

Missed Dialysis Sessions and Impact of Pruritus Among Medicare Patients Receiving Hemodialysis at a Large Dialysis Organization Camelia Graham, PhD, MSPH; T Christopher Bond, PhD; Deborah Lubeck, PhD DaVita Clinical Research, Minneapolis, MN, USA

Introduction

- Data by Nunley et al. show >90% of dialysis patients report pruritus, ranging from mild to severe.¹
- The Dialysis Outcomes and Practice Patterns Study (DOPPS) reported that 70% of hemodialysis (HD) subjects with end-stage renal disease (ESRD) suffered from pruritus; 42%-45% had moderate-to-extreme itchiness.²
- The Kidney Disease Quality of Life 36 (KDQOL) assesses dialysis-specific, patient-reported health-related QOL for individuals with ESRD who are undergoing dialysis.³
- It includes SF-12 physical and mental component scores (PCS and MCS, respectively), subscales for burden of disease, symptoms and problems (including skin itch), and effects on daily life.
- This survey is administered yearly to dialysis patients treated by a large dialysis organization.

Objective

While investigating the characteristics of hemodialysis patients with self-reported itchy and/or dry skin, we analyzed the rate of missed dialysis sessions in this population as an important compliance and reimbursement end point

Methods

- We examined health records for patients (N = 38,315) undergoing dialysis who had also completed the KDQOL survey.
- We analyzed the association between itchiness/dryness scores on the KDQOL and missed dialysis sessions for patients who completed the SF-12 portion of the survey (Dec 2008-Jun 2012).
- Patients were \geq 18 years old receiving in-center HD thrice weekly.
- Patients were included if they had a KDQOL assessment \geq 3 months after starting dialysis and had Medicare as their primary payer.
- Logistic and negative binomial regression models were constructed to determine differences in missed sessions among categories of itchy or dry skin during the first 6 months following the KDQOL survey.
- Models were adjusted for age, body mass index, vintage, gender, race, cause of ESRD, vascular access, comorbid conditions, history of transplant, and time.

Results

Table 1. Patient Characteristics by Itchiness Score

Itchiness Score							
	1 n = 15,319	2 n = 11,567	3 n = 5,867	4 n = 3,571	5 n = 1,991	P-value	
Age (years, mean SD)	62.32 ± 14.44	61.96 ± 14.25	61.55 ± 14.3	61.32 ± 14.61	59.37 ± 14.25	< 0.0001	
Gender (% female)	46.3	45.47	45.36	48.19	50.88	0.0022	
Race/Ethnicity (%)							
African American	41.94	41.71	39.34	41.89	45.61	< 0.0001	
Asian	1.88	2.12	2.44	2.63	1.46		
Caucasian	37.57	37.82	39.82	36.26	34.2		
Hispanic	14.28	13.74	13.87	15.23	14.97		
Other	4.33	4.61	4.53	3.98	3.77		
Vintage (mean SD)	3.83 ± 3.85	4.01 ± 3.89	3.98 ± 3.89	3.9 ± 3.56	4.07 ± 3.88	0.004	
DaVita vintage (mean Sl	D) 3.08 ± 3.06	3.2 ± 3.03	3.19 ± 3.05	3.17 ± 2.94	3.19 ± 3.03	0.0155	
Comorbidities (%)							
Cardiovascular	28.53	29.45	31.36	31.5	32.7	< 0.0001	
Cancer	2.21	2.43	2.49	2.8	2.71	0.0215	
COPD	3.39	4.05	4.57	5.26	6.48	< 0.0001	
Liver disease	1.81	2.03	2.03	2.38	2.66	0.0029	
Pruritus	3.46	4.88	5.37	7.17	10.1	< 0.0001	
Bacteremia	27.39	29.2	31.57	32.68	33.85	< 0.0001	
Septicemia	5.88	6.57	7.12	7.2	7.89	< 0.0001	
Dry skin category (how k	oothered) (%)						
Not	58.05	19.24	11.2	7.5	5.63	< 0.0001	
Somewhat	25.69	58.51	16.06	9.66	6.43		
Moderately	9.64	12.17	52.91	14.37	9.09		
Very	4.45	7.09	14.64	59.12	13.71		
Extremely	2.17	2.98	5.2	9.35	65.14		
Vascular access							
Catheter	17.56	16.25	17.33	17.36	17.43	0.005	
Fistula	60.95	60.74	61.72	61.72	58.92		
Graft	21.49	23.01	20.95	20.95	23.66		
Kt/V (mean SD)	1.56 ± 0.52	1.56 ± 0.5	1.57 ± 0.49	1.55 ± 0.51	1.56 ± 0.49	0.7504	
Use of IV antibiotics (%)	4.52	4.86	5.06	5.82	6.98	< 0.0001	
Use of pruritus treatments (%)							
IV	3.69	3.74	4.33	4.56	5.68	0.0003	
Oral	10.74	13.24	14.88	19.04	24.71		
Topical	2.17	2.37	2.66	2.8	3.37		
Missing	83.39	80.64	78.13	73.59	66.25		

Increasing score means increased itchiness (1 = Not Bothered At All; 2 = Somewhat Bothered; 3 = Moderately Bothered; 4 = Very Much Bothered; 5 = Extremely bothered); Abbreviations: SD, standard deviation.

- Twenty percent of patients were either "very bothered" or "extremely bothered" by skin itchiness and/or dryness in the ESRD population. Itchiness and dryness were highly correlated.
- Thirty-two percent of patients reported to be "moderately bothered" or more severe by itchy and/or dry skin. Patients generally had more missed sessions with increasing itchiness and/or dryness severity.
- Patients with the most severe itchiness and/or dryness missed on average 2.6 more dialysis sessions per year as compared to patients with no itchiness and/or dryness.
- Patients with the most severe itchiness and/or dryness scores were more likely to miss dialysis sessions than patients with less severe itchiness and/or dryness scores.

Itchiness Score						
	1	2	3	4	5	
n	15,319	11,567	5,867	3,571	1,991	
Missed sessions (%)	56.16	56.52	56.93	61.69	63.23	
Missed sessions (mean SD)	3.6 ± 6.4	3.5 ± 6.3	3.8 ± 6.6	4.5 ± 7.2	4.9 ± 7.4	
Dryness score						
	1	2	3	4	5	
n	12,156	12,118	6,682	4,745	2,614	
Missed sessions (%)	55.58	56.51	57.47	60.15	62.93	
Missed sessions (mean SD)	3.5 ± 6.3	3.6 ± 6.3	3.7 ± 6.5	4.3 ± 7.1	4.8 ± 7.4	

Table 2. Missed Dialysis Session in the 6 Months Following the **KDQOL Survey**

Increasing score means increased itchiness: (1 = Not Bothered At All; 2 = Somewhat Bothered; 3 = Moderately Bothered; 4 = Very Much Bothered; 5 = Extremely bothered); Abbreviations: SD, standard deviation.

Figure 1. Missed Sessions

		Odds Ratio				
Itchiness						
Dryness						
	0	1	2			

Conclusions

- Self-reported skin itch is highly correlated with validated KDQOL component and subscale scores.
- Skin itch is an independent predictor of other aspects of the quality of life of dialysis patients, suggesting that it is an important condition to address.
- Skin itchiness and dryness were each associated with greater likelihood of missed sessions.
- Given that long intradialytic intervals have been associated with increased all-cause, cardiac-related, and infection-related mortality,⁴ the relationship between intradialytic intervals, missed visits, and skin itchiness/dryness warrants further investigation.

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