

Item S1: Survey and Summary Answers

Survey of practice patterns in the diagnosis and management of ischemic heart disease in kidney transplantation.

1. What is your area of practice?

a. Transplant nephrology.	55 (71%)
b. General nephrology	3 (4%)
c. General and transplant nephrology	9 (12%)
d. Transplant surgery	9 (12%)
e. Other: please specify	1 (1%)

2. Please indicate the approximate kidney transplant volume in your center.

a. < 25 transplants /yr	4 (5%)
b. 25-50 transplants/yr	5 (6%)
c. 50-75 transplants/yr	15 (19%)
d. 75-100 transplants /yr	13 (17%)
e. > 100 transplants/yr	41 (53%)

3. Please indicate the UNOS region your center falls under.

a. Region 1 : Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Eastern Vermont	5 (7%)
b. Region 2 : Delaware, District of Columbia, Maryland, New Jersey, Pennsylvania, West Virginia, Northern Virginia	14 (20%)
c. Region 3 : Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Puerto Rico	8 (11%)

- d. [Region 4](#): Oklahoma, Texas 5 (7%)
- e. [Region 5](#): Arizona, California, Nevada, New Mexico, Utah 8 (11%)
- f. [Region 6](#): Alaska, Hawaii, Idaho, Montana, Oregon, Washington 4 (6%)
- g. [Region 7](#): Illinois, Minnesota, North Dakota, South Dakota, Wisconsin 6 (9%)
- h. [Region 8](#): Colorado, Iowa, Kansas, Missouri, Nebraska, Wyoming 3 (4%)
- i. [Region 9](#): New York, Western Vermont 4 (6%)
- j. [Region 10](#): Indiana, Michigan, Ohio 8 (11%)
- k. [Region 11](#): Kentucky, North Carolina, South Carolina, Tennessee, Virginia 5 (7%)

4. In the cardiovascular evaluation of the potential kidney transplant recipient, which set of guidelines does your own practice or center specific protocol align the closest with ?

- a. 2012 AHA/ACCF Scientific Statement on Cardiac Disease Evaluation and Management amongst Kidney and Liver Transplant Candidates. 28 (42%)
- b. 2014 ACC/AHA Guidelines on Peri operative Cardiovascular Evaluation and Management of patients undergoing Non cardiac Surgery 18 (27%)
- c. NKF/K -DOQI 2005 Clinical Practice Guidelines for Cardiovascular Disease in Dialysis Patients 4 (6%)
- d. 2007 Lisbon Conference Criteria 1 (2%)
- e. Other : please specify 19 (29%)
17 respondents entered details: 12 indicated a local protocol existed, 5 indicated no protocol existed

5. Indicate which of these modalities you would prefer to use to diagnose clinically significant CAD in patients with advanced CKD, not on dialysis .

- a. Exercise tolerance test 19 (24%)
- b. Dobutamine stress echocardiography 25 (32%)
- c. Myocardial perfusion scintigraphy (nuclear stress test) 56 (71%)

- d. Coronary computed tomographic angiography (CCTA) 4 (5%)
- e. Coronary angiography 11 (14%)
- f. Other: please specify. 4 (5%)
3 respondents entered details:
1-echocardiogram; 1-
dobutamine stress echo for
non-diabetic and coronary
angiogram for diabetic
patients; 1-intravascular
ultrasound

6. Indicate which of these modalities you would prefer to use to diagnose clinically significant CAD in patients on maintenance dialysis

- a. Exercise tolerance test 15 (19%)
- b. Dobutamine stress echocardiography 24 (30%)
- c. Myocardial perfusion scintigraphy (nuclear stress test) 44 (56%)
- d. Coronary computed tomographic angiography (CCTA) 6 (8%)
- e. Coronary angiography 32 (41%)
- f. Other: please specify. 2 (3%)
1 respondents entered details:
dobutamine stress echo for
non-diabetic and coronary
angiogram for diabetic
patients

7. A 50 year old male with e-GFR of 16 cc/min has a positive stress test with inferior territory ischemia as part of a kidney transplant evaluation. He has no symptoms and his EF is 60%.

- a. This patient can be managed with optimal medical therapy alone and re-assessed in one year with a follow up stress test on maximum medical therapy. In the interim, if no other contra-indications, he will be listed under inactive status, pending follow up stress test. 20 (25%)
- b. This patient needs coronary angiography, PCI and optimal medical therapy to be considered for listing for kidney transplantation 53 (67%)

c. The preserved EF , lack of symptoms and territory of ischemia would justify active listing with optimal medical therapy for CAD. 4 (5%)

d. This patient cannot be listed for a kidney transplant. 1 (1%)

8. A 55 year old non-diabetic woman on maintenance hemodialysis for 6 years who is active on the transplant waiting list, presents for her annual re-evaluation. Her only symptom is fatigue, despite very modest UF volumes to maintain dry weight and Hb of 10.5 grams/dL. Two prior pharmacologic stress tests in the last 3 years have been negative for inducible coronary ischemia. Would you re-evaluate this patient for coronary ischemia ?

a. Yes 47 (59%)

b. No 24 (30%)

c. Unsure 7 (9%)

9. A 50 year old male with APKD, non smoker, non diabetic, with no known CAD or family history of premature CAD, with e-GFR of 18cc/min, is being evaluated for potential living donor transplantation. Would you work him up for coronary ischemia ?

a. Yes 57 (72%)

b. No 17 (22%)

c. Unsure 4 (5%)

10. Do you routinely monitor asymptomatic kidney transplant patients without known CAD for ischemia post kidney transplant?

a. Yes 14 (18%)

b. No 65 (82%)

11. In order to understand the barriers to enrollment in trials that look at different management strategies for CAD in the potential kidney transplant recipient, please list out what you think are limiting factors towards enrollment of patients with advanced CKD in such studies.

Item S2. Detailed Methods

Survey Design and Rationale:

JR designed the survey questions and field-tested them among other nephrologists to optimize survey design and ensuring quality data acquisition. The final survey consisted of 10 questions. Characteristics of the survey respondents (provider type, transplant program volume) were self-reported. The Institutional Review Board of the Einstein Medical Center, Philadelphia, PA, approved the study.

Survey Population, Distribution and Response Tracking:

Study data were collected and managed using Research Electronic Data Capture (REDCap) tool hosted at Einstein Medical Center, Philadelphia, PA. REDCap is a secure, web-based application designed to support data capture for research studies. The survey was distributed via the AST's KPCOP email distribution group. AST is the largest professional transplant organizations in North American and is comprised of over 4000 transplant professionals. Each member can participate in any number of the 16 communities of practice, of which the Kidney-Pancreas Community of Practice (KPCOP) is one. The email was sent to members at 3 separate times approximately 4 weeks apart. In addition, the link to the survey tool was twice posted on the KPCOP online hub, which is only accessible to KPCOP members. The number of direct email recipients varied between distribution rounds, as the number of KPCOP members varied over time. Confirmation of email recipients accessing the link online was obtained from AST's administrative staff. To assuage participants' concerns regarding anonymity, we did not ask for the respondent to identify his/her affiliated transplant program.

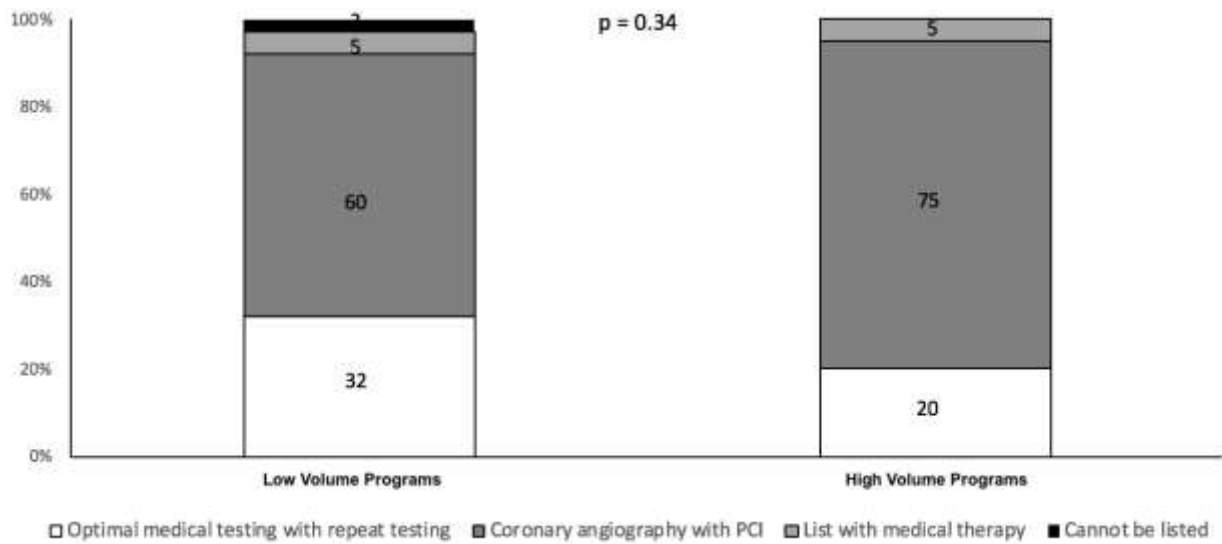
Data Analysis:

Survey responses were tallied using standard cumulative statistics. Comparisons between groups were done by chi-square test or Fisher's exact test where the cell size <5. To break free-form responses on

perceived barriers to coordinated care down by themes, we used a consensus-decision making process. A small group (XSC, DMD, ROM, JR) brainstormed themes based on the survey responses. XSC categorized free-form responses by theme and held a meeting with DMD, ROM and JR wherein all participants reviewed the themes and assignment of responses to each theme. Disagreements were openly discussed and decided via majority votes.

Item S3. Detailed Responses to Case Scenario Questions 7-9

Question 7. A 50 year old male with e-GFR of 16 cc/min has a positive stress test with inferior territory ischemia as part of a kidney transplant evaluation. He has no symptoms and his EF is 60%.



Question 8. A 55 year old non-diabetic woman on maintenance hemodialysis for 6 years who is active on the transplant waiting list, presents for her annual re-evaluation. Her only symptom is fatigue, despite very modest UF volumes to maintain dry weight and Hb of 10.5 grams/dL. Two prior pharmacologic stress tests in the last 3 years have been negative for inducible coronary ischemia. Would you re-evaluate this patient for coronary ischemia?

9. A 50 year old male with PKD, non-smoker, non-diabetic, with no known CAD or family history of premature CAD, with e-GFR of 18cc/min, is being evaluated for potential living donor transplantation. Would you work him up for coronary ischemia ?

