Mortality following Long and Short Interdialytic Intervals among Hemodialysis Patients

Robert N. Foley, MD, Tricia L. Roberts, MS, David T. Gilbertson, PhD, Allan J. Collins, MD
United States Renal Data System, Minneapolis Medical Research Foundation, University of Minnesota Twin Cities

Introduction
- Increased mortality risk following the long (2-day) interdialytic interval has recently been reported among thrice-weekly hemodialysis (HD) participants in the End-Stage Renal Disease Clinical Performance Measures Project.
- Associations between mortality and long and short (1-day) interdialytic Intervals have not yet been assessed in the most recent Medicare cohort.

Methods
- We studied 162,679 U.S. Medicare adult prevalent HD patients on January 1, 2010, alive on January 31, and receiving HD three times weekly on Monday/Wednesday/Friday or Tuesday/Thursday/Saturday.
- Medicare claims for hemodialysis from January 18 to 31, 2010, determined the schedule.
- The study included an as-treated analysis with regards to HD schedule; therefore, the study cohort represented those who adhered to consistent scheduled HD treatments without missed or alternative sessions.

Follow-up began on February 1, 2010, and was censored at modality change, end of Medicare payer status, recovery of renal function, deviation from HD schedule, loss to follow-up, or December 31, 2010.
- Methods assumed that the same HD schedule was maintained during inpatient stays when HD claims were unavailable.

Results
- Table 1 describes patient characteristics:
- Patterns of all-cause mortality mirrored CV mortality rates, on days after the short interdialytic interval; and HD2 and HD3 were the days after the short intervals.
- Rates were adjusted with the Poisson model and direct adjustment:
- Higher rates were observed on the day after the long interdialytic interval.
- The highest adjusted all-cause mortality rates were observed on the day after the long interdialytic interval within each demographic subgroup (Fig. 4).
- Mortality was higher on the day after the long interval.

Conclusions
- The days after the long and short interdialytic Intervals were associated with increased all-cause and CV mortality rates, and the highest rates were on the day after the long interval.
- Compared to all-cause and CV mortality, the peak in infectious mortality was delayed until the second rather than first day after the long interdialytic interval.
- Results support concern regarding association between the long interdialytic Interval and elevated adverse outcomes.