Symposium: Improving Nursing Care and Outcomes for Patients Living with End-Stage Renal Disease

Saturday, 29 July 2017
Chair: Maya N. Clark-Cutaia, PhD, ACNP-BC, RN
Support and Financial Disclosures

1. Sodium-Restricted Diets and Symptoms in End-Stage Renal Disease: A Randomized Controlled Trial
   - NIH-1K23NR015058 (Clark-Cutaia)

2. Nurse-Sensitive Indicators and Patient Transition Safety in Outpatient Hemodialysis Unit
   - American Nephrology Nurses’ Association
   - Rutgers University, School of Nursing (Thomas-Hawkins)

3. Stakeholder Perspectives on Care Transition Needs of Patients on Hemodialysis Therapy
   - NewCourtland Center Pilot (Clark-Cutaia & Jarrín)
   - NIH-1K23NR015058 (Clark-Cutaia)
   - AHRQ-K99/R00 HS22406 (Jarrín)

The authors/presenters have disclosed they have no significant relationships with, or financial interest pertaining to the work presented.
Introduction

- An estimated 3.8 million patients are undergoing treatment for end-stage renal disease (ESRD) worldwide.
- Approximately 2 million are undergoing hemodialysis treatment.
- When compared to their counterparts, hemodialysis patients have a higher risk and rate of mortality and reduced life expectancy.
Introduction

- The leading causes of death in this population are cardiovascular disease accounting for 41% of death, 9% infection, 23% from unknown causes and 27% from other causes.

- Lifestyle modification is known to mitigate these risks, but adherence to recommendations is poor (20–78%).

- Given growth in ESRD globally, low adherence to evidence-based practice, and high risk of morbidity and mortality, innovative research is needed to identify and understand the factors unique to the ESRD and hemodialysis experience.
Purpose of Symposium

- Explore patient, provider, and system factors that can be leveraged to decrease adverse events, readmission, and improve symptom management and quality-of-life.
- Dialogue between panel and audience regarding challenges in nursing care and nurse-led innovations for improving care of ESRD and hemodialysis patients.
Symposium Objectives

- Develop a rudimentary understanding of the greatest risk to mortality faced by End-Stage Renal Disease patients.
- Identify current recommendations and restrictions in existing end-stage renal disease treatment modalities.
- Discuss new directions for nursing care of patients with end-stage renal disease.
Sodium-Restricted Diets and Symptoms in End-Stage Renal Disease: A Randomized Controlled Trial

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Raymond R. Townsend, MD
Background

- Over 600,000 patients in the United States suffer from ESRD\cite{1}
- Of those, 468,000 individuals are on dialysis
  - 63.7% receive HD
- Annually, kidney disease kills more people than breast or prostate cancer\cite{2}
- HD patients have extraordinarily poor outcomes with cardiovascular (CV) death rates greater than 5-times that of non-dialysis patients\cite{3} and symptom burdens on-par with cancer patients\cite{4}
Background

- Rehospitalization rates among ESRD patients are twice that of the entire Medicare population\(^1\).
- Half of them are related to a primary diagnosis of cardiovascular-related events:
  - leading cause of death in ESRD, totaling 54% of deaths with known causes.
- Survival at one, two and five years is 77%, 56%, and 42% respectively.
- Medicare is the principal payer for ESRD:
  - HD Medicare expenditures was $26.1 billion.
    - OR 7.2% of total Medicare expenditures\(^5\).
- These are consistently attributed to the fact that HD is an imperfect replacement for functioning kidneys\(^6\-\(^{12}\).

