

Palliative Care and Advance Care Planning in Pulmonary Hypertension

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Pulmonary hypertension (PH) is a progressive disease with high associated morbidity and mortality despite the development of novel therapies. Palliative care is a multidisciplinary field focused on optimization of quality of life and overall supportive care for patients and their families in the setting of life-limiting illness. Although the benefits of palliative care in oncology are well described, there are few studies regarding the timing and involvement of palliative care in PH patients. In this paper, we describe the importance of longitudinal advance care planning, including suggestions for addressing difficult topics such as end-of-life care, and the role of palliative care providers in helping guide these discussions throughout the course of the illness.

The pulmonary vascular system is, under normal conditions, designed to be a low-pressure and low-resistance circuit. The diagnosis of pulmonary hypertension (PH) refers to a disease state in which the mean pulmonary artery pressure rises and exceeds 25 mm Hg.¹ By this basic definition PH is an exceedingly common diagnosis as this rise in pulmonary artery pressure can be driven by a wide variety of underlying disease states. For example, in patients with chronic obstructive pulmonary disease (COPD), a disease that affects 7% to 9% of the population,² the incidence of PH has been reported to approach 50%;³ likewise in patients with heart failure with preserved ejection fraction, which affects up to 10% of the aging population,⁴ the incidence of PH approaches 60%.⁵ Although a simple rise in the mean pulmonary artery pressure above 25 mm Hg has been associated with increased morbidity and mortality in many disease states, this basic definition lacks specificity regarding the underlying pathophysiology driving the disease state.

According to the Fifth World Symposium on Pulmonary Hypertension's Nice Clinical Classification system, the

diagnosis of PH encompasses 5 distinct disease groups. Although many of the palliative care concepts addressed in this manuscript could apply to any group, we focus mainly on Group 1 PH or pulmonary arterial hypertension (PAH). This rare disease, with an estimated prevalence of 15 to 150 cases per million,⁶⁻⁸ is characterized by a proliferative vasculopathy specific to the precapillary pulmonary vascular bed that in its purest form occurs independent of parenchymal lung involvement. Although the last 3 decades have seen great strides in pharmacotherapy, which clearly improves quality of life and survival, unfortunately, current available therapies are not curative and many patients are left with persistent symptoms and progression of disease despite treatment.⁹⁻¹¹ The largest registry data available quote 5-year survival rates for prevalent cases at about 65% and incident cases at 61%; however, patients with inadequate response to therapy who remain limited and symptomatic can have 5-year survival that drops well below 50%.¹² Within the last several years the PH community is getting much better at identifying these "high-risk" patients in whom survival is limited despite best available thera-

py.^{10,11,13} It is this population that would most benefit from early engagement with palliative care and the concepts introduced in this manuscript.

Palliative care is a multidisciplinary field that focuses on optimizing quality of life for patients suffering from serious, life-limiting illnesses.¹⁴ Palliative care includes aggressive management of pain and symptoms; psychological, social, and spiritual support; as well as discussions of advance care planning, which may include treatment decision making and complex care coordination.

Since the landmark study by Temel et al,¹⁵ which examined the role and benefits of early involvement of palliative care in advanced cancer, the field has expanded tremendously and numerous subsequent studies have demonstrated the association of palliative care with increased quality of life, decreased symptom burden, decreased health care expenditures, as well as improved caregiver outcomes.¹⁶ While the majority of these studies have been conducted in the oncology population, a growing body of literature examining the role of palliative care within other life-limiting illnesses, including the heart failure population, has demonstrated similar benefits regarding quality of life and symptom burden.¹⁷⁻²⁰

In the 2015 report released by the European Society of Cardiology (ESC)/European Respiratory Society (ERS)

