Item S1. Detailed Methods

Annual Incidence Rates of Cancer

To derive cancer rates adjusted for secular trends, standardized mortality ratio (SMR)-weighted models were created with a weight of 1 for patients diagnosed with cancer in 2000 (the comparator group) and a weight of (p/[1-p]) for patients diagnosed with cancer in all other years (1996-1999 and 2001-2009). A multivariable logistic regression model was fit to estimate the propensity score, p, where p represents the probability that the patient was diagnosed with cancer in 2000 given a combination of covariates used for adjustment.[1] All incidence rates were adjusted for age at dialysis initiation, sex, race, ethnicity, primary cause of ESRD, comorbid conditions, functional status and years on dialysis.

The Joinpoint Regression Program (version 4.0.4, NCI) was used to model trends of adjusted annual incidence rates over the entire study period (1996-2009). The Joinpoint Program uses permutation tests to find a best fit of regression model with the smallest number of "joinpoints" which are distinct linear segments that differ statistically in their slopes.[2] We calculated annual percentage change (APC) and 95% CIs, from a log-linear model in the joinpoint analysis using the logarithm of observed rates.[3]

Cumulative Incidence Estimates of Cancer

In addition to our analysis of the cumulative incidence of cancer accounting for the competing risk of death, we also estimated the cumulative incidence of cancer ignoring the competing risk of death (i.e., censoring death). Here, the cumulative incidence of cancer at time t is simply the complement of the survival function of time until cancer.[4] Thus, unlike the competing risks model, the survival function eliminates individuals who experience the competing event from the risk set. Time at risk was measured from 9 months post-dialysis

initiation to the first of the following: the event of interest (i.e., cancer diagnosis); or censoring (i.e., cancer diagnosis at another site; renal replacement therapy modality change to peritoneal dialysis or kidney transplantation; end of Medicare as primary payer status; lost-to-follow-up; 5 years since dialysis initiation; end of study on December 31, 2010; or death). The cumulative incidence analysis that ignored competing risks was conducted with standard software (SAS *proc lifetest* and *phreg*).

We also estimated IP of censoring weights to account for informative censoring. First, we partitioned the 5-year follow-up period into quintiles defined by the distribution of when patients became lost to follow-up (i.e., 1.12, 1.66, 2.31, 3.30 years from dialysis initiation). Then we fit both a null pooled linear-logistic model to calculate the marginal probability of remaining uncensored and a full pooled linear-logistic model to calculate the adjusted predicted probability of remaining uncensored during the quintile of follow-up time. IP censoring weights were constructed similarly to the IP exposure weights, with adjustment for the same covariates.[5]

REFERENCES

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