Emergency Department Visits after Kidney Transplantation

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Emergency departments (EDs) provide an important source of medical care in the United States, with 131–137 million ED visits nationwide in 2011 (1,2). Over the past 15 years, ED utilization has grown from 36.5 to 42.8 visits per 100 person-years, despite a decline in the total number of ED facilities (3). However, few studies have examined ED utilization after kidney transplantation, and the published studies have been limited to transplant recipients at a single center (4,5). In 2013 in the United States, 17,600 kidney transplantations were performed, and >190,000 people were living with a functioning kidney transplant (6), highlighting the importance of understanding care utilization in this high-risk population. In this issue of the Clinical Journal of American Society of Nephrology, Schold et al. (7) report their findings on ED utilization in a population-based sample of kidney transplant recipients from three large, diverse states.

Schold et al. (7) examined ED utilization among 10,533 transplant recipients in California, Florida, and New York between 2009 and 2012. Compared with the general United States transplant population, patients in the study sample were more likely to receive Medicare or Medicaid and be Asian, Pacific Islander, or Hispanic and were less likely to be white or black. Key findings included an observed rate of 126.9 ED visits per 100 patient-years, a median time to the first ED visit of 19 months (25th and 75th percentiles, 5 and 33 months, respectively), and 48% of ED visits resulted in admission. Among ED visits leading to hospital admission, 57% were at the hospital that performed the transplantation, whereas the overall visit rate was 126.9 per 100 person-years, suggesting that the higher ED visit rate among post-transplant patients may be driven largely by medical need rather than overuse of the ED. Other studies have also found high risks of admission among kidney transplant recipients who seek ED care (4,5).

One interpretation of these findings is that there may be a low threshold to admit transplant recipients to the hospital; these admission decisions may differ between transplant centers and community hospitals. Unfortunately, Schold et al. (7) do not describe the factors contributing to variation in the risk of admission. For example, do centers with higher ED visit rates have lower risks of admission given an ED visit, suggesting that patients transplanted at these centers face gaps in access to urgent care? Schold et al. (7) tell us that there was no correlation between center transplant volumes and ED visit rates; however, do centers with higher visit rates have poorer graft survival or poorer performance on other quality metrics from the Scientific Registry of Transplant Recipients (8)?

Although the post–transplant ED visit rate in the study by Schold et al. (7) seems high, patients with ESRD represent an exceptionally high–risk population. Indeed, 50% of transplant recipients had an ED visit in the prior year, whereas only 40% of the same patients had an ED visit in the subsequent year. Despite the known complications of transplantation, the ED visit rate seemed to drop after surgery, albeit not as much as one might expect. In addition, the fact that only 40% of patients had any ED visits within 1 year, whereas the overall visit rate was 126.9 per 100 person-years, suggests that the majority of ED visits were actually made by patients with multiple visits. Schold et al. (7) do not provide information on repeat ED visits, but this has been widely recognized as a costly problem, and therefore, it is an important topic for future research (9–11).
The 73% higher adjusted rate of post–transplant ED visits among Medicaid recipients raises questions about access to care and whether ED utilization may reflect limited access to specialized care for post-transplant complications. Indeed, similar disparities have been described in the general United States population; the percentage of Medicaid versus privately insured persons with at least one ED visit in 2007 was 38% versus 17% among adults 18–44 years of age and 39% versus 16% among adults 45–64 years of age (12). Of course, an alternative interpretation is that Medicaid recipients are more chronically ill and hence, need more ED services than privately insured individuals, even after adjusting for comorbid illnesses.

Not surprisingly, transplant recipients with longer initial hospital stays had a 46% higher adjusted ED visit rate, suggesting that complications arising during that initial hospitalization may necessitate subsequent ED care. Schold et al. (7) did not examine whether these complications were associated only with ED visits early in the post-transplant course or whether this risk persisted throughout the post-transplant period. Use of the ED within the year before transplant was associated with a higher post–transplant ED visit rate, perhaps because prior ED use is a proxy measure of severity of illness that is not adequately captured by other variables and/or because patients display a pattern of ED care-seeking behavior that persists after transplantation. This dual explanation is supported by the finding that pretransplant ED visits without admission (which may reflect care-seeking behavior) were associated with a 58% higher adjusted rate of post-transplant visits, whereas those leading to admission (which may reflect severity of illness) were associated with an 88% higher rate.

Post-transplant care may provide an illustrative case study for understanding the effectiveness of care transitions and handoffs, because most patients are referred to transplant centers and eventually, return to community-based nephrologists and primary care physicians. Schold et al. (7) report, as expected, that the proportion of patients admitted to the hospital that performed their transplant decreased over time, but the Kaplan–Meier plots suggest that total ED visit rates were relatively stable after the first 6 months. However, these plots also suggest that the disparity between Medicaid–enrolled and privately insured transplant recipients widened between 2 and 6 months, perhaps because the former patients had good access to ambulatory care when they were followed closely by the transplant center, but this access deteriorated after care was transitioned back to community-based providers.

Schold et al. (7) provide a broad overview of the cause of hospital admission using the Agency for Healthcare Research and Quality’s Clinical Classification Software. However, the most common cause of readmission was Clinical Classification Software category 237 (“complication of device, implant or graft”), which includes an array of International Classification of Diseases, Ninth Revision, Clinical Modification diagnoses, such as coronary atherosclerosis of autologous vein bypass graft; atherosclerosis of bypass grafts of the extremities; mechanical complication caused by cardiac pacemaker; mechanical complication of other vascular device, implant, and graft; and complications of a transplanted kidney (13). Given such a broad classification, further evaluating the principal reasons for admission may elucidate pathways to improve care.

This study is important, because it extends prior findings that were limited to single centers and addresses an understudied topic (7). As outlined above, the findings suggest numerous areas for future research. The limitations include that the findings may not be fully generalizable to the United States transplant population because of differences between California, Florida, and New York and the other 47 states. Furthermore, the actual ED visit rate may be higher than reported, because only deaths occurring in hospitals were captured, leading to overestimation of person-years at risk. As Schold et al. (7) point out, their findings suggest that the ED is a site of care for many transplant recipients and that coordination of care between transplant centers and EDs is needed. However, given that nearly one half of post–transplant ED visits lead to hospital admission and that hospital admissions are much more expensive than treat and release ED visits, potentially preventable ED visits may provide a window into the more important problem of potentially preventable hospitalizations (14).

Disclosures
None.

References


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