Conclusions

- Hospitalizations for admissions for arrhythmias have not changed measurably since 2004.
- Reduction in deaths due to SCD have lagged woefully behind reduction in all-cause CV death in HD patients.
- Issues such as the timing of events across the dialytic week (i.e., whether CV deaths and arrhythmia-related admissions occur on HD or post-HD days, or before or after a dialysis treatment session) should be studied.
- Other issues, such as the effect of constituent electrolytes of the dialysis bath and the implications of the dialyzability of drugs such as β-blockers (which might prevent arrhythmia-related deaths), should be also be investigated.
- Future improvements in the overall CV death rate will require advances in preventing SCD.

Patients receiving maintenance hemodialysis (HD) have high rates of death due to cardiovascular (CV) causes.

CV-related death can be divided into:
- sudden cardiac death (SCD), and
- other CV death

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Methods

- Using CMS ESRD data from 1996-2013, we created yearly cohorts comprising HD patients who were covered by Medicare Part A on January 1 of that year.
- Prevalent patients were followed from January 1 to the earliest of death, transplant, loss of Medicare coverage, or year’s end.
- We determined hospitalizations for arrhythmias (atrial, ventricular, and asystolic events).
- We calculated death rates per 100 patient-years for all-cause CV death and death due to SCD.
- Cause of death was ascertained from the ESRD Death Notification (form CMS-2746).

Results

Arrhythmia Hospitalizations

- Using primary diagnosis codes only, admissions for arrhythmias were virtually unchanged between 2004 and 2013, at approximately 4.5 admissions per 100 patient-years.
- When using primary or leading secondary diagnosis codes, rates have remained virtually unchanged since 2008, at about 5.0 per 100 patient-years.

CV Death

- All-cause CV death decreased from roughly 12 to 7 per 100 patient-years between 1996 and 2013.
- However, after modest decline from 2004 to 2010, SCD deaths have remained stable at approximately 5 per 100 patient-years.
- In 2009, 65% of all CV deaths were attributed to SCD; by 2013, the rate increased to 73%, a relative increase of about 12% in only 4 years.

Introduction

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