

Protecting the hearts of those waiting for kidney and liver transplants

July 12 2012

As thousands of Americans await a life-saving kidney or liver transplant, medical teams are paying close attention to another organ: their hearts.

This month the [American Heart Association](#) attempts to bring harmony to the varied cardiac evaluation policies created at U.S. hospitals that assess a patient's overall health before transplant surgery.

Approximately 85,000 people are on the waiting list for a [kidney transplant](#) and 16,000 are waiting for a liver. It's not unusual for these transplant candidates to be well over age 50 and at increased risk for heart disease.

The AHA statement, co-sponsored by the American College of Cardiology Foundation, was published online ahead of print in *Circulation* and the [Journal of the American College of Cardiology](#).

"Conducting clinically and cost-effective cardiac evaluation among patients being considered for kidney and [liver transplantation](#) is challenging due to the large size of these target populations which face high cardiac [disease prevalence](#), the organ shortage which raises concerns for fairness and utility in transplantation, and the often extended periods between initial evaluation and transplant surgery," says working group co-chair Krista L. Lentine, M.D., associate professor of medicine at Saint Louis University Center for Outcomes Research and Department of Medicine/Division of Nephrology.

Working group co-chair Salvatore P. Costa, M.D., assistant professor of cardiology at Dartmouth-Hitchcock Medical School, chair of the working group Kim A. Eagle, M.D., professor of cardiology at the University of Michigan, and colleagues extensively reviewed data regarding cardiac evaluation in [kidney transplantation](#) and liver transplantation.

The resulting Scientific Statement considers topics such as the evidence regarding noninvasive stress testing in asymptomatic transplantation candidates, use of supplemental testing including echocardiography and cardiac biomarkers, coronary revascularization and related care before transplantation, and medical management of cardiovascular risk factors before, during and after transplant.

Ten things to know about cardiac evaluation in kidney and liver transplantation candidates

"Adaptation of these guidelines will likely improve uniformity of care across centers and minimize testing of limited value," Christopher deFilipi, M.D., associate professor of medicine at the University of Maryland, writes in an editorial about the statement. "Cohesion of cardiac pre-operative risk assessment and management across centers can't be understated with many transplant candidates seeking listing at multiple centers to potentially improve their chance of transplantation.

"Currently, these patients are often faced with divergent opinions and conflicting requests for pre-operative cardiac testing ranging from no testing to routine coronary angiography," according to deFilipi.

In a survey of centers participating in the United Network for Organ Sharing, 8 percent of programs reported cardiac testing for all listed candidates, and 18 percent did not order routine cardiac testing for any

asymptomatic patient group.

The authors address the need for separate guidelines for kidney and liver transplant patients. Kidney transplant recipients may have more common comorbidities, such as diabetes, than patients with liver failure. Heart disease is a common cause of death among those with end-stage kidney failure, while liver transplant candidates face their own unique problems such as pulmonary hypertension.

A main recommendation is that coronary revascularization procedures, including angioplasty which improves blood flow to the heart and relieves chest pain, before transplantation surgery should be considered in patients based on their symptoms, cardiac function and ischemic burden, meaning the extent of blood vessel blockage.

"However, we also recognize that in some asymptomatic transplantation candidates, the risk of [coronary revascularization](#) may outweigh the risk of transplantation, and these risks must be weighed by the multidisciplinary transplantation team on a case-by-case basis until further studies are performed in this population," says Costa, cardiologist at Dartmouth-Hitchcock.

The group also suggested hospitals identify a primary cardiology consultant for questions related to potential [transplant candidates](#).

"Overall, we hope this statement will offer a foundation for centers to coordinate and better standardize cardiac evaluation practices before kidney and liver transplantation according to best available evidence," says Eagle, a director of the University of Michigan Cardiovascular Center.

"We hope the document will provide an impetus to advancing the evidence basis for cardiac evaluation and management specifically in the

population with end-stage organ failure being considered for transplantation, so that in the end we can reduce cardiac morbidity and mortality in this population and facilitate safe [transplant](#) surgery without incurring risks and expense from unnecessary testing," Eagle says.

More information: "Cardiovascular Disease Evaluation and Management Among Kidney and Liver Transplant Candidates," *Circulation*, published online before print July 2, 2012, [doi: 10.1161/CIR.0b013e31823eb07a](#)

Provided by University of Michigan Health System

Citation: Protecting the hearts of those waiting for kidney and liver transplants (2012, July 12) retrieved 26 April 2024 from <https://medicalxpress.com/news/2012-07-hearts-kidney-liver-transplants.html>

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