RUTGERS
THE STATE UNIVERSITY OF NEW JERSEY

College of Nursing
UNIVERSITY OF COLORADO ANSCHUTZ MEDICAL CAMPUS

Perelman School of Medicine
University of Pennsylvania

Penn Nursing Science
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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

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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)

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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.

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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

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- 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.

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Sodium-Restricted Diets and Symptoms in End-Stage Renal Disease: A Randomized Controlled Trial

Maya N. Clark-Cutaia, PhD, ACNP-BC
Jamison Fargo, PhD, MS. Epi
Marilyn S. Sommers, PhD, RN, FAAN
Raymond R. Townsend, MD

Background

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

Background Cont'd

- 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]

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

Sodium-restricted diets and symptoms in ESRD: An RCT (1K23NR015058-03)

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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)

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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.*[26]**

- 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[27]

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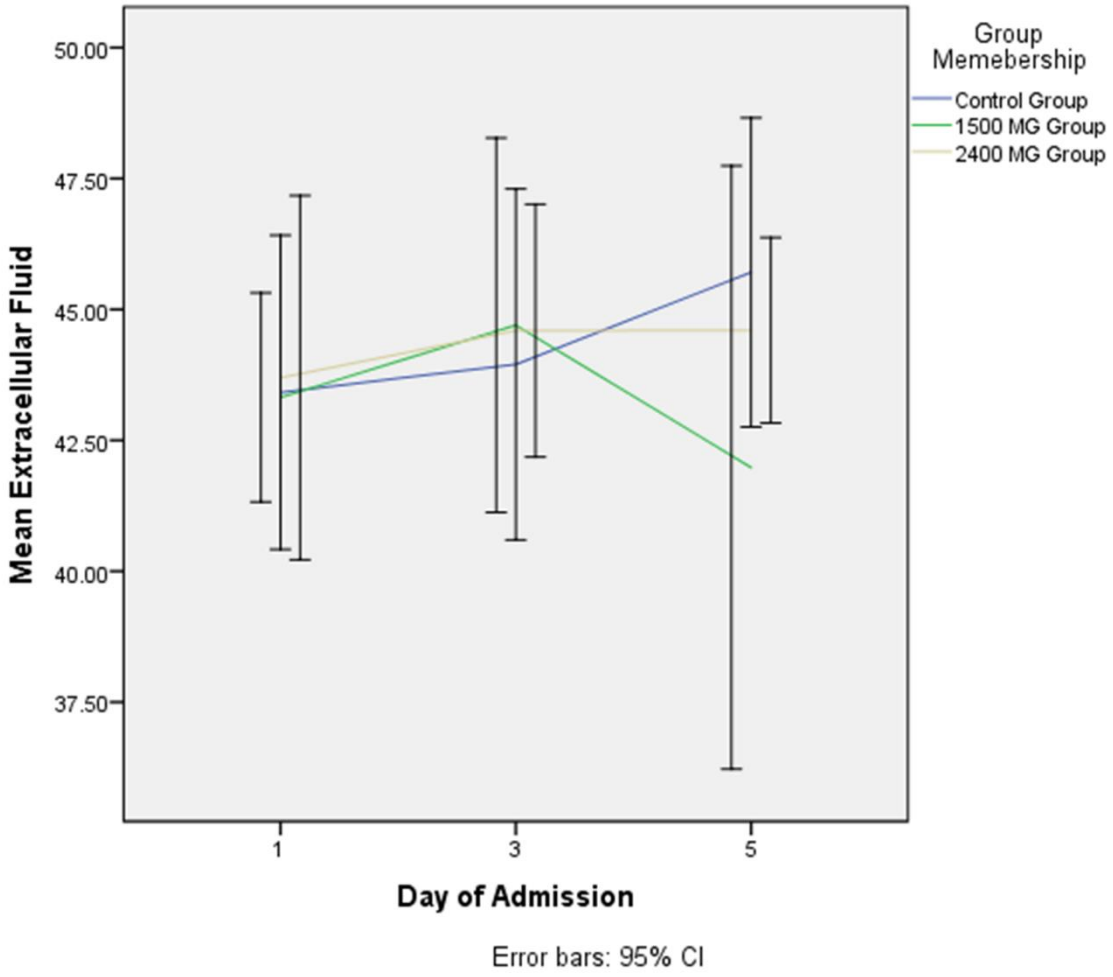
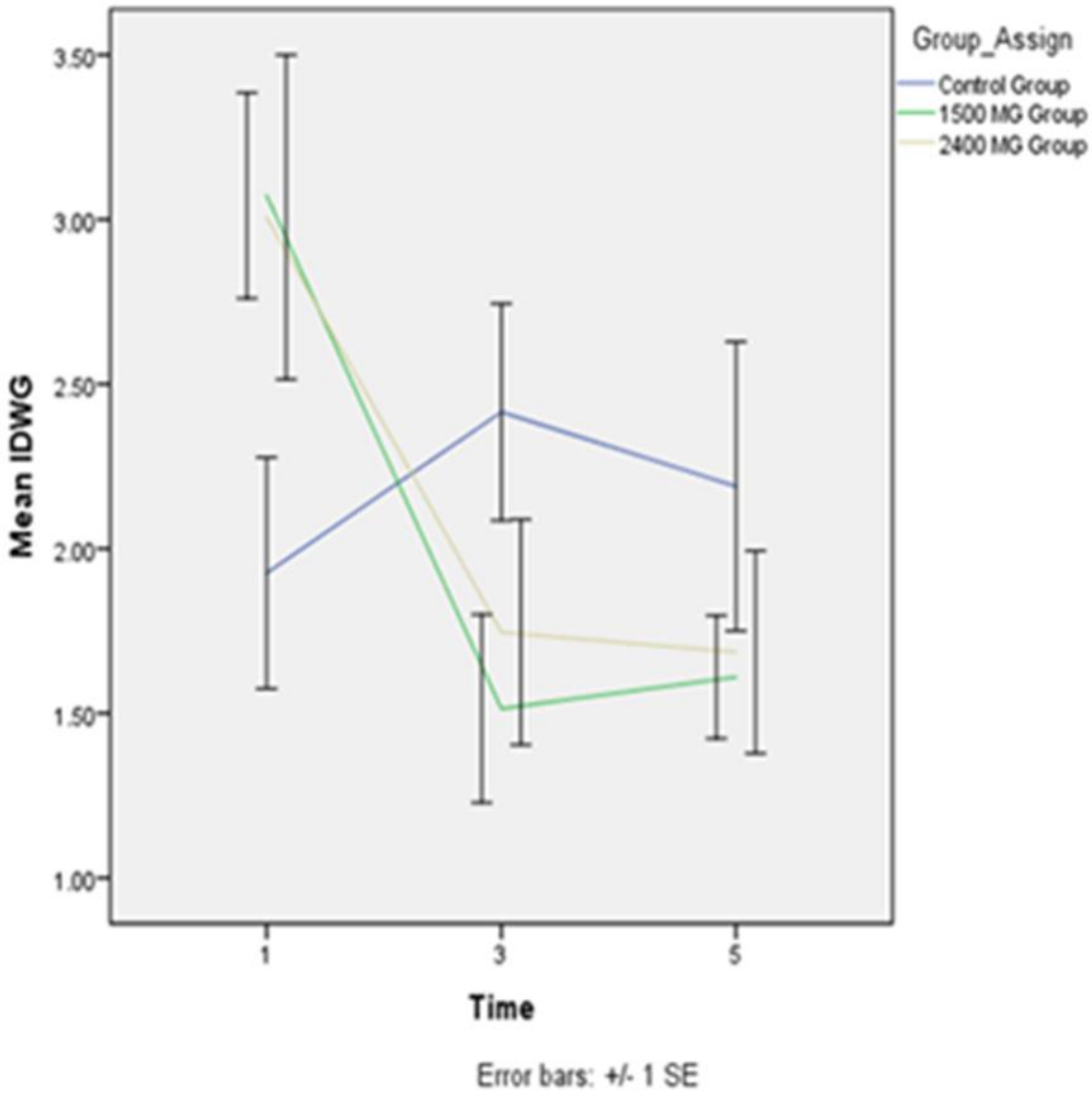
Table 1. Baseline Total Sample Descriptive Statistics	
Variable	**N (%)**
Race/Ethncity	
African American, Black, Afrian, Afro Caribbean: not of Hispanic origin	34 (85.0)
White, Caucasian: not of Hispanic origin	2 (5.0)
Native American, Indian, Alaskan Native	1 (2.5)
Biracial or Multiracial	2 (5.0)
Other	1 (2.5)
Etiology	
Hypertension	18 (45.0)
Diabetes	9 (22.5)
Other	12 (30.0)
Unsure	1 (2.5)
Gender	
Female	19 (47.5)
Male	21 (52.5)
Age	
Under 40	4 (10.0)
40-55	14 (35.0)
56-70	17 (42.5)
>71	5 (12.5)
Perceived General Health	
Excellent	3 (7.5)
Very Good	6 (15.0)
Good	13 (32.5)
Fair	15 (37.5)
Poor	3 (7.5)

Results[27]


Mean Extracellular Fluid
50.00
47.50
45.00
42.50
40.00
37.50
1
3
5
Day of Admission
Group Memebership
Control Group
1500 MG Group
2400 MG Group
Error bars: 95% CI

Results[27]


Group_Assign
Control Group
1500 MG Group
2400 MG Group
Mean IDWG
3.50
3.00
2.50
2.00
1.50
1.00
1
3
5
Time
Error bars: +/- 1 SE

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Conclusions

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