A Medication Possession Intervention to Improve Adherence and Outcomes of Heart Failure Patients After Hospitalization

Lila de Tantillo, MS, BSN, RN
Johis Ortega, PhD, ACNP-BC, ENP-BC, FNP-BC, FAAN
Juan M. Gonzalez, DNP, ARNP, AGACNP-BC, FNP-BC, CEN
Martin M. Zdanowicz, PhD, MAEd, MA

School of Nursing and Health Studies, University of Miami, Coral Gables, FL, USA

Purpose: Approximately 6.5 million people in the U.S. and 26 million worldwide have heart failure (Benjamin, et al., 2017; Ponikowski, et al., 2014). Heart failure is a chronic disease that increases mortality, reduces quality of life, and increases health care costs. Patients with heart failure take an average of 6.4 prescription medications daily (Wong, Chaudhry, Desai, & Krumholz, 2011). Adherence is crucial for heart failure patients to receive benefit from their medication regimens. However, patients face multiple barriers to adherence, including patient factors, therapy-related factors, condition-related factors, social/economic factors, and health care/system factors (World Health Organization, 2003). The World Health Organization (2003) recommends adherence interventions should address multiple barriers simultaneously. To date, there are no published studies of medication possession interventions for heart failure patients at hospital discharge. This study will pilot test among heart failure patients a novel medication possession adherence intervention, Meds to Beds, in which prescriptions are delivered bedside before discharge. It is hypothesized that intervention participants will have higher medication adherence and better health outcomes than controls, and that Meds to Beds will have high levels of feasibility and acceptability.

Methods: This pilot randomized control trial will enroll 40 heart failure patients from a large public hospital. Inclusion criteria requires participants be adults (18 or older), speak English or Spanish, and be diagnosed with Class II or Class III heart failure with an ejection fraction of 45% or lower. Participants in the control condition will receive usual care. Participants in the Meds to Beds condition will receive medications delivered bedside at the hospital prior to discharge. Patient records will be monitored for 60 days after discharge, with a telephone follow-up approximately 30 days after discharge.

Data analysis. Differences between conditions in main outcomes (medication adherence and health) will be tested using mixed ANOVA. Adherence will be assessed with pharmacy records and the self-report Adherence to Refills and Medications Scale (Kripalani, Risser, