Cancer Prevalence in Patients with End-stage Renal Disease

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Methods
- We used US Renal Data System ESRD incident data from 1998-2002.
- Participants were entitled to Medicare for at least two years before the initiation of ESRD treatment, and were covered by both Parts A and B insurance.
- Using ICD-9-CM diagnosis codes, Medicare claims for at least two years before the initiation of ESRD treatment were used to identify cancer.
- Cancer was determined by at least one claim from inpatient, outpatient, home health agency, or skilled nursing facility claims files, or at least two claims from physician/supplier claims files.
- Logistic regression was used to determine associations between patient demographic characteristics (age, gender, and race) and cancer.
- Cox regression was used to evaluate death risk related to cancer using age, gender, race, and cancer status as explanatory variables.

Results
- In the study population, 31.0% of ESRD patients had cancer (Table 1).
- A slight increase in the prevalence of cancer was found between 1998 and 2002 (Figure 1).
- High rates of cancer were observed in the following systems and sites (Figure 2):
  - Digestive system (13.6%),
  - Reproductive system (9.0%),
  - Kidneys and urinary tract (4.2%),
  - Skeletal system (2.7%).
- Using a logistic regression model adjusted for gender and race, risk for cancer increased with age (Figure 3).
- Men were 36% more likely to have cancer than women (Figure 4).
- Whites were 18% more likely to have cancer than blacks, while other races had the lowest cancer risk (Figure 5).
- Using a Cox regression model adjusted for age, gender, and race, ESRD patients with cancer were 16% more likely to die than those without cancer. Those with cancer in the respiratory and skeletal systems had the highest risk of death (Figure 6).

Conclusions
- Approximately one-third of ESRD patients have cancer at the beginning of renal replacement therapy.
- Cancer prevalence in the major organ systems of ESRD patients is different from that reported in the general population.
- Patients of older age, males, and whites are more likely to have cancer.
- ESRD patients with cancer are more likely to die than those without cancer.
- Patients with cancer in the respiratory or skeletal systems have the highest risk of death.