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Commentary: Kidney at the heart of the matter

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CENTRAL MESSAGE

Heart–kidney transplant in selected patients with persistent renal failure, and heart transplant alone in patients with recovered renal function, are both effective strategies.

CONG

Significant renal insufficiency (SRI) in pediatric patients with progressive heart failure is common, and may affect transplant candidacy and potentially compromise early and late outcomes after heart transplant. Simultaneous heart–kidney transplant (HKTx) has been shown to be an effective treatment strategy for selected patients with end-stage heart failure and SRI, but it has rarely been done in pediatric populations.[1,2] Dani and colleagues[3] conducted a large-scale study using United Network for Organ Sharing Registry data spanning more than 3 decades to determine whether or not listing for HKTx is superior to listing for heart transplantation (HTx) alone in patients with SRI. The study is the largest and most comprehensive clinical series of pediatric HKTx to date and conveys some important messages.

The comparison between 109 patients who were listed for HKTx and 318 patients with SRI for HTx alone showed significantly better 1- and 5-year posttransplantation survival in patients who received HKTx than patients with SRI who received HTx alone. The data should be carefully interpreted because the patients with SRI who were listed for HTx alone were significantly younger, tended to have congenital heart disease, and were sicker with higher rates of inotropes, ventilation, and extracorporeal membrane oxygenation at the time of listing. As the authors also indicated, those risk factors may have influenced the lower posttransplantation survival in that group seen in this study. The patients with SRI who were listed for HTx alone had more than twice the waitlist mortality, also reflecting the acuity of this patient group.

Perhaps among the most important messages from this study is that among the patients with SRI who were listed for HTx, more than 70% had improved renal function (estimated glomerular filtration rate >40 mL/min) at the time of HTx. Furthermore, the patients with improved renal function who received HTx had an equivalent survival rate compared with the patients who received HKTx. This underscores the importance of re-evaluation of renal function among the patients who were listed for HKTx and a low threshold to convert to HTx listing when renal function recovers. This also emphasizes the importance of ongoing optimization of renal function among the listed patients, which ultimately improves post-HTx outcomes.

HKTx listing has increased since 2001 but it is still a very small fraction of the patients who need HTx.[1-3] There have been few experiences with HKTx in infants and small children. Potential disadvantages of HKTx listing are much longer waiting period (101 vs 39 days) compared with HTx alone listing, and the lack of ability to predict renal functional recovery among the patients with SRI, which may lead to unnecessary multiorgan transplantation in patients with renal functional recovery potential.[4] This

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study certainly gives some insights into the dilemma of SRI in pediatric HTx candidates, both from HKTx outcome and renal functional recovery points of view, and the authors should be congratulated on conducting a highly influential study.

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