Racial and Socioeconomic Disparities in the Utilization of Nephron-Sparing Procedures for Stage I Kidney Cancer in the United States


Introduction and Objectives
The detection of early stage kidney tumors is increasing in the United States due to the common use of cross-sectional diagnostic imaging. To treat these tumors, nephron-sparing procedures (NS) including partial nephrectomy and local ablation have been shown to be equivalent to traditional radical nephrectomy (RN) in oncologic outcomes and superior in renal function and mortality outcomes. Previous single-institutional, population-based cohort and SEER studies have shown that the utilization of NS is increasing. Using the National Cancer Database (NCDB), which includes approximately 75% of individuals diagnosed with cancer in the United States from 1400 hospitals, we evaluated trends in the use of NS over the past decades and variables associated with its use.

Methods
The NCDB was queried to identify patients diagnosed with stage I kidney cancer between 2000 and 2008. Patients were classified by type of surgery received into NS (including local destruction, local excision, and subtotal nephrectomy) or RN (including complete, total, and simple nephrectomy). They were further categorized by age, race, insurance status, and income. For these categories, Log-binomial regression was used to estimate prevalence ratios for the proportion of NS to RN.

Results
From 2000-2008 there were 142,194 cases of kidney cancer reported to the NCDB. Of those, 43034 (30.3%) had NS and 86,431 (60.78%) had RN. With every one-year increase in the year of diagnosis, the prevalence of NS increased 10% (PR=1.10, p<0.0001) from 20.0% in 2000 to 45.1% in 2008. With every 10-year increase in patient age, the prevalence of NS decreased 5% (PR=0.95, p<0.0001). Blacks (PR=0.97, p<0.0001) and Hispanics (PR=0.90, p=0.0478) were less likely than Caucasians to have NS versus RN, and with every $10,000 increase in income, the prevalence of NS increases 7% (PR=1.07, p<0.0001). Patients without insurance (PR=0.87) and with Medicare (PR=0.9) were less likely to have NS than those with private insurance (p<0.0001). Finally, patients treated at community hospitals were 48% less likely to have NS than those treated at teaching hospitals (PR=0.52, p<0.0001).

Conclusions
NS as a treatment for Stage I kidney cancer has increased steadily since 2000, However age, racial and socioeconomic disparities exist in its utilization. A better understanding of the barriers to implementation of NS approaches in these populations may allow the development of strategies to
mitigate these treatment differences.