

Health Insurance Status and Disparities in Kidney Cancer Care

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Abstract

Introduction: Through PPACA (Patient Protection and Affordable Care Act) many adults have or will gain health insurance via Medicaid expansion. To understand how this policy change may potentially impact patients with kidney cancer we examined the relationship between insurance status and cancer related outcomes.

Methods: Using SEER (Surveillance, Epidemiology and End Results) data we identified 18,632 patients 26 to 64 years old with kidney cancer from 2007 to 2009. For each patient we classified insurance status as no insurance, Medicaid or private insurance. After adjusting for patient and county characteristics we measured the association of insurance status with cancer stage, treatment and 1-year mortality using multinomial logistic regression with clustering or generalized estimating equations as appropriate.

Results: In our study cohort 937 (5.0%) and 2,027 patients (10.9%) had no insurance and Medicaid, respectively. These patients were more likely to be younger, nonwhite, unmarried and residing in areas with lower income, education or employment ($p < 0.001$). On adjusted analyses uninsured and Medicaid patients more often presented with advanced disease (21.3% vs 19.6% vs 11.0%) but less frequently received treatment (86.2% vs 87.9% vs 93.4%, each $p < 0.001$) compared with privately insured patients. These adults also died of kidney cancer more often (13.6% vs 12.5% vs 6.4%, $p < 0.001$) likely due to differences in stage and receipt of cancer directed therapy.

Conclusions: Uninsured and Medicaid patients suffer disproportionately from kidney cancer with equal magnitude. Given the reliance on Medicaid, even as insurance coverage expands differences in outcomes will likely persist, underscoring the need for additional efforts that address disparities in kidney cancer care.

Key Words: kidney neoplasms; quality of health care; insurance, health; Medicaid; Patient Protection and Affordable Care Act

Kidney cancer has increased in incidence in the last 2 decades. Now the seventh most common solid tumor in the United States, kidney cancer accounts for 63,920 new cases

and 13,860 corresponding deaths annually.¹⁻³ Although it is more frequently diagnosed in the elderly population, kidney cancer has become increasingly common in younger adults.⁴

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In fact, in the last decade the cancer incidence has approximately doubled in adults 20 to 40 years old, highlighting a potential new epidemiological trend in kidney cancer.^{4,5}

For these younger adults aggressive surgical treatment remains the standard of care.⁶ Even so some patients face difficulties in obtaining appropriate and timely treatment due to a lack of health insurance. As many as 18.5% of working age adults in the United States are without health coverage with rates peaking at 23.5% for adults 26 to 34 years old.^{7,8} Previous population based studies have identified a link between a lack of insurance and more advanced stage disease.⁹ However the impact of insurance status on care use and outcomes in kidney cancer remains poorly defined. For other major malignancies patients without insurance encounter lower rates of treatment and poorer survival.^{10,11} Cancer outcomes among patients with Medicaid also appear to lag behind those observed among adults with private insurance.¹¹

Accordingly we used the SEER database to compare kidney cancer severity, treatment and short-term outcomes according to insurance status. In doing so we can begin to anticipate how changes in insurance coverage expected through PPACA may impact the growing segment of young and middle-aged adults now being diagnosed with renal cancer.

Materials and Methods

Data Source and Study Cohort

We used NCI (National Cancer Institute) SEER data to identify patients diagnosed with incident kidney cancer in the United States from 2007 to 2009. SEER is a nationally representative cancer registry that collects data on incidence, treatment and mortality.¹² The SEER program captures cases from 18 registries (ie Alaska, Atlanta, Connecticut, Detroit, Greater California, Greater Georgia, Hawaii, Iowa, Kentucky, Los Angeles, Louisiana, New Jersey, New Mexico, Rural Georgia, San Francisco-Oakland, San Jose-Monterey, Seattle-Puget Sound and Utah), encompassing 28% of the American population.

Drawing from the entire data set we identified 37,435 patients with primary nonurothelial kidney cancer based on ICD-3 site code C64.9 and ICD-9 clinical modification code 189.0. We excluded from analysis 476 patients identified by death certificate or autopsy and narrowed our sample to adults 26 to 64 years old due to Medicare eligibility and the extension of dependent health coverage, leaving 19,213. We next excluded 23 patients (0.1% of the sample) from the Alaska Native Registry as none were uninsured, having presumably obtained coverage through the Indian Health

Service. Finally we removed 520 patients (2.7% of sample) with unknown insurance status and 38 (0.2%) with bilateral disease to produce a final cohort of 18,632 patients.

Primary Exposure and Outcomes

Using insurance information available in SEER beginning in 2007 we assigned patients to 1 of 3 categories, including 1) no insurance, 2) Medicaid coverage and 3) private insurance. We then considered certain primary outcomes. 1) We assessed disease severity, classifying stage in accordance with AJCC (American Joint Committee on Cancer) staging groups I to IV.¹³ 2) We created a binary variable for no treatment, including those potentially on active surveillance, vs any treatment, consisting of cancer directed surgery or radiation therapy based on SEER treatment variables. Among patients with stage I disease we constructed a 3-category treatment variable, classifying management as nonoperative, nephron sparing (ie ablation and partial nephrectomy) or radical nephrectomy. 3) We measured all cause and kidney cancer specific mortality 1 year from diagnosis given the available followup for this cohort.

Covariates

For each patient we determined age, gender, race/ethnicity, marital status, geographical region and year of diagnosis. In addition to characterizing tumor stage we ascertained tumor histology and grade for our survival analyses. Because SEER does not include conventional measures of socioeconomic status and comorbidity, we used data provided by the Area Health Resource File from the United States Department of Health and Human Services Health Resources and Services Administration.¹⁴ These databases contain county level measures of health services access, resource use, socioeconomic indicators and health status. Through Federal Information Processing Standard county codes we linked these measures to kidney cancer cases in SEER.

We characterized the local care environment in terms of median household income, nonhigh school education and unemployment; the density of urologists, total physicians, kidney cancer cases, managed care, hospitals and hospital beds; and rates of death from heart disease, diabetes mellitus, chronic obstructive pulmonary disease, liver disease and/or cancer per county population. Rural/urban status and the number of cancer hospitals per county were also identified.

Analyses

Statistical. We evaluated the association of insurance status with each primary outcome and covariate using the

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