The Annenberg Academy for Team-Based Care

Interprofessional Care of Patients with Pulmonary Arterial Hypertension

MANAGING PATIENTS WITH OBESITY: KEY CONCEPTS

A chronic, progressive disease that causes ongoing pulmonary vascular remodeling, pulmonary arterial hypertension (PAH) causes substantial patient burden beginning with significant diagnostic delay and declining physical function.[1] Combination therapy with targeted agents is now recommended beginning at the time of diagnosis.

Key concepts to keep in mind when managing patients with pulmonary arterial hypertension are:

- Pulmonary vascular remodeling leads to right-sided cardiac hypertrophy and eventual ventricular failure.[2]
- A right heart catheterization is essential for the diagnosis of pulmonary hypertension. The diagnosis is met with mean pulmonary artery pressure >20 mmHg and peripheral vascular resistance >2 wood units.[1,3]
- Patient-specific risk stratification and the presence of cardiopulmonary comorbidities guide the initial selection of treatment. A three strata model for risk stratification is recommended at the time of diagnosis, and a four strata model is recommended during follow-up evaluation.[1,4-6]
- The goal of treatment is to improve patients' exercise capacity, symptoms, quality of life, and survival and prevent disease progression. An additional goal is to achieve and maintain a low-risk profile on optimized medical therapy.[1]
- Pathway-specific treatments are:
  - Phosphodiesterase-5 inhibitor: sildenafil, tadalafil
  - Prostacyclin analog: epoprostenol, treprostinil
  - Prostacyclin receptor agonist: selexipag
  - Soluble guanylate cyclase agonist: riociguat
  - Endothelin receptor antagonist: ambrisentan, bosentan, macitentan
  - Activin signaling inhibitor: sotatercept
- Combination therapy is associated with improved outcomes compared to monotherapy and is indicated for initial treatment.[1,7,8]
- Treatment escalation is based on guideline-directed risk assessment in discussion with the patient.[1,9]
- Sotatercept is an effective escalation therapy in patients receiving maximum tolerated background therapy.[10-12]
- Individualized treatment of patients with PAH should include patient-specific goals; phenotype and genotype evaluation(s) may serve a role in personalization.
- An interprofessional, multidisciplinary approach is vital for the optimization and improvement of disease management in PH.[1]

INTERPROFESSIONAL COLLABORATION: PRINCIPLES

For the evolution in treatment to be of optimal benefit to patients, comprehensive strategies for choosing, delivering, monitoring, and modifying therapy have become especially important. As a consequence, care is typically provided by an interprofessional, multidisciplinary care team that extends beyond physicians to include nurses, nurse practitioners, pharmacists, physician associates, social workers, and others, often involving collaboration between providers in community and academic settings.

To that end, the following reflects a conversation among 3 healthcare professionals about interprofessional care and how collaborative practices and teams can strengthen our health systems.

Christopher Flores, MD: In medical school, I was taught that the patient-doctor relationship was the most critical and important dynamic in healthcare. But after 30-plus years in clinical care, I can attest that healthcare is a team sport and we deliver care in teams of individuals with different training, different skills, different talents. And we teach each other, we learn from each other, we brainstorm and solve problems to meet the needs of the patient.

I want to make a point that interprofessional refers to clinicians in different professions, such as nurses, nurse practitioners, pharmacists, physicians, and physician associates. Multidisciplinary refers to clinicians in different specialties or sub-specialties, such as cardiology, dermatology, and oncology. LaTosha, do you want to talk about interprofessional collaboration?

LaTosha Mollette, DNP: The World Health Organization defines interprofessional collaboration as when multiple healthcare workers from various backgrounds work together with patients, families, and communities to provide the best healthcare possible.[13] This is exactly what teamwork should look like, but it is important to remember that healthcare teams can vary from patient to patient.

I work in a rural setting, working together with various healthcare professionals to improve access to needed healthcare services, which helps to prevent unnecessary delays in care and treatment. Ultimately, working together as a team helps to meet the needs of others to improve health outcomes, patient care, and safety.

Christopher Flores, MD: I think all of us in healthcare are trying to figure out how to do things better, make life easier for ourselves, and make everybody happier, patients, our staff, and ourselves, to make things more sustainable. Interprofessional collaboration can accomplish this. There's a growing body of literature that shows that interprofessional collaboration can improve patient outcomes, acceptance of treatment, and satisfaction.[14-17] It can decrease costs, improve efficiency, reduce disparities, improve health equity, and make things more sustainable for providers.[14,18-25]

The Interprofessional Education Collaborative has identified 4 behavioral competencies for effective interprofessional collaboration: 1) roles and responsibilities; 2) values and ethics; 3) communication; and 4) teams and teamwork.[26] Michael, do you want to talk a little bit about the roles and responsibilities?

Michael Smith, PharmD: Certainly, it's one of these things that we don't often think about, but it's important for 2 reasons. One, understanding our own responsibility and roles that we have within our team and what our teammates can expect from us in terms of what we can deliver to them and deliver to patients.[26] The other is understanding what your team can do for you as well, so that you understand their educational background and you can help them practice at the top of their license by utilizing their skillset to the fullest extent.

It is increasingly common for clinicians, even those within a profession, to take different educational and practice paths leading to clinical practice. As an example, there are various differences in training a pharmacist. Nowadays, all pharmacists graduate with a Doctor of Pharmacy degree (PharmD), but some of us have done 1 or 2 years of residency training or postdoc fellowships. So, getting to know your teammates and what you can expect from them and what they can expect from you can really help your team function at a high level.

