) can treat discomfort from volume overload or fluid retention.

End-of-life (EOL) Decision-Making: There are many facets of PAH medicine which make EOL care challenging. The lack of disease-specific prognostic indicators and physician communication styles which often focus more on disease physiology and available treatments rather than prognosis or patient values likely factor into the relatively high rate of deaths in a hospital setting -- 66% (16-19). It has been estimated that < 1% of PAH patients are evaluated by PC clinicians (16). Fear of losing hope has been reported as a significant barrier to PC consultations and hospice referrals for both PAH clinicians and patients (17). The following pearls may help navigate these challenges:
● Routine implementation of advance care planning done before a PAH patient is nearing EOL which focuses on identifying the patient’s surrogate, care preferences, and how the patient defines a good QOL can foster patient autonomy at the EOL (20).

● To help gain trust, PC clinicians should explore the patient’s lived experience with the illness, symptoms, and symptom-management plan when appropriate before initiating goals of care discussions (21).

● When engaging in goals of care discussions, language such as “I hope…but I am also worried that...” can convey realistic prognostic information and treatment goals in a hopeful manner.

● A pattern of worsening dyspnea, cyanosis, weight loss, frequent hospitalizations, and right heart failure can signal that death is approaching. If appreciated, clinicians should consider involving PC services along with treatment limitations such as do not intubate and do not resuscitate.

● While there are no PAH-specific hospice eligibility criteria, clinicians can appropriate related illnesses such as advanced heart disease or pulmonary disease to document hospice eligibility.

● Nursing homes and hospice agencies are often unable to accept the cost of PAH disease-modifying therapy which can exceed $50,000/year (16). This can create disposition challenges and emotionally wrought decisions to deprescribe PAH pharmacotherapies sooner than patients or families would have chosen (16). Acknowledging emotions, individualizing goals and values, and slowing down the decision-making process to allow for inter-disciplinary input may help mitigate these challenges.

● The prognostic and clinical considerations regarding deprescribing PAH pharmacotherapies at the EOL are complicated and guidelines are limited. Collaboration between pharmacy, pulmonary, PC, and ICU teams is recommended. Fast Fact #264 offers additional guidance on withdrawing prostacyclins.

References:


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