Rehospitalization after Living Kidney Donation

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Readmission for acute conditions has become an important metric for health systems in looking at the success of their original treatment for a particular condition. Indeed, it is so important that there are specific financial penalties relating to readmissions for specific conditions.

In general, readmission analysis has focused on the short term (30 days) and on complications that arise in conjunction with the original cause for admission. In this issue of CJASN, Schold et al. (1) examine all-cause readmissions for a living-donor population at 1 and 3 after living donation. Segev et al. (2) assessed a large cohort of living kidney donors and determined that they had no significant differences in surgical mortality and long-term survival compared with a survey assessment of the general population, the third National Health and Nutrition Examination Survey.

The study by Schold and colleagues used a different angle to assess the risk of rehospitalization among living donors. They chose to use two data sources. The primary data source was the State Inpatient Database (SID) compiled by the Agency for Healthcare Research and Quality, which contained data for the full census of hospitalization for the respective states studied: 2007–2009 for North Carolina, New York, and Florida, and 2005–2010 for California. The SID is one of a set of databases developed for the Healthcare Cost and Utilization Project, part of a Federal-State-industry partnership. It contains all available inpatient discharge abstracts from all states that participate. It now includes 97% of all annual discharges in the United States (3).

The Scientific Registry of Transplant Recipients was used to compare and validate the sample with regard to donor characteristics. The comparator population in this study was not a survey population but a group of individuals from the general population who underwent appendectomy, cholecystectomy, and nephrectomy for nonmetastatic carcinoma. Moreover, the study population was limited to individuals who donated in the same state as their primary residence. This was done to reduce the possibility that the authors or the data missed a readmission that occurred in another state.

Notably, this study included more than the straightforward periprocedural 30-day readmission rate. Traditionally, living donors have been deemed a healthy population, so evaluating their outcomes against the general population is logical. More recently, however, transplant centers have demonstrated a willingness to evaluate and potentially undertake living donation from donors who have a higher-risk profile, such as metabolic syndrome (4). The longer-term effect of more liberal donation eligibility could be manifest in higher rates of not just medical complications but also requirements for acute care.

This study extends those findings by more specifically quantifying rehospitalization in the living-donor population. The cumulative 1- and 3-year incidence rates of all-cause rehospitalization among living donors were 5% and 11%; for nonpregnancy-related hospitalization, the rates were 5% and 9%, respectively. The overall rate of rehospitalization among living donors was low and markedly less than in individuals who underwent other common abdominal surgical procedures.

Rehospitalization was higher among women, African Americans and Hispanics, and patients with diagnoses of depression and hypothyroidism. Rehospitalization varied by insurance status, by state, and by length of stay related to the initial hospitalization. Interestingly, older age, African American race, longer length of stay (>4 days), hypothyroidism, and depression were all independently associated with an increased risk for rehospitalization in the living-donor group.

In a search for easy-to-use, accurate data sources, the SID proved to be effective in helping the investigators understand more about living donors not in traditional databases. One obvious question arises: were these the right states to study given the prevalence of living donation in other regions of the country? Certainly from a population standpoint, accessing states with large populations made sense. The prevalence of living donation during the time frames examined, however, was higher than that in several other states, such as Texas, Minnesota, and Ohio. Would these have been better states to study in order to more accurately portray donor risk for rehospitalization? Second, as the authors noted themselves, this study was confined to individuals who had the donation procedure and any readmissions in the same state. The present data construct does not provide the information that is needed to track across states. Thus, it is possible that there were slightly different absolute rates of rehospitalization due to individuals requiring repeat acute care in another state. Third, presumably most of these procedures, whether donor nephrectomy, appendectomy, cholecystectomy, or nephrectomy for nonmetastatic carcinoma, were performed laparoscopically. However,
it is possible that a difference in open versus laparoscopic procedures ultimately affected peri-procedural recovery and length of stay. This was not delineated in this study and could be a variable influencing the differences noted. Finally, is there an inherent bias founded in the thoroughness of the donor evaluation process that still selects for healthier individuals less likely to need follow-up medical or surgical care? The donor evaluation is more than a standard history and physical examination and has the capacity to identify certain conditions as well as prompt changes in health behaviors (e.g., weight loss and discontinuing tobacco use), which could influence intermediate-term health. It is interesting to consider the effect of the mandated reporting at 2 years for living donors.

Several features of the donor-specific data are notable. The evident effect of hypothyroidism and depression on rehospitalization is interesting. The conditions are known to coexist (5) and certainly may warrant additional screening at the time of donor evaluation and monitoring after donation. In addition, the influence of race and ethnicity on rehospitalization cannot be understated. Segev et al. noted that surgical mortality was higher in African Americans than in white and Hispanic living donors, and in this analysis, non-pregnancy-related rehospitalization risk was greater in African American donors. There have to be better ways to tackle this health disparity than simply leaving the donor to individual follow-up.

In the end, this study by Schold and colleagues lay out a different data source that we have to consider as valid for studies examining acute care for the living donor population. The SID should be considered a valid instrument to help us understand aspects surrounding hospitalization in the donor population and, potentially, in the transplant population more broadly. The authors also identified several factors associated with rehospitalization for living donors over a period of years, not just weeks. To the extent that transplant programs keep those risk factors in mind, they will be furthering the potential health of our donors not just in the short term but in the long term as well.

Disclosures
None.

References

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