Rehospitalizations in Prevalent 2009 Hemodialysis Patients

Tricia Roberts, MS, David Gilbertson, PhD, Craig Solid, PhD, Allan Collins, MD
United States Renal Data System, Minneapolis Medical Research Foundation, University of Minnesota Twin Cities

Introduction

- Rehospitalizations contribute to the Medicare cost burden and indicate need for improved quality of care.
- Recent rehospitalization rates of nearly 20% have been reported among general Medicare patients.
- Rehospitalization rates among the dialysis population remain unknown.

Methods

- Rehospitalization rates were computed among adult (age 20 and older) prevalent hemodialysis patients in 2009.
- Included patients were residents of the 50 states, the District of Columbia, Puerto Rico, or the Territories and had Medicare as their primary payer.
- Live hospital discharges were included from January 1 to December 1, 2009, and were identified as index hospitalizations.
- We excluded rehabilitation claims, transfers, and discharges with a same-day admission to long-term care and critical access hospitals.
- Data were also excluded from patients with a transplant, lost to follow-up, or without Medicare as a primary payer at 30 days after discharge.
- After discharge, patients were followed for a minimum of 30 days.
- Events by day 30 were as follows:
  a. No rehospitalization and died
  b. At least one rehospitalization and then died
  c. At least one rehospitalization and alive
  d. Overall rehospitalization (b + c above) and the combined endpoint of rehospitalization or death (rehos/death, a + b + c)
- Rates reflect the percent of live discharges with an event within 30 days after discharge.
- Cause-specific groups were defined by principal ICD-9-CM diagnosis codes of the index hospitalization and rehospitalization.
- Annual rates included pooled cohorts and were adjusted using the direct adjustment method.
- Annual rates were adjusted for age, gender, race, and primary diagnosis.
- The reference cohort included discharges in 2009.

Results

- Data included 365,348 hospital discharges from January 1 to December 1 in 2009 from 148,883 hemodialysis patients. Over half of the patients (57.6%) had multiple discharges (Table 1).
- Adjusted rehospitalization rates were stable from 1998-1999 to 2008-2009 and ranged from 35 to 36% (Fig. 1).
- Among all-cause index hospitalizations in 2009, 36 and 39% of discharges were followed by a 30-day all-cause rehospitalization and rehos/death, respectively (Fig. 3).
- The highest all-cause rehospitalization and rehos/death rates were among the youngest patients (age 20-44; 43 and 44%; Fig. 2) and African Americans (38 and 49%; Fig. 3).
- All-cause rehospitalization rates were highest after discharge from a cardiovascular hospitalization (37%, Fig. 4), compared to any infection (36%) and vascular access infection (31%).
- Cause-specific rehospitalizations were highest after index hospitalizations with the same cause (Fig. 5).
- Among patients age 20-44, rehospitalization occurred after 47% of cardiovascular index hospitalizations (Fig. 6).

Conclusions

- Rehospitalization rates among hemodialysis patients were strikingly high: greater than one third of live hospital discharges were followed by at least one 30-day rehospitalization.
- Adjusted rehospitalization rates have not improved in the last decade.
- The competing risk of mortality complicates rehospitalization assessment and is evidenced by the association between decreased rehospitalizations and increased mortality in age groups above 45-64.
- Identification of high risk groups, such as African Americans, young adults, and cardiovascular admissions, could focus efforts to reduce rehospitalizations.