

Heart Retransplantation: Outcomes and Ethical Considerations

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Introduction

Retransplantation accounts for only a small proportion (3 to 4%) of heart transplants, but outcomes after retransplantation are affected. Risk factors for poor outcomes after retransplantation include early retransplantation (6 months or less) after primary transplantation, retransplantation due to acute rejection or early allograft failure, and retransplantation at an earlier age. Rates of rejection and infection are similar after primary and retransplantation. The outcome of injury and risk factors for poor outcomes are similar in adult and pediatric heart transplantation. However, because of the short half-life of transplanted hearts, it is thought that patients who receive heart transplants at a young age may require transplantation.

Description

Based on available data and the working group's opinion, the indications for heart transplantation are (i) Severe chronic vascular disease of the cardiac allograft with symptoms of ischemia or heart failure (to be considered) or asymptomatic moderate or severe ventricular dysfunction (to be considered) or (ii) Chronic graft dysfunction with progressive symptoms of heart failure in the absence of active rejection. Patients who fail to undergo transplantation due to acute rejection with hemodynamic compromise, especially 6 months after transplantation, are not suitable candidates for retransplantation. In addition, established guidelines for basic transplant candidacy must be strictly followed because the most common indication for retransplantation is cardiac allograft vasculopathy, clinicians are often faced with the decision of when patients with cardiac allograft vasculopathy should be considered for retransplantation. The severity of allograft vasculopathy is important, as patients with severe allograft vasculopathy have a 1-year survival rate of only 54%, whereas patients with mild allograft vasculopathy have a 1-year survival rate greater than 85%, which does not seem to justify retransplantation. Revascularization with percutaneous coronary intervention (angioplasty or stenting) or coronary artery bypass grafting may be performed in patients with more localized disease, however, outcomes after revascularization are suboptimal, and further studies are needed to determine the timing of revascularization.

or stenting. The use of sirolimus-eluting stents has raised hopes that restenosis after stenting for cardiac allograft vasculopathy may be reduced, but this has not been proven. Oral sirolimus therapy appears to alter the natural history of cardiac allograft vasculopathy. Therefore, most transplant centers replace sirolimus with azathioprine or mycophenolate or add sirolimus when allograft vasculopathy is diagnosed. However, the potential for a positive effect on the course of vascular disease must be weighed against the increased risk of renal dysfunction when sirolimus is used in combination with full-dose calcineurin inhibitors. The role of pacemakers and implantable cardioverter-defibrillators in patients with allograft vasculopathy needs to be clearly defined. Immunosuppression using mycophenolate versus azathioprine or using the Target of Rapamycin (TOR) inhibitors sirolimus or everolimus versus azathioprine delays the onset and progression of allograft vasculopathy. Treatment with statins (especially pravastatin and simvastatin) from the time of transplantation also reduces allograft vasculopathy. Therefore, changes in treatment regimens at the time of transplantation may reduce the need for future retransplantation for cardiac allograft vasculopathy. One area that should not be overlooked when considering retransplantation is the ethics of retransplantation. There are a limited number of donated hearts. Is it appropriate, then, to offer a second transplant to a recipient who has already had a transplant while there are still deaths on the waiting list of patients who have not had a first transplant? On the other hand, what is the responsibility of the transplant team to the recipient who has "done everything right" and still needs another transplant? The working group believes that, whether a first or repeat transplant is being considered, a key factor in determining the candidate for transplantation is the likelihood of post-transplant success.

Conclusion

Based on the selection criteria/considerations proposed here, it appears that candidates for repeat transplant can be identified. Indeed, carefully selected patients for transplantation may have a better chance of success than some patients considered and undergoing transplant for the first time today.