



ARTICLE OF THE MONTH

Sandal S, Chen T, Cantarovich M. The Challenges with Cardiac Evaluation of Liver and Kidney Transplant Candidates. *Transplantation*. 2020; 104 (2): 251-258

Abstract:

“Cardiovascular events are among the leading cause of mortality in kidney and liver transplant recipients. Thus, screening for cardiovascular disease and risk stratification for cardiovascular events constitute an important part of the pretransplant evaluation. In this review, we first summarize current guidelines in the cardiac risk assessment of kidney and liver transplant candidates. We then elaborate on the limitations of these guidelines, summarize the current knowledge gaps, and narrow down a spectrum of 6 themes that serve as challenges to research and practice development. This spectrum pertains to understanding the disease itself, which is challenging due to the altered cardiac physiology in these patients and current guidelines that do not adequately account for nonischemic diseases and events. We then describe the challenges in assessing these patients, their symptoms, and individualizing their risk of cardiovascular events with a special consideration for nontraditional risk factors. We also explore the limitations of the current and novel diagnostic tests and the lack of evidence of therapeutic efficacy in intervening in patients with asymptomatic disease. The transplant procedure itself can be a potential modifiable risk factor for cardiovascular events, that is, surgical technique, type of donor, and induction immunosuppression. Lastly, we describe the potential issues with the current literature when defining cardiac diseases and events across different studies and shortcomings of extrapolating data from the nontransplant literature. We conclude by proposing research and practice implications of our discussion and that there is a need for evidence to guide the revision of current guidelines.”

COMMENTS MADE BY CROUCH, CARA MD

Summary:

This article was chosen from the most recent issue of *Transplantation* to foster discussion of pre-operative cardiac evaluation of transplant candidates. This article reviews the different recommendations for pre-operative evaluation of patients who are kidney or liver transplant candidates. The authors correctly point out the “significant variability” in clinical practice by summarizing the current guidelines that are in place and highlighting the lack of consensus among them. For instance, the three major guidelines for cardiac risk stratification in liver transplant

candidates all agree that every patient should have an echocardiogram, however, only one states that all patients should also have a stress echocardiogram with the remaining two guidelines recommending noninvasive stress testing only in the presence of risk factors.

The authors point out that most guidelines focus on screening for atherosclerotic disease and potential ischemic heart disease; however, not all cardiovascular events are solely related to this disease process. The authors remind us that the presence of pulmonary hypertension, dysrhythmias and overt heart failure are also contributory to post-operative morbidity and mortality. The ability to screen for non-ischemic disease is often ancillary to the evaluation of potential coronary artery disease. In reviewing therapy for cardiac disease, the authors point out that some treatment strategies for obstructive coronary artery disease have not reduced post-transplant mortality. They also highlight the prevalence of coronary thrombus from hypercoagulability in liver transplant recipients; this etiology is obviously difficult to screen for and prevent.

The authors shed light on some issues that may be contributing to the lack of consensus on this topic including the lack of defined outcomes. Despite “major adverse cardiac event” being a commonly measured outcome in many studies evaluating risk stratification, there is still no standardized definition of these “events.” Balancing the risks and benefits of invasive cardiac testing while attempting to reduce post-operative cardiac events is an issue that is expected to dominate patient selection discussions for the foreseeable future. More research is needed in order to identify the most optimal evaluation for standard transplant candidates.

References:

1. Sandal S, Chen T, Cantarovich M. The Challenges with Cardiac Evaluation of Liver and Kidney Transplant Candidates. *Transplantation*. 2020; 104 (2): 251-258

Please email Library@transplantanesthesia.org with future article suggestions!