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### **Hemodialysis Session Length Has a Dose Relationship With Hazard Rates of Cause-Specific Hospitalization and Mortality**

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Prior research has demonstrated that reduced hemodialysis (HD) session length is associated with increased mortality and morbidity; however, little is known about its association with cause-specific events. The current study's objective was to estimate the relationship between duration of HD and rates of cardiovascular (CV) hospitalizations and death.

We studied the electronic medical records of in-center HD patients incident to dialysis (1 Jan 2007–31 Dec 2008) treated at a large dialysis organization within 30 days of first HD and having Medicare or Medicaid as a primary insurer. Mean session length was calculated over days 91-180. Patients were at-risk for death and cardiovascular events starting on day 181 of HD and continuing until death, transfer of care, modality change, or end of study (31 Dec 2009). Patient outcomes were identified by linking to US Renal Data Systems claims data, including hospitalization for heart failure (HF)/fluid overload, myocardial infarction (MI), all-cause mortality, CV mortality, and a composite endpoint for HF/fluid overload hospitalizations or CV mortality.

In total 39,497 patients qualified for study. All-cause mortality was greatest for patients receiving sessions of mean length <180 min (hazard ratio [HR] 1.57; confidence interval [CI] 95% 1.40-1.76), as was cardiovascular mortality (HR 1.42; CI 95% 1.19-1.71), and lowest for those receiving mean session length ≥240 min (HR 1, reference). A dose effect was also observed with the HF/fluid overload composite, and hospitalization for either HF or MI. Significant associations were not measured with post-dialysis fluid-related hospitalizations or atrial fibrillation.

These data demonstrate a strong association between shorter dialysis session length and CV events causing hospitalization and death.

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