Risk score helps identify candidates for combined heart and kidney transplants

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Researchers have identified a set of criteria that, when combined with a measure of kidney function, could help identify patients who are likely to receive a survival benefit from a combined heart and kidney transplant, according to a report in the March issue of *Archives of Surgery,* one of the JAMA/Archives journals.

"In the past, patients with end-stage heart failure having concurrent renal [kidney] disease were not considered candidates for heart transplantation ," the authors write as background information in the article. "With advances in operative techniques and perioperative [around the time of surgery] management, combined heart and kidney transplantation is offered to select patients in this population."

A 1997 article demonstrated that heart and kidney transplant recipients have similar survival rates as recipients of heart transplants alone. However, there are still no standardized guidelines for heart and kidney transplants, despite an increasing number of these procedures being performed. In a new study, Mark J. Russo, M.D., M.S., of Columbia University Medical Center/New York-Presbyterian Hospital, New York, and colleagues analyzed data from the United Network for Organ Sharing (UNOS) for 19,373 patients who underwent heart transplantation between 1995 and 2005. This included 274 patients who received combined heart and kidney transplants and 19,109 who received heart transplants alone. The researchers assessed illness status as assigned by UNOS, pretransplantation demographics and medical history to determine which factors affected survival.

Patients appeared less likely to survive following a combined heart and kidney transplant if, before surgery, they had peripheral vascular disease (disease of the blood vessels outside the heart and brain), were older than 65, had heart failure that was nonischemic (not caused by blocked or narrowed arteries), were dependent on dialysis or were placed on a ventricular assist device (pumping device that assists the heart) as a bridge to transplantation. When patients were stratified into three groups based on these risk factors, the one-year survival rate was 93.2 percent for those in the lowest-risk group and 61.9 percent for those in the highest-risk group.

Previous studies have shown that patients with an estimated glomerular filtration rate (eGFR, a measure of kidney function) of less than 33 milliliters per minute have decreased survival following heart transplantation, the authors note. When the authors further stratified patients in the study based on eGFR, patients with an eGFR of less than 33 milliliters per minute who were in the low-risk group appeared to survive longer following heart and kidney transplants than following heart transplants alone.

About one-fourth of patients in the highest-risk group died from infection. Patients who were bridged to transplantation with a ventricular assist device, had peripheral vascular disease or were older than 65 appeared more vulnerable to infection, explaining their increased risk of death. The underlying reasons for the increased risk of death due to nonischemic heart failure remains unclear, the authors note.

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