Christopher Flores, MD: We talk about values and ethics as well.[26] In medicine, we're constantly required to make very difficult and complicated treatment decisions for our patients. We really are missing a great opportunity if we don't involve the opinions of all the members of our team. What does the nurse think about this plan or what does the social worker who has talked to the family members think about this plan? Or what does the physical therapist think, who has been working with the patient for the last 3 days? LaTosha, what do you think about communication?

LaTosha Mollette, DNP: Communication is essential in everything we do, and it's how we're able to effectively achieve goals, as well as improve relationships and interactions with others.[26] The healthcare system is often described as being fragmented with little communication and collaboration, but when healthcare professionals communicate responsibly and respectfully, this allows them to overcome differences and work together to accomplish a shared goal, including learning from each other, to better improve patient outcomes and safety.[19,27-29]

Christopher Flores, MD: We're talking a lot about teams and teamwork. Michael, do you have any other points you want to make about teamwork?

Michael Smith, PharmD: Most of us are members of various teams during the course of a typical day. Think about the team members that you work with to take care of patients, but also think about a team from a networking standpoint. Do you have a network of like colleagues? As an example, other pharmacists in our healthcare system may reach out to me for advice about a patient with pain, whether or not I'm actually seeing the patient. We can make our team small, we can make them big, but we should be making our teams in ways that everybody's functioning at a high level and putting the patient at the center of the team.

Christopher Flores, MD: Michael, LaTosha talked about the fragmented healthcare system and how interprofessional collaboration can help with that. Do you have any examples from your experience?

Michael Smith, PharmD: Think about the patient's experience through our healthcare system. Even if a patient receives all of their healthcare within 1 system, they often have to travel to many different places just to access care. From a primary care clinic to a hospital, to a specialty clinic, to a pharmacy. We can fill these gaps by using our interprofessional framework, our education, and allowing our collaborative practice teammates to step in and fill that.

Christopher Flores, MD: In conclusion, I just want to summarize that medicine is a team sport and that there is a growing body of evidence that supports the various benefits of interprofessional collaboration. LaTosha, Michael, do you have any final thoughts?

LaTosha Mollette, DNP: I think just being willing to change is crucial. I think sometimes we have become complacent in clinical practice, but our healthcare system is ever evolving. So, learning how to be a team player always benefits everyone involved.

Michael Smith, PharmD: I've learned a great deal from my interprofessional colleagues, and I hope that I've helped them learn as well, with the ultimate goal of really improving patient care.

INTERPROFESSIONAL CARE OF PATIENTS WITH PULMONARY ARTERIAL HYPERTENSION

As identified by the European Society of Cardiology/European Respiratory Society, "the complexity of managing PAH requires a multifaceted, holistic, and multidisciplinary approach, with active involvement of patients with PAH in partnership with clinicians.[1] Despite this recommendation, the care of patients with pulmonary hypertension is highly variable. A recent analysis of interviews across 7 non-expert Veterans Administration hospitals showed wide variability in how the care of persons with pulmonary hypertension was organized.[30] Variations were observed in the availability of relevant clinical expertise, multidisciplinary approach to care, and establishment of clear referral pathways. Three areas of unmet need not directly addressed within current guidelines also were identified, including need for better integration of pharmacists into multidisciplinary care teams, early and routine involvement of palliative care, and improved care coordination.

Care coordination is especially important, both among the institutional-based clinicians and family, as well as ancillary services such as home care nursing services and rehabilitation specialists. Home care services are important not only to bridge the transition from hospital to home, but also to support the needs of patients to understand, manage, and monitor therapies while at home. Providing ongoing assessment of disease burden and quality of life is another key role for home care services.

The potential benefits of a multidisciplinary care approach to patients with pulmonary hypertension were recently investigated in a retrospective analysis. The analysis compared the health outcomes of patients with chronic thromboembolic pulmonary hypertension prior to (group A) vs after (group B) implementation of a multidisciplinary care team at Cleveland Clinic.[31] The multidisciplinary care team, which consisted of cardiothoracic surgeons, pulmonary hypertension specialists, interventional radiologists, vascular medicine specialists, and others, met weekly. The goal was to ensure that a correct diagnosis had been established and to tailor optimal treatment for each patient, including surgery, endovascular intervention, and/or medical therapy. Baseline demographics and hemodynamic profiles were similar between the 2 groups; however, patients in group A had more severe right ventricular dysfunction, while patients in group B were more likely to undergo concomitant tricuspid valve repair. Following surgery, patients in group B had significantly lower in-hospital mortality (2.9% vs 12%) with less morbidity, less prolonged ventilation (32% vs 59%), less need for dialysis (1.6% vs 21%), shorter length of hospital stay (16 days vs 21 days), and greater survival at 6 years (88% vs 70%). Overall, multidisciplinary care resulted in more complete resolution of pulmonary hypertension and improved overall survival.

The composition and roles of an (interprofessional) multidisciplinary care team developed by a specialized center in Australia are shown below.[32]

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Discipline/Profession	Role
Team coordinator	Organization of resources, administration meetings and educational sessions
Pulmonology	Diagnostic evaluation; medical treatment; patient and family education; staff and trainee education; research; program evaluation
Cardiology	
Rheumatology	
Nurse	Assessment and provision of care needs; support and education for patients and families
Physiotherapy	Assessment of exercise capacity. Guidance related to exercise programs for appropriate patients
Social work	Emotional adjustment and counseling for patients and families; assessment of resources required; referral to appropriate community agencies; patient and family planning
Dietitian	Assessment of nutritional status and requirements; implementation of appropriate diet plan; patient and family education
Pharmacist	Consultation for matters relating to drug therapy; patient and family education
Rehabilitation	Assessment of impairment and disability; patient and family education
Radiology	Diagnostic evaluation; echocardiography
Transplantation	Patient evaluation, surgical and medical treatment; patient and family education

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