Assessing the Impact of Dialysis Modality on Hospitalization in a Large Population of End-Stage Renal Disease Patients

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Introduction

• Hospitalizations and readmissions pose a significant burden to end-stage renal disease (ESRD) patients and result in significant costs to the US health care system.1
• There is increasing focus on patient outcomes and cost advantages for patients starting ESRD treatment on a home dialysis modality.2
• Understanding the impact that specific modalities can have on hospitalizations may assist in changing physician behavior regarding initial modality selection.

Objective

To describe characteristics of hospitalizations among a contemporary population of in-center hemodialysis (ICHD), peritoneal dialysis (PD), and home hemodialysis (HHD) patients.

Methods

Data Source and Study Patients
• Data for this study were derived from the electronic health records of a large dialysis organization within the US.
• Patients eligible for inclusion in this study were those who between March 2016 and March 2019:
  - were ≥ 18 years of age
  - were receiving ICHD, PD, or HHD treatments

Outcomes
• The following were assessed as 12-month rolling averages for ICHD, PD, and HHD patients, separately:
  - All-cause hospitalization rates
  - Length of stay
  - 30-day readmissions
  - Causes of initial hospitalization
  - Hospitalization rates among PD and HHD were also assessed as 12-month rolling averages by the number of PD and HHD patients in a clinic.
  - Comparisons were not adjusted for differences in patient characteristics or predialysis care between groups.

Results

Hospitalization Rates, Length of Stay, and 30-Day Readmissions
• All-cause hospitalization rates, length of stay, and 30-day readmissions are shown in Figure 1.
  - Hospitalization rates during the study period were 1.80, 1.24, and 1.41 admissions per patient year for ICHD, PD, and HHD patients, respectively.
  - The mean ± standard deviation length of stay was 4.7 ± 4.5, 4.8 ± 4.8, and 4.5 ± 4.4 days for ICHD, PD, and HHD patients, respectively.
  - Readmission to the hospital occurred in 32.1%, 26.2%, and 24.3% of ICHD, PD, and HHD patients, respectively.

Causes of Hospital Admissions
• Causes of initial hospital admissions are shown in Figure 2.
  - Admissions for respiratory causes were more common in ICHD patients (11.6%) than PD (6.5%) or HHD patients (8.6%).

Conclusions
• Here we demonstrate that initial hospitalization and readmission rates were consistently lower for patients using home dialysis modalities (PD and HHD) than those receiving ICHD.
• The pattern of hospitalization causes differed between modalities, indicating the need for modality-specific hospitalization risk reduction strategies.
• We also observed that clinics with larger home dialysis programs had lower hospitalization rates compared to clinics with smaller home dialysis programs.

References


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Figure 1. Hospitals, Length of Stay, and 30-Day Readmissions

Figure 2. Causes of Hospital Admissions

Figure 3. Hospitalization Rates by Clinic Home Patient Census