ASK THE EXPERT

What Is the Exercise "Prescription" That You Provide to Your Patients?

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There is no single exercise prescription for all pulmonary arterial hypertension (PAH) patients, both because of the uniqueness of each individual patient's disease state and because the experts do not understand the full multifaceted impact of PAH. The challenge does not end with the development of an effective exercise program because getting anyone to start and maintain an exercise program is difficult, much less PAH patients who can struggle with simple day-to-day activities. However, I believe PAH patients, like other patients, benefit from an appropriately tailored exercise regimen as part of a holistic approach to improving physical and mental health.

As far back as the ancient world, Hippocrates and Galen understood that exercise is a necessary part of overall health. Hippocrates wrote, "Eating alone will not keep a man well; he must also take exercise. For food and exercise. . . work together to produce health."[1] Unfortunately, with our increased understanding of how to manipulate the body with medications and treatments, some of the original focus on holistic well-being has faded, and Western medicine has become more focused on "sick care" versus "health care." I believe integrating exercise into a treatment plan helps put the focus back on wellbeing.

While our understanding regarding PAH has improved dramatically, including the development of many new therapeutic options, the true impact of PAH has not been adequately quantified nor optimally addressed. The general conclusion among surveys is that the clinical definition of the severity of disease appropriately includes symptomatology, exercise capacity, biomarkers, invasive and noninvasive haemodynamic measurements, and survival.[2] However, even these parameters do not capture the complexity and the interconnectedness of physical, emotional, and psychosocial issues which affect patients and their caregivers.[2] Accordingly, practitioners are faced with the challenge of creating an exercise plan without clear established clinical guidance.

That said, recently, more attention has been paid to health-related quality of life (HRQoL) in PAH patients and how a multidimensional approach to patient care and treatment may improve prognosis. This approach takes into account the individual patient's perspective regarding their disease and the impact it has on their life. A patient-centered collaborative care approach to provide optimal care must be multifaceted in order to address the physical, psychological, social, and informational needs of patients and caregivers, alongside their clinical needs.[2] I believe an important aspect of this multidimensional approach includes exercise.

Unfortunately, exercise, even for healthy individuals, can be daunting and conjures up thoughts of dread and procrastination: running the mile in physical education class as a child, images of CrossFit athletes flipping truck tires, or unfulfilled New Year's resolutions. Now imagine prescribing exercise to patients with PAH who have difficulty doing their daily activities. As such, one of the first responsibilities of practitioners is to destigmatize the word exercise and strip away its traditional connotations. Exercise is simply any bodily activity that enhances or maintains physical fitness and overall health.

Adding to the difficulties addressed above, many PAH patients receive misinformation regarding their own health, ability, and prognosis. I often hear: "I was told not to exert myself because it could cause my heart to fail." Previously, PAH patients had been advised against strenuous exercise for concern over possible risk of sudden cardiac death, increased pulmonary remodeling related to the sheer stress of activity, and worsening of right heart failure.[3]

It is true that any exercise "prescription" should begin with a discussion that includes advising against excessive physical activity that could lead to exacerbation of symptoms and that, prior to initiating a supervised exercise program, the patient should be treated with the optimal pharmacological therapy and be in a stable clinical condition, but once those safeguards are in place, it is recommended that patients should be advised to remain active within symptom limits.[4] In fact, several randomized controlled trials (RCTs) have demonstrated the improvement in functional capacity as well as QoL in patients with PAH. Recent RCT publications indicate decreased fatigue severity and improved 6-minute walk distance, cardiorespiratory function, and patient-reported QoL when compared to untrained controls.[3,5,6] Additionally, the most recent

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American College of Clinical Pharmacy PH guidelines suggest that patients with PAH should be involved in some type of supervised exercise as part of the integrated care for their disease as an ungraded consensus-based statement.[7]

Unfortunately, the evidence currently available regarding rehabilitation and exercise among patients living with PAH lacks any specific exercise program. The European Society of Cardiology/European Respiratory Society 2015 guidelines note that their recommendation is limited due to gaps in the knowledge of an optimal exercise program and the intensity or duration of exercise.[8] However, throughout the guidelines, it is clear that exercise should be part of a PAH patient's care plan with appropriate guidance on how to manage individual physical limitations and symptoms.

Due to the lack of data in the area of rehabilitation, the amount of supervision, mechanisms for the improvement of symptoms, exercise and functional capacity, and possible effects on prognosis are unclear.[8] However, in many ways, this lack of clarity allows for each treating expert and center, in collaboration with the individual patient, to devise an appropriate care plan for each patient. Given the uniqueness of each patient, this flexibility may actually improve the chance of successfully tailoring an exercise program.

In summary, the most recent guidelines recommend exercise/rehabilitation for PAH patients. Accordingly, when prescribing an exercise program, I address risks, seek to ensure a stable clinical condition and environment, and educate my patients on the positive results of exercise in all people and specifically in PAH patients. We discuss the multidimensional approach that we will take together to focus on all aspects of the disease and wellbeing. I encourage and enroll my patients in rehabilitation after diagnosis and initiation of appropriate therapies and control of their disease for a further tiered approach to their overall treatment. In close collaboration with our rehabilitation program, we devise a low workload exercise protocol and focus on further education and understanding of their disease and abilities. I have found that, not only does this improve my PAH patients' exercise tolerance, but they achieve an improved sense of physical and mental wellbeing.

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