

Percutaneous Coronary Intervention Outcomes in Solid Organ Transplant Candidates

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Background: As part of the pre-transplant assessment, patients with end-stage renal, liver, pancreas, or lung disease who wish to attain transplant eligibility must undergo evaluation for coronary artery disease (CAD). Any significant CAD must be treated, usually by revascularization via either percutaneous coronary intervention (PCI) or coronary artery bypass grafting (CABG), in order to achieve transplant candidacy. PCI in these patients is inherently higher risk due to baseline comorbidities, but there are few studies reporting outcomes following PCI in this population. We sought to investigate the short- and intermediate-term outcomes in patients undergoing PCI as part of a transplant candidacy evaluation. We also aimed to assess whether these patients ultimately received the desired transplant after PCI.

Methods: This is a retrospective study investigating all patients who underwent PCI as part of a pre-transplant evaluation between 2009 and 2017 at IU Health Methodist Hospital. Patients were identified and data variables were extracted from an institutional American College of Cardiology CathPCI database. Medical records of all patients were reviewed to determine date of initial PCI and the type of solid organ transplant each patient was being evaluated for. Primary outcomes measured included 30-day and 1-year mortality, and whether organ transplantation ultimately occurred.

Results: A total of 497 patients were identified. Pre-transplant PCI performed in end-stage liver disease was most common (n=182), followed by renal (n=167), lung (n=74), multi-organ (n=66), pancreas (n=6), and intestinal (n=2). Combined 30-day mortality was 4.9%, 5.4%, 12.2%, 0%, 0%, and 0% for liver, renal, lung, multi-organ, pancreas, and intestinal, respectively. Combined 1-year mortality was 23.1%, 7.8%, 12.2%, 37.9%, 0%, and 0% for liver, renal, lung, multi-organ, pancreas, and intestinal, respectively. The percentage of patients ultimately receiving the desired transplant was low, with 32.4% for liver, 35.9% for renal, 32.4% for lung, 57.6% for multi-organ, 83.3% for pancreas, and 0% for intestinal.

Conclusion: This study demonstrates that PCI in patients undergoing solid organ transplant evaluation is relatively high-risk based on the 30-day and 1-year mortality. Furthermore, the percentage of patients ultimately receiving a transplant is relatively low. These results raise the question of whether high-risk PCI is the optimal CAD treatment in this population. These results also raise the question of whether changes to the transplant care protocol should be made to improve the likelihood of receiving a transplant before continuing to subject these patients to high-risk PCI.