Hospitalizations among Peritoneal Dialysis and Home Hemodialysis Patients with Symptoms of Depression

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Introduction

- Depression is common among end-stage renal disease (ESRD) patients receiving dialysis and is associated with poor quality of life and increased risk of hospitalization.[1,2]
  - The Centers for Medicare and Medicaid Services (CMS) now requires all eligible ESRD patients be evaluated for symptoms of depression.[3]
- We have previously reported that in-center hemodialysis (ICHD) patients with depressive symptoms are more likely to be admitted to the hospital.[4]
  - In the current study, we characterized the incidence of depression among patients on peritoneal dialysis (PD) and home hemodialysis (HHD) and assessed the impact of depression on hospitalization rates in these patient populations.

Objective

To characterize rates of hospitalizations among peritoneal dialysis (PD) and home hemodialysis (HHD) patients who screened positive for depressive symptoms

Methods

- Deidentified data for this study were derived from the electronic health records of a large dialysis organization (LDO).
- Depression screenings for PD and HHD patients are performed biannually by LDO social workers using the PHQ-2 scale. Results from surveys performed between May 2016 and April 2017 were considered for this analysis.
  - Patients were asked to rate from 0-3 how often they have experienced *"Little interest or pleasure in doing things"* and "*Feeling down, depressed, or hopeless"* in the previous 2 weeks.
  - Total depression score is based on the sum of the ratings from both questions.
  - Patients with existing diagnosis of depression or bipolar disorder, cognitive impairment or language barrier, and those who were hospitalized, treating elsewhere, or refused screening were excluded.
- We compared crude rates of hospitalizations in patients with depressive symptoms (PHQ-2 score ≥ 2) to those without over the 3 months following screening.
  - Outcome rates were not adjusted for demographic factors or comorbid diseases.

Results

PD Patients

- During the study period, there were 40,579 depression screenings performed in 21,572 PD patients treated at the LDO (Figure 1).
  - In 7042 (17.4%) screenings, patients were found to have a total PHQ-2 score ≥ 2 and were considered positive for depression.
  - 1122 patients were excluded from PHQ-2 testing due to cognitive impairment, active depression diagnosis, language barrier, hospitalization, patient refusal, active bipolar disorder, or treating elsewhere.
- Hospitalization rates among all PD patients are shown in Figure 2
  - Patients who screened positive for symptoms of depression (total PHQ-2 score ≥ 2) had a higher hospital admission rate compared to those without symptoms of depression (1.7 vs 1.1 admissions per patient year; left panel).
  - Stratification of hospitalization rates by total PHQ-2 score shows that patients with higher scores are more likely to be hospitalized (right panel).

Figure 1. PD Patient Depression Screening May 2016 - April 2017

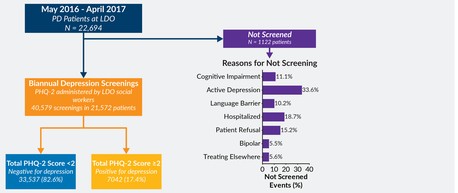
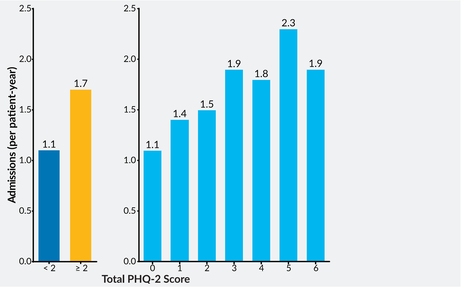


Figure 2. Hospitalizations by PHQ-2 Score among PD Patients



HHD Patients

- During the study period, there were 5860 depression screenings performed in 3171 HHD patients treated at the LDO (Figure 3).
  - In 964 (16.5%) screenings, patients were found to have a total PHQ-2 score ≥ 2 and were considered positive for depression.
  - 252 patients were excluded from PHQ-2 testing due to cognitive impairment, active depression diagnosis, language barrier, hospitalization, patient refusal, active bipolar disorder, or treating elsewhere.
- Hospitalization rates among all PD patients are shown in Figure 4
  - Patients who screened positive for symptoms of depression had a higher hospital admission rate compared to those without symptoms of depression (1.9 vs 1.3 admissions per patient year; left panel).
  - Stratification of hospitalization rates by total PHQ-2 score shows that, in general, patients with higher scores are more likely to be hospitalized (right panel).

Figure 3. HHD Patient Depression Screening May 2016 - April 2017

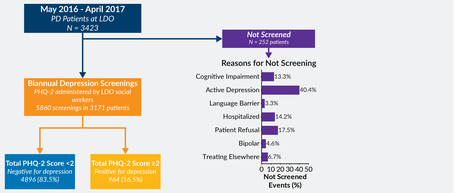
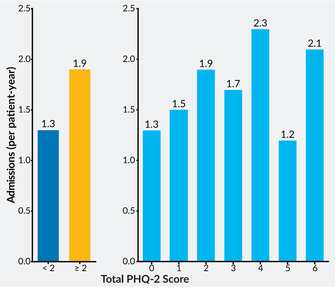


Figure 4. Hospitalizations by PHQ-2 Score among HHD Patients



Conclusions

- Symptoms of depression were identified among patients on PD and HHD with a frequency similar to that we previously observed in ICHD patients (17.4%, 16.5%, and 16.3%, respectively).
  - This is a surprising finding given that overall health status is typically better among patients using PD and HHD compared to those receiving ICHD.
  - Clinicians should be aware of the high prevalence of depression even among home patients as a possible contributor to adverse clinical outcomes.
- Both PD and HHD patients with symptoms of depression were more likely to be hospitalized than those without.
  - Clinical initiatives should be designed to specifically target high-risk patients on PD or HHD who screen positive for depression.
- The differences in hospitalization rates between patients who screened positive versus negative for depression in PD and HHD were similar in magnitude to those observed in ICHD patients.[4]
- Our results represent conservative estimates of the possible impact of depression on hospitalizations.
  - The PHQ-2 instrument may not be sensitive enough to identify all patients experiencing depressive symptoms.[5]
  - Patients with an existing diagnosis of depression were not screened.
- In order to monitor and provide support for depressed patients, the LDO depression screening program was revised such that:
  - Patients with an existing depression diagnosis are no longer excluded from PHQ-2 screening.
  - For patients with a total PHQ-2 depression score ≥ 3, a follow-up screen with the more comprehensive PHQ-9 questionnaire is performed.

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Acknowledgments

We extend our sincere appreciation to the teammates in more than 2,000 DaVita clinics who work every day to take care of patients and also to ensure the extensive data collection on which our work is based. We thank DaVita Clinical Research® (DCR), and specifically acknowledge Adam G. Walker, PhD, of DCR for editorial contributions in preparing this poster.

This study was funded by DaVita Inc.

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Poster available at www.davitaclinicalresearch.com

National Kidney Foundation Spring Clinical Meeting, April 10-14, 2018; Austin, TX