Coronary Artery Bypass Graft Outcomes in Patients Being Evaluated for Renal Transplantation

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INTRODUCTION

- There is a paucity of literature defining outcomes for patients undergoing coronary artery bypass grafting (CABG) who being evaluated for Kidney Transplant (KT)
- This study aims to describe CABG post-operative outcomes and renal transplant waitlist outcomes in this population

METHOD

- Single-institution retrospective analysis of all CABG patients also undergoing KT evaluation
- Time Period: August 2020 – May 2025
- Primary outcomes were all-cause mortality rates, occurrence of major adverse cardiovascular events (MACE), and occurrence of subsequent renal transplant
- MACE was defined as stroke, subsequent NSTEMI, or subsequent percutaneous coronary re-intervention
- Firth logistic regression was performed to identify the level of risk associated with each variable

RESULTS

Table 1: Baseline characteristics.

Variable	Overall
Patients (N)	60
Age	59.6 (9.7)
Gender (Male)	45 (75.0%)
Race	
White	20 (33.3%)
African American	35 (58.3%)
Hispanic	3 (5.0%)
Asian	1 (1.7%)
Other	1 (1.7%)
BMI	28.9 (4.5)
Hypertension	58 (96.7%)
Diabetes	54 (90.0%)
Smoking History	
None	38 (63.3%)
Former	19 (31.7%)
Current	3 (5.0%)
Cardiac Symptoms	
Asymptomatic	46 (76.7%)
Unstable Angina/NSTEMI	14 (23.3%)
STS Short Term Mortality risk	2.9 %(2.6)
Procedure Performed	
CABG	54 (90.0%)
CABG + AVR	5 (8.3%)
CABG + MVR	1 (1.7%)
LHC Results	
Single Vessel	4 (6.7%)
Two Vessel	7 (11.7%)
Three or more vessels	49 (81.7%)
LVEF	55.5 (12.9)
LVEF	
<40%	6 (10.0%)
≥ 40%	54 (90.0%)
Dialysis Type	
None	8 (13.3%)
HD	40 (66.7%)
PD	12 (20.0%)
Dialysis Duration Prior to Surgery (Months)	38.2 (44.5)
Kidney Failure Etiology	
Diabetes	15 (25.0%)
HTN	6 (10.0%)
Mixed Diabetes/HTN	32 (53.3%)
Nephrotic Syndrome	1 (1.7%)
ADPKD	2 (3.3%)
Failed Prior Transplant	4 (6.7%)

Table 2. Operative Characteristics.

Variable	
Cardiopulmonary Bypass Time-mean (SD)	91.0 (43.9)
Cross Clamp Time- mean (SD)	63.8 (32.7)
Number of Bypass Grafts – N (%)	
One	7 (11.7%)
Two	22 (36.7%)
Three	26 (43.3%)
Four	5 (8.3%)

Table 3. CABG Outcomes

Variable	N (%)
Mortality at 30 days	2 (3.3%)
Mortality at 1 year	11 (18.3%)
Stroke at 1 year	2 (3.3%)
Cardiac Event/NSTEMI at 1 year	7 (11.9%)
Coronary Re-intervention at 1 year	4 (6.7%)
Median follow-up	549 (244, 1039)

Figure 1. Kaplan-Meier analysis for event free survival at 1 year

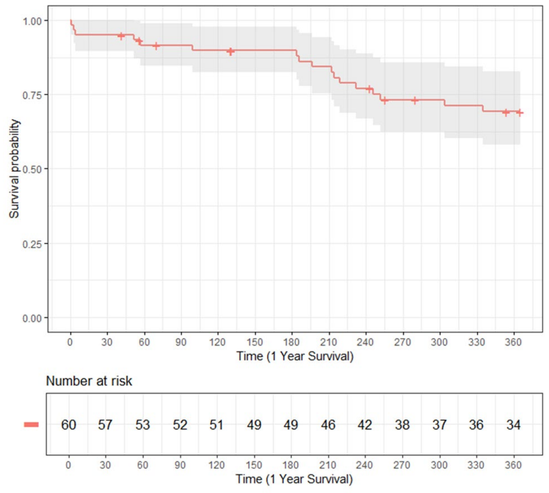

Table 4. Predictors of 1 year mortality by logistic regression

Variable	1 Year Mortality
Cardiac Symptoms	
Asymptomatic	Reference
Unstable Angina/NSTEMI	5.77 (1.44-23.11; 0.013)
LVEF	
<40%	11.4 (1.81-71.94; 0.01)
≥ 40%	Reference
*Display of variables with significant outcomes. All variables from table 1 included in complete analysis.	

Results

Table 4. Kidney transplant outcomes

Kidney Transplant Outcome	N (%)
Transplanted	11 (18.3%)
Kidney	9 (15.0%)
Deceased Donor	8 (13.3%)
Living donor	1 (1.7%)
Kidney-Pancreas	2 (3.3%)
Active on Waitlist	3 (5.0%)
Inactive/Not listed	46 (76.7%)
Pending Review	12 (20.0%)
Denied for cardiac reasons	4 (6.7%)
Denied for other reasons	12 (20.0%)
Temporarily Inactive	4 (6.7%)
Death	14 (23.3%)
Median time to transplant	564 (404, 725)

SUMMARY

- Patients who receive CABG while undergoing KT evaluation experience significant 30-day and 1-year mortality
- Predictors of 1-year mortality include acute presentation for coronary disease and LVEF <40%
- Despite the risk, a portion of these patients make it to KT or active listing
- Further research is needed to guide individualized peri-operative decision making

REFERENCES

1. Wong EJ, McDonald CM, Thomas E, Zarrinpar A, Lee L, Kim KM, Beaver TM, Al-Bahou R, Al JG, Calhoon JH, Hui DS. Outcomes of Coronary Artery Bypass Grafting for Asymptomatic Patients Referred for Renal Transplant. Clin Transplant. 2025 Mar;39(3):e70128. doi: 10.1111/ctr.70128. PMID: 40038064.

DISCLOSURES

Arman Kilic is a speaker and consultant for Abiomed, Abbott, 3ive, and LivaNova. Additionally, A.K. is the founder and owner of QImetrix. All additional authors have no financial relationships to disclose.