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Joint Task Force for the Diagnosis and Treatment of Pulmonary Hypertension, they acknowledge that, “Pulmonary hypertension is a disease that may be severely life-limiting. In addition to psychological and social support, there should be proactive advanced care planning with referral to specialist palliative care services when appropriate.”²¹ However, the utilization of palliative care in PH patients remains low. Fenstad et al examined the attitudes toward palliative care in patients with PH, as well as their physicians, and identified several barriers including misperceptions regarding palliative care on both the patient and provider side: 24% of respondents believed palliative care was the same thing of hospice, 17% believed that palliative care involvement meant medications for treating PH would be stopped, 10% believed starting palliative care was the equivalent of “giving up” or “dying.”^{22,23}

INTRODUCING PALLIATIVE CARE IN THE PH PATIENT

Figure 1 shows the current model of palliative care involvement in the setting of advanced illness, illustrating the complementary nature of palliative care with the primary specialist.²⁴ At the beginning of the disease course, the goals are still geared toward maximal, life-prolonging treatments and the initial encounters with the palliative care provider may focus on rapport building and basic symptom inventory. As the illness progresses, the availability and/or efficacy of treatments decreases and symptom burden increases, the role of the palliative care provider expands accordingly to encompass aggressive symptom management, psychological and emotional support, further in-depth advance care planning discussions, and transition to end-of-life or hospice care when appropriate.

There are currently no guidelines to direct the timing of palliative care involvement in PH. Ideally, many palliative care groups advocate involvement of palliative care as early in the disease course as possible; however, the scarcity of palliative care providers makes this unrealistic at this time. It is possible to extrapolate some of the common practices used in heart failure programs

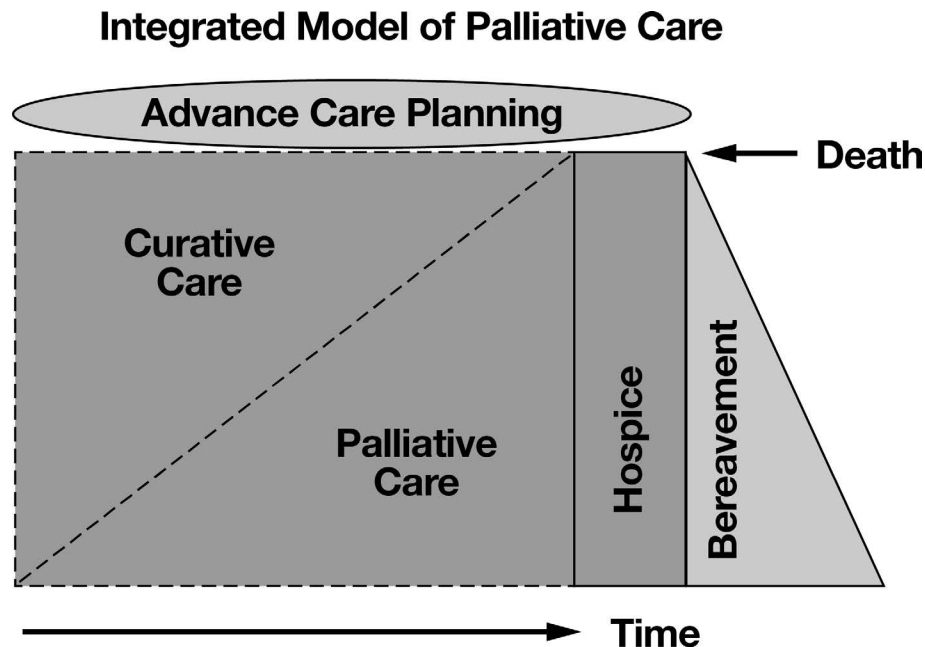


Figure 1: Integrated model of palliative care. Reprinted with permission from: Radwany SM, von Gruenigen VE. Palliative and end-of-life care for patients with ovarian cancer. *Clin Obstet Gynecol.* 2012;55(1):173-184. doi: 10.1097/GRF.0b013e31824b1af1

that utilize palliative care to the PH population.

Table 1 shows the World Health Organization (WHO) classification of functional status of patients with PH, which in many ways mirrors the New York Heart Association (NYHA) functional classification in heart failure.²⁵ Both classifications rely on functional status and symptom burden as their assessment tool and class IV on both scales represents the inability to perform any significant physical activity as well

as signs of dyspnea at rest. It would be reasonable to consider referral to palliative care once a PH patient reaches class IV, or class III for patients with significant serious medical comorbidities, as is done in an increasing number of heart failure practices that have access to palliative care.

It is important to emphasize to both providers and patients that palliative care involvement at this time is a supportive service with the goal of maximizing a patient's quality of life

Table 1. World Health Organization Classification of Functional Status of Patients With Pulmonary Hypertension

| Class | Description |
|-------|---|
| I | Patients with pulmonary hypertension in whom there is no limitation of usual physical activity; ordinary physical activity does not cause increased dyspnea, fatigue, chest pain, or presyncope. |
| II | Patients with pulmonary hypertension who have mild limitation of physical activity. There is no discomfort at rest, but normal physical activity causes increased dyspnea, fatigue, chest pain, or presyncope. |
| III | Patients with pulmonary hypertension who have a marked limitation of physical activity. There is no discomfort at rest, but less than ordinary activity causes increased dyspnea, fatigue, chest pain, or presyncope. |
| IV | Patients with pulmonary hypertension who are unable to perform any physical activity at rest and who may have signs of right ventricular failure. Dyspnea and/or fatigue may be present at rest and symptoms are increased by almost any physical activity. |

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Table 2. Possible Triggers for Palliative Care Involvement in PH Patients

| |
|---|
| •WHO functional status of patients with PH class IV (symptoms of dyspnea and/or fatigue at rest) |
| •Frequent hospital admissions for PH-related symptoms or complications |
| •Concern for poor coping or poor psychosocial support |
| •Multiple serious medical comorbidities (eg, new malignancy) or signs of progressive organ failure (eg, worsening renal function) |

and does not pose any limitations on therapies offered by the provider.

At this point in the disease course, there may be a great deal of prognostic uncertainty with the possibility of improvement with aggressive treatment and extended life span matched by the possibility of a precipitous further decline in functional status and death; therefore, this period offers an ideal window to introduce palliative care with the goals of optimizing the patient's quality of life and addressing more detailed aspects of advance care planning. Table 2 lists several other common “triggers” used to guide palliative care involvement in many medical centers.

ADVANCE CARE PLANNING IN PH

Advance care planning (ACP) can be described as a process of communication between the health care provider and the patient and family/health care proxy for the purpose of identifying and documenting a health care surrogate as well as individualized goals of care near the end of life. Although many physicians report having had ACP discussions with their patients, most of these discussions tend to be limited to designation of a health care proxy and rarely address end-of-life preferences in detail, driven in part by the physician's discomfort at such discussions or their concern about upsetting the patient. In one survey of PH patients only 38% reported having completed an ACP discussion with a loved one and only 14% reported having discussed these issues with their PH physician.

As Figure 1 illustrates, ACP is not a one-time discussion, but a dynamic,

evolving conversation throughout the entire course of the illness with the purpose of enhancing the patient and family understanding of their illness, including prognosis and possible outcomes. It is important to keep in mind that a patient's wishes and goals of care will likely shift frequently depending on a patient's condition; it is not uncommon to have a patient endorse wanting full, aggressive measures at the outset and then change their mind as their condition worsens, only to switch back during a period of improvement. In addition, engagement of the patient's family and/or primary caretaker throughout this entire process is extremely important as they usually have a great deal of input and opinions regarding a patient's treatment goals and will be people responsible for making medical decisions on their behalf, should they become too ill to make their own choices.

At the beginning, these discussions may be limited to basic exploration of the patient's understanding of their disease and designation of a health care power of attorney or proxy. As the disease progresses, as well as symptom burden, it becomes more important to revisit these discussions in a more nuanced fashion, particularly as the treatments become more intensive and the possibility of complications increases. Depending on the disease trajectory, patient preferences regarding specific interventions should be addressed such as dialysis, intubation, long-term intravenous infusions, and their wishes in the setting of serious, long-term disability. Once again, lessons can be learned from the previous experiences of palliative care in heart failure, particularly in the management of mechanical circulatory support (MCS) and left ventricular assist devices (LVAD).²⁶ Similar to many newer treatments for PH, these are advanced interventions that have the possibility of greatly increasing a patient's quality and quantity of life, but that also carry a not-insignificant risk of life-limiting complications, all in the greater context of a progressive, life-limiting illness with significant morbidity and eventual mortality.

Swetz et al^{27,28} discuss the role of “preparedness planning” in MCS,

which they describe as “a process that explores a patient's goals, values, and preferences regarding MCS and other quality-of-life-related outcomes ... and covers more challenges than do typical advance directive discussions.” Many of the topics addressed in this process, as well as much of the language used in these discussions, can be extrapolated onto the PH patient population. Table 3 gives some examples of sample statements that may be used during this process, especially as patients become sicker and begin considering more intensive therapies. These questions range from fundamental issues such as designation of a health care power of attorney to a more in-depth exploration about a patient's views regarding life-sustaining interventions that may become necessary toward the end of the disease course.

As noted previously, only a small percentage of PH patients report having had any form of ACP discussions with their physician. This finding is mirrored in other specialties dealing with life-limiting illnesses including oncology, cardiology, and nephrology.^{29,30} A large part of this low number is driven by the physician's own discomfort at having these conversations. Many physicians report being concerned that discussions centered on disease progression and end-of-life wishes may distress their patients or cause them to “give up,” despite the fact that studies have shown evidence to the contrary^{31,32}; several studies centered on open communication in advanced cancer patients revealed that all patients reported wanting honesty from their providers, as well as some indication of their overall prognosis.^{33,34} Palliative care providers can assist with these conversations as their training focuses on eliciting a patient's own hopes and values and working with the patient to ensure that these values are reflected in their treatment plan, as well as discussing serious prognoses in a frank, yet sensitive manner.³⁵ Introducing palliative care into a patient's care team earlier in the course of an illness (as opposed to the older model of utilizing palliative care only at the very end of a patient's life) can allow for greater rapport building and ability to hold these conversations over

Table 3. Sample Statements for Preparedness Planning in Advanced Pulmonary Hypertension

| Measure to Be Considered | Sample Statement |
|--------------------------------------|---|
| Goals/expectations | "What do you hope to achieve by starting this treatment?" |
| | "What are some things you look forward to doing after starting this treatment?" |
| Continuous infusions | "We may start medications that might make you feel better, which will require a continuous intravenous infusion. Is this something you would be okay with?" |
| | "At some point, these medications may stop giving any benefit and we may recommend discontinuing them. How do you feel about this?" |
| Mechanical ventilation | "If your lungs and breathing did not get better after you received this treatment and you needed to be on a breathing machine/ventilator long term, how do you feel about this?" |
| Nursing home/long-term care facility | "How would you feel if you needed to go to a nursing home or a long-term care facility for an extended period of time, possibly for the rest of your life?" |
| Quality of life | "Can you describe the quality of life you are hoping for?" |
| | "Is there a quality of life you would consider unacceptable?" |
| Health care power of attorney | "At some point, there may come a period of time when you may be unable to make your own health care decisions. Who should we ask to make decisions on your behalf if you cannot make them for yourself? Have you spoken with them about your wishes?" |

Adapted from Swetz KM, Kamal AH, Matlock DD, et al. Preparedness planning before mechanical circulatory support: a "how-to" guide for palliative medicine clinicians. *J Pain Symptom Manage*. 2014;47(5):926-935, with permission from Elsevier.

a longer period of time, in addition to maximizing a patient's quality of life through increased symptom control and supportive care.

CONCLUSION

Despite substantial progress and the development of new treatments, PAH remains a rapidly progressive disease with a poor outcome. Referral with palliative care specialists is uncommon in the care of PAH patients. However, early collaboration with palliative care providers may offer substantial benefits to patients and their families by providing an opportunity for patients to make health care decisions and plans before disease progression. Further study is needed to determine the optimal role of palliative care providers in the management of PAH patients.

References

- Hoepfer MM, Bogaard HJ, Condliffe R, et al. Definitions and diagnosis of pulmonary hypertension. *J Am Coll Cardiol*. 2013;62(25 Suppl):D42-D50.
- Landis SH, Muellerova H, Mannino DM, et al. Continuing to Confront COPD International Patient Survey: methods, COPD prevalence, and disease burden in 2012-2013. *Int J Chron Obstruct Pulmon Dis*. 2014;9:597-611.
- Cuttica MJ, Kalhan R, Shlobin OA, et al. Categorization and impact of pulmonary hypertension in patients with advanced COPD. *Respir Med*. 2010;104(12):1877-1882.
- Dunlay SM, Roger VL, Redfield MM. Epidemiology of heart failure with preserved ejection fraction. *Nat Rev Cardiol*. 2017;14(10):591-602.
- Guazzi M, Naeije R. Pulmonary Hypertension in Heart Failure: Pathophysiology, Pathobiology, and Emerging Clinical Perspectives. *J Am Coll Cardiol*. 2017;69(13):1718-1734.
- Peacock AJ, Murphy NF, McMurray JJ, Caballero L, Stewart S. An epidemiological study of pulmonary arterial hypertension. *Eur Respir J*. 2007;30(1):104-109.
- Humbert M, Sitbon O, Chaouat A, et al. Pulmonary arterial hypertension in France: results from a national registry. *Am J Respir Crit Care Med*. 2006;173(9):1023-1030.
- Ling Y, Johnson M, Kiely DG, et al. Changing demographics, epidemiology, and survival of incident pulmonary arterial hypertension: results from the pulmonary hypertension registry of the United Kingdom and Ireland. *Am J Respir Crit Care Med*. 2012;186(8):790-796.
- van de Veerdonk MC, Kind T, Marcus JT, et al. Progressive right ventricular dysfunction in patients with pulmonary arterial hypertension responding to therapy. *J Am Coll Cardiol*. 2011;58(24):2511-2519.
- Boucly A, Chaouat A, Chabanne C, et al. Risk assessment, prognosis and guideline implementation in pulmonary arterial hypertension. *Eur Respir J*. 2017;50(2).
- Hoepfer MM, Kramer T, Pan Z, et al. Mortality in pulmonary arterial hypertension: prediction by the 2015 European pulmonary hypertension guidelines risk stratification model. *Eur Respir J*. 2017;50(2).
- Farber HW, Miller DP, Poms AD, et al. Five-Year outcomes of patients enrolled in the REVEAL Registry. *Chest*. 2015;148(4):1043-1054.
- Kylhammar D, Kjellstrom B, Hjalmarsson C, et al; SveFPH and SPAHR. A comprehensive risk stratification at early follow-up determines prognosis in pulmonary arterial hypertension. *Eur Heart J*. 2017 Jun 1. [Epub ahead of print]
- Morrison RS, Meier DE. Clinical practice. Palliative care. *N Engl J Med*. 2004;350(25):2582-2590.
- Temel JS, Greer JA, Muzikansky A, et al. Early palliative care for patients with metastatic non-small lung cancer. *N Engl J Med*. 2010;363(8):733-742.
- Gillick MR. Rethinking the central dogma of palliative care. *J Palliat Med*. 2005;8(5):909-913.
- Goodlin SJ. Palliative care in congestive heart failure. *J Am Coll Cardiol*. 2009;54(5):386-396.
- Kavalieratos D, Gelfman LP, Tycon LE, et al. Palliative Care in Heart Failure: Rationale, Evidence, and Future Priorities. *J Am Coll Cardiol*. 2017;70(15):1919-1930.
- Mentz RJ, Tulskey JA, Granger BB, et al. The palliative care in heart failure trial: rationale and design. *Am Heart J*. 2014;168(5):645-651.
- Rogers JG, Patel CB, Mentz RJ, et al. Palliative care in heart failure: The PAL-HF randomized, controlled clinical trial. *J Am Coll Cardiol*. 2017;(3):331-341.
- Galie N, Humbert M, Vachiery JL, et al; ESC Scientific Document Group. 2015 ESC/ERS Guidelines for the diagnosis and treatment of pulmonary hypertension: The Joint Task Force for the Diagnosis and Treatment of Pulmonary Hypertension of the European Society of Cardiology (ESC) and the European Respiratory Society (ERS): Endorsed by: Association for European Paediatric and Congenital Cardiology (AEPC), International Society for Heart and Lung Transplantation (ISHLT). *Eur Heart J*. 2016;37(1):67-119.
- Fenstad ER, Shanafelt TD, Sloan JA, et al. Physician attitudes toward palliative care for patients with pulmonary hypertension. *Pulm Circ*. 2014;4(3):504-510.
- Swetz KM, Shanafelt TD, Drozdowicz LB, et al. Symptom burden, quality of life, and attitudes toward palliative care in patients with pulmonary arterial hypertension: results from

- a cross-sectional patient survey. *J Heart Lung Transplant*. 2012;31(10):1102-1108.
24. Radwany SM, von Gruenigen VE. Palliative and end-of-life care for patients with ovarian cancer. *Clin Obstet Gynecol*. 2012;55(1):173-184.
 25. Barst RJ, McGoon M, Torbicki A, et al. Diagnosis and differential assessment of pulmonary arterial hypertension. *J Am Coll Cardiol*. 2004;43(12 Suppl S):40S-47S.
 26. Wordingham SE, McIlvennan CK, Fendler TJ, et al. Palliative care clinicians caring for patients before and after continuous flow-left ventricular assist device. *J Pain Symptom Manage*. 2017;54(4):601-608.
 27. Swetz KM, Kamal AH, Matlock DD, et al. Preparedness planning before mechanical circulatory support: a “how-to” guide for palliative medicine clinicians. *J Pain Symptom Manage*. 2014;47(5):926-935.
 28. Verdoorn BP, Luckhardt AJ, Wordingham SE, Dunlay SM, Swetz KM. Palliative medicine and preparedness planning for patients receiving left ventricular assist device as destination therapy – challenges to measuring impact and change in institutional culture. *J Pain Symptom Manage*. 2017;54(2):231-236.
 29. Rak A, Raina R, Suh TT, et al. Palliative care for patients with end-stage renal disease: approach to treatment that aims to improve quality of life and relieve suffering for patients (and families) with chronic illnesses. *Clin Kidney J*. 2017;10(1):68-73.
 30. Schmidt RJ. Advance care planning for patients approaching end-stage kidney disease. *Semin Nephrol*. 2017;37(2):173-180.
 31. Heyland DK, Trammer J, Feldman-Stewart D. End-of-life decision making in the seriously ill hospitalized patient: an organizing framework and results of a preliminary study. *J Palliat Care*. 2000;16 Suppl:S31-S39.
 32. Hofmann JC, Wenger NS, Davis RB, et al. Patient preferences for communication with physicians about end-of-life decisions. SUPPORT Investigators. Study to Understand Prognosis and Preference for Outcomes and Risks of Treatment. *Ann Intern Med*. 1997;127(1):1-12.
 33. Buiting HM, Rurup ML, Wijsbek H, van Zuylen L, den Hartogh G. Understanding provision of chemotherapy to patients with end stage cancer: qualitative interview study. *BMJ*. 2011;342:d1933.
 34. Lamont EB, Christakis NA. Prognostic disclosure to patients with cancer near the end of life. *Ann Intern Med*. 2001;134(12):1096-1105.
 35. Rietjens JAC, Sudore RL, Connolly M, et al; European Association for Palliative Care. Definition and recommendations for advance care planning: an international consensus supported by the European Association for Palliative Care. *Lancet Oncol*. 2017;18(9):e543-e551.