Characterization of Hemodialysis Patients who Reported Pruritus

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Introduction

- Approximately 50%-90% of patients with end-stage renal disease (ESRD) on hemodialysis report itchy and dry skin (i.e., markers of pruritus). Both are quantified via the Kidney Disease Quality of Life 36 (KDQOL) questionnaire, which is administered yearly at a large dialysis organization.
- Pruritus has been associated with:
  - Reduced quality of life
  - Increased risk of negative health outcomes, including hospitalization, infections, and death

Methods

- This retrospective cohort study examined characteristics of patients who received in-center hemodialysis at least 3 times a week between 1 December 2008, and 30 June 2012.
- Health records were analyzed for eligible patients who were 2-18 years old, had completed a KDOQI assessment of itchy and dry skin after ≥3 months of dialysis, and had Medicare as their primary payer.
- Baseline differences across itchiness and dryness severity categories were described for demographic and clinical characteristics using chi square tests of square and general linear model tests for mean differences. Unadjusted means for IV medications for the 6 months following the KDQOL assessment were obtained. Patient characteristics and clinical parameters (labs) were measured during the 1-month baseline period prior to KDQOL assessment date.

Results

- In this analysis of 38,815 patients, approximately 20% of ESRD patients reported the most severe itchiness and dryness scores.
- A greater proportion of African American patients reported itchy and dry skin as compared to other racial/ethnic groups, and the proportion of these patients reporting itchiness (range, 39% to 46%; P < 0.0001) and dry (range, 38% to 50%; P < 0.0001) skin increased across worsening severity scores.
- Comorbidity burden was higher in patients with increasing itch severity, including those with diagnosed pruritus, cardiovascular disease, chronic obstructive pulmonary disease, liver disease, and history of bacteremia and sepsis (P < 0.0001 for each).
- Among patients with the worst itchiness or dryness scores, serum phosphorus, parathyroid hormone, and calcium were slightly greater for each.
- Hemoglobin concentrations did not differ across groups (mean, 11.3 g/dL; P = 0.8122) nor did Kt/V (mean, 1.56-1.57; P = 0.7504).
- Clinically meaningful differences in intravenous antibiotic use were observed among patients who were very much and extremely bothered by pruritus, the two worst itchiness or dry skin categories.
- 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.

Table 1. Patient Characteristics by Itchiness Score

<table>
<thead>
<tr>
<th>Age (years; mean ± SD)</th>
<th>Gender (%)</th>
<th>Race/ethnicity (%)</th>
<th>Cause of ESRD (%)</th>
<th>Comorbidities (%)</th>
<th>Dialysis and Access (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.44 ± 14.25</td>
<td>48.3 ± 45.7</td>
<td>41.94 ± 41.71</td>
<td>41.91 ± 39.34</td>
<td>40.84 ± 39.34</td>
<td>41.96 ± 41.73</td>
</tr>
<tr>
<td>14.10 ± 14.30</td>
<td>41.26 ± 45.3</td>
<td>38.34 ± 39.28</td>
<td>43.46 ± 38.94</td>
<td>41.47 ± 38.94</td>
<td>41.95 ± 39.33</td>
</tr>
<tr>
<td>14.81 ± 14.26</td>
<td>41.67 ± 45.1</td>
<td>39.13 ± 38.92</td>
<td>42.91 ± 38.91</td>
<td>41.73 ± 38.91</td>
<td>42.09 ± 39.31</td>
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Objective

To identify the characteristics of patients undergoing hemodialysis who are at risk of pruritus.

Conclusions

- Clinically meaningful differences in demographic characteristics, comorbidity burden, and clinical measures were observed when patients with more severe itch and dry skin were compared to patients with no or less severe itch and dry skin. The analyses showed that patients with itch and dryness severity were more likely to be African-American; to have slightly higher levels of serum phosphorus, parathyroid hormone, and calcium levels; and to have higher comorbidity burden.
- Pruritus has quality-of-life and health care outcomes, compliance, and cost implications. However, the large sample size used in this study may have produced statistical significance where there was little or questionable clinically meaningful significant difference.
- Future analyses are needed to further define the ESRD subpopulation that reports itchy and/or dry skin within the health care system.

References


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