EDITOR'S MEMO

Kidney and Liver Transplant and Pulmonary Hypertension: Navigating Through the Obstacle Course

Facing the news of needing kidney or liver transplant is a daunting prospect that many of our patients face. Indeed, according to the latest census by the Organ Procurement Transplant Network (OPTN) database, there are 15,841 patients on the waiting list for liver transplant and 97,511 for the kidney transplant. Among these, 6,256 liver and 16,485 kidney transplants were performed in U.S. in 2012. For those with end stage liver and kidney disease, transplant offers a second chance at life.

So being told by your physician that your echocardiogram shows pulmonary hypertension and that evaluation has to be on hold until further input can be obtained is devastating news. This is how patients are often referred to us, in the midst of confusion and dread hoping that we will be able to tell them that "all is well" and that they can proceed with the transplant that they desperately need. As any clinician who has been consulted for this reason can attest, this is a very difficult situation. On one hand, you do not wish to take away the chance for a life-saving measure but you also wish to avoid the prospect of a poor outcome for your patient as well as wasting a valuable resource.

Having experienced this difficult dilemma many times myself, it is my sincere pleasure to present to you this issue which focuses on evaluating and managing patients with portopulmonary hypertension and end stage kidney disease with PH who require a transplant. I am very grateful to our Guest Editors, Dr. Charles Burger and Dr. Paul Forfia, who have assembled a renowned group of experts to help answer the difficult questions that often arise such as: how do you manage patients with portopulmonary hypertension who have elevated pulmonary artery pressure and yet, normal pulmonary vascular resistance? how do you interpret hemodynamics in patients on hemodialysis with fistula? These questions and much more are discussed in the articles with lively and compelling dialogue in the Roundtable section.

I sincerely hope that you find this issue helpful the next time you are asked "I think this patient has PH. Can they undergo transplant?"

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GUEST EDITOR'S MEMO

We are excited about the current issue of *Advances,* as the authors have done an excellent job reviewing the challenges faced by patients with pulmonary hypertension (PH) in the setting of end-stage hepatic or renal disease. The selection of this topic is a result of the many challenges presented by these patient types, but also the need to contrast the differences between the 2 disease states—not only for our PH community but also for our transplant colleagues. The 4 primary articles have been designated to review the pretransplant evaluation and care of each disease state, followed by a review of the peri- and postoperative management, respectively.

Determination of the exact cause of the PH in patients with liver disease is critical, as the clinical implications and approach to treatment vary with the etiology. Drs Cartin-Ceba and Krowka have produced an outstanding update for the pretransplant evaluation, emphasizing an algorithmic approach and utilizing screening echocardiogram with diagnostic right heart catheterization. The priority is to maximize the patient's opportunity for safe transplantation; therefore, goal-directed pharmacological treatment for portopulmonary hypertension is reviewed. The immediate perioperative and postoperative care of portopulmonary hypertension can be equally if not more challenging and is nicely reviewed by Dr Diaz-Gomez and his colleagues. A multidisciplinary team approach to care, utilization of bedside and intraoperative echocardiography, and current treatment experience are emphasized.

It is equally important to determine the cause of PH in patients with chronic kidney disease, as the implications, interventions, and impact of PH on transplant candidacy varies considerably. Simply diagnosing a patient with "pulmonary hypertension" does not suffice, as this diagnosis does not provide nearly sufficient detail to appropriately address patient management and transplant candidacy. Dr Raina provides an excellent discussion on the approach to patients with PH and chronic kidney disease based on noninvasive assessment, with an emphasis on how to optimally use the echo-Doppler examination to determine the hemodynamic basis of the PH reliably and prior to invasive evaluation. Dr Tedford explores the invasive hemodynamic evaluation of the patient with PH and chronic kidney disease, with a sophisticated discussion of PH hemodynamics and how to consider unique aspects of PH in this setting, ie, the role of an arteriovenous fistula in a patient with PH and end-stage renal disease.

In both the liver and renal disease articles, the authors appropriately emphasize the importance of the combined assessment of pulmonary vascular load (ie, pulmonary vascular resistance) and right heart function in order to gain the most insight into the impact of PH on any individual patient. We hope that this series of articles provides perspective and practical information about PH in the setting of advanced liver and kidney disease so that providers may be better informed on how to approach these complex patients.

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