\(^1\) Reference: 1
\(^5\) Reference: 5
Literature indicates that sodium and strict fluid restriction can reduce volume expansion (interdialytic weight gain, IDWG)
- Reduce morbidity and mortality
- Dietary sodium restriction alone results in a clinically significant reduction of IDWG
  - thereby reducing inter- and intradialytic symptoms \(^6-12\)
- Average dietary sodium intake similar to that of the general population. \(^13-22\)

**Background Cont’d**
Sodium-restricted diets and symptoms in ESRD: An RCT (1K23NR015058-03),

- The Institute of Medicine (IOM) failed to find sufficient evidence of either harm or benefit from sodium restriction at either level of restriction.\(^{25}\)
- Minimal empirical evidence behind current sodium intake recommendations and the importance of sodium restriction for HD patients\(^{26}\)
- Aim to determine the effects of varying levels of sodium-intake set forth by the National Kidney Foundation and the American Heart Association.
  - Randomized controlled trial to assess the effects of three levels of sodium intake on the HD participant symptom prc
  - Pilot/feasibility study
Specific Aims.
Aim 1: Demonstrate that symptom and interdialytic weight gain vary among three sodium intake groups, controlling for age, race, gender, and duration of disease.
Sodium-restricted diets and symptoms in ESRD: An RCT (1K23NR015058-03)

Specific Aims.

Aim 2: Demonstrate that the effect of HD-specific variables on the symptom profiles vary among the three sodium intake groups controlling for age, race, gender, and duration of disease.

Aim 3: Determine whether total body water, extracellular fluid, and intracellular fluid measured with bioimpedance spectroscopy vary across sodium intake groups, controlling for age, race, gender, and duration of disease.
Sodium-restricted diets and symptoms in ESRD: An RCT (1K23NR015058-03)

**Design.**

- We conducted a three-group, double blinded randomized controlled trial with a sample of 42 HD patients.
- Patients were randomized to one of the three groups and admitted to the CHPS for 5 days.
- Baseline/admission data was collected, along with daily surveys, and physiologic measurements.
Results

Table 1. Baseline Total Sample Descriptive Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Race/Ethnicity</strong></td>
<td></td>
</tr>
<tr>
<td>African American, Black, Afrian, Afro Caribbean: not of Hispanic origin</td>
<td>34 (85.0)</td>
</tr>
<tr>
<td>White, Caucasian: not of Hispanic origin</td>
<td>2 (5.0)</td>
</tr>
<tr>
<td>Native American, Indian, Alaskan Native</td>
<td>1 (2.5)</td>
</tr>
<tr>
<td>Biracial or Multiracial</td>
<td>2 (5.0)</td>
</tr>
<tr>
<td>Other</td>
<td>1 (2.5)</td>
</tr>
<tr>
<td><strong>Etiology</strong></td>
<td></td>
</tr>
<tr>
<td>Hypertension</td>
<td>18 (45.0)</td>
</tr>
<tr>
<td>Diabetes</td>
<td>9 (22.5)</td>
</tr>
<tr>
<td>Other</td>
<td>12 (30.0)</td>
</tr>
<tr>
<td>Unsure</td>
<td>1 (2.5)</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>19 (47.5)</td>
</tr>
<tr>
<td>Male</td>
<td>21 (52.5)</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
</tr>
<tr>
<td>Under 40</td>
<td>4 (10.0)</td>
</tr>
<tr>
<td>40-55</td>
<td>14 (35.0)</td>
</tr>
<tr>
<td>56-70</td>
<td>17 (42.5)</td>
</tr>
<tr>
<td>&gt;71</td>
<td>5 (12.5)</td>
</tr>
<tr>
<td><strong>Perceived General Health</strong></td>
<td></td>
</tr>
<tr>
<td>Excellent</td>
<td>3 (7.5)</td>
</tr>
<tr>
<td>Very Good</td>
<td>6 (15.0)</td>
</tr>
<tr>
<td>Good</td>
<td>13 (32.5)</td>
</tr>
<tr>
<td>Fair</td>
<td>15 (37.5)</td>
</tr>
<tr>
<td>Poor</td>
<td>3 (7.5)</td>
</tr>
</tbody>
</table>
Results

![Graph showing mean extracellular fluid levels over days of admission for different groups.](image)
Results

[Graph showing mean IDWG over time for different groups with error bars indicating +/- 1 SE]
Conclusions
References


References


