

Outcomes among survivors of hospitalized acute kidney injury with Medicare

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Introduction

- Outcomes after hospitalization for acute kidney injury (AKI) among Medicare participants have previously been described for a cohort in 2000.
- Using 2006 data, we aimed to update data on the association between an AKI episode and long-term outcomes in a Medicare cohort.

Methods

- Using a random sample of individuals with continuous, primary Medicare insurance, age 66 and older, through December 31, 2006, we identified administrative claims for an AKI episode during 2006.

- Patients with end-stage renal disease (ESRD) on or before the AKI discharge date were excluded.
- Chronic kidney disease (CKD) was defined by claims in the one year prior to the AKI admission.
- Patients were followed up to one year after AKI hospitalization for those with AKI or after January 1, 2007 for those without AKI. ESRD was defined by entry into the end-stage renal disease program.
- Death was defined using the Social Security death index. Time to ESRD and death were analyzed using Cox proportional hazard models, adjusted for age, gender and race. Rates are per 1,000 patient years.

Results

- Among survivors of a hospitalization in 2006, 1.38% of individuals were discharged with an AKI diagnosis.
- During a mean follow-up period of 0.94 years, the rate of ESRD per 1,000 patient years was much higher among those with AKI than among those without, at 12.83 compared to 1.13, irrespective of CKD status ($p < 0.001$; Figure 1).
- Over the next year, the rate of ESRD per 1,000 patient years was highly influenced by a diagnosis of CKD during the entry period, at 4.35 for AKI alone compared to 32.75 for AKI-CKD ($p < 0.001$; Figure 2).
- Results were similar in the adjusted analysis, with AKI and CKD being highly associated with the development of ESRD (HR: 85.0 for AKI-CKD, 11.7 for AKI alone, reference no AKI or CKD; Figure 3).
- Hospitalized AKI was also associated with all-cause mortality ($p < 0.001$). In the adjusted analysis, the presence of CKD modified the association between AKI and mortality (AKI alone 2.48, AKI-CKD 3.09, reference no AKI or CKD, $p < 0.001$ for both; Figure 4).

Figure 1
Rate of ESRD, by AKI status, 2007

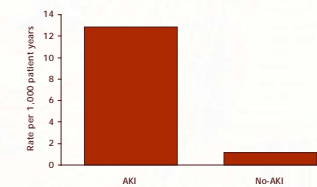


Figure 2
Rate of ESRD, by AKI & CKD status, 2007

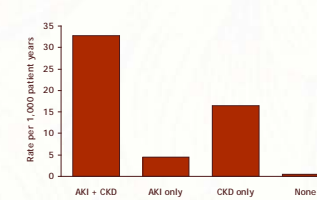


Figure 3
ESRD hazard ratio, by AKI & CKD status

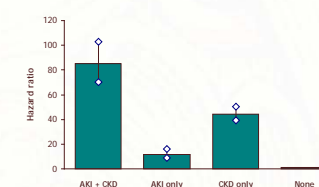
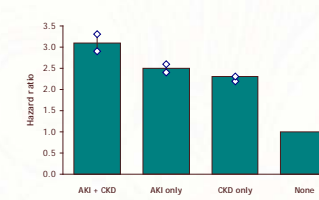


Figure 4
Hazard ratio for death, by AKI & CKD status



Conclusions

- Medicare participants who survived an episode of hospitalized AKI in 2006 had an increased risk of ESRD and death in the subsequent one-year period.
- These results suggest that the AKI population should be a high priority for risk management for death, CVD events, and progression to ESRD.