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Routine cardiac stress testing in kidney transplant candidates is only appropriate in symptomatic individuals: COMMENTARY

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The immense burden of cardiovascular disease in patients with advanced and end-stage kidney disease (ESKD) has been recognized and described for decades. As a result, routine cardiac screening of many patients seeking access to kidney transplant waitlists is common, even in the absence of symptoms. The goals of screening are threefold. First, to intervene to prevent perioperative major adverse cardiac events (MACE). Second, to improve posttransplant cardiovascular morbidity and mortality. Finally, to improve utilization of a scarce resource by screening out extremely high-risk patients who will not have a meaningful survival benefit from a transplant. While the motivations for screening are clear, a lack of data on the effectiveness of screening asymptomatic potential kidney transplant candidates to accomplish these goals has prompted ongoing debate.

In this debate outlining pro- and con- positions on whether routine cardiac stress testing for potential kidney transplant candidates should be limited to symptomatic individuals, the authors provide an excellent overview of the literature to date supporting both arguments. Screening proponents cite the fact that the lack of symptoms has a poor negative predictive value for the presence of ischemic heart disease among patients with ESKD.\(^1\) Opponents to screening cite the poor positive predictive value of noninvasive stress tests for obstructive coronary artery disease in this population,\(^2,3\) as well as a lack of evidence that intervening on obstructive lesions confers improved survival, including multiple negative randomized trials in other high-risk populations.\(^4\)

Indeed, many observational studies and meta-analyses have attempted to address this question, but none are without significant limitations. In addition, no randomized controlled trial in the modern era has addressed this question head on, and guidelines from professional societies reflect this lack of evidence.\(^5\) In the absence of a well-designed RCT, both those in favor of and opposed to screening asymptomatic kidney transplant candidates cite the same research. For example, screening proponents argue that previous trials on perioperative cardiac stress testing have excluded patients with ESKD, and are therefore not applicable to this population, although the recently published ISCHEMIA-CKD\(^2\) and ongoing CARS\(^6\) trials mitigate this concern. Opponents point to the same long list of negative trials in high-risk patients as an indication that we are performing procedures on potential candidates without any evidence of benefit.

Professionals on both the pro- and con- side of the debate agree on two major points. First, that the prevalence and morbidity from cardiovascular disease among patients with advanced and end stage kidney disease is extremely high. Second, that a randomized controlled trial is needed to answer this question. Indeed, such a trial would be high value regardless of the outcome: A positive trial would justify the ongoing burden of screening, both in terms of health care costs and the burden and risk to patients seeking access to transplant. A negative trial would allow for the elimination of a great many unnecessary procedures as well as reducing barriers to patients for access to transplant.

Another important consideration is the impact that regulations may have on transplant center decision making. Kidney transplantation is heavily regulated by Centers for Medicare and
Medicaid Services (CMS) and the Organ Procurement and Transplantation Network (OPTN) with penalties for underperforming programs that do not meet their expected 1-year allograft and patient survival metrics. As a result, transplant programs may be reluctant to de-adopt the widely used policy of performing cardiac risk stratification in asymptomatic candidates with cardiac risk factors such as diabetes mellitus, even in the absence of clear benefit to the patient.\textsuperscript{7} Indeed, despite the results of ISCHEMIA-CKD, a recent survey of US transplant programs revealed that nearly 2/3 of respondents pursue aggressive evaluation or revascularization in asymptomatic patients with an abnormal noninvasive stress test.\textsuperscript{8} Unless professional societies publish updated guidelines reflecting recent data, and regulations increase focus on improving access to kidney transplantation, it is likely that the status quo will remain in the majority of programs: Noninvasive stress testing in all kidney transplant candidates above a certain age or with risk factors for coronary artery disease, regardless of symptoms.

Notably absent from the debate is the voice of the patients. The improved mortality, cost, and quality of life for transplant compared to dialysis is irrefutable, and expanding access to transplant imperative. As is evident from the pro- and con- commentary, legitimate equipoise exists as to whether screening asymptomatic patients prior to waitlisting improves outcomes. In usual medical care, equipoise about the medical outcomes is an ideal situation for shared decision making between providers and patients. However, evaluation and access to kidney transplant waitlists is a unique scenario in medicine that rarely involves shared decision making. If cardiac screening - and subsequent catheterization in the case of a positive screening test - is required by transplant programs to obtain access to the waitlist, the medical community owes it to patients to investigate whether this requirement actually improves outcomes.

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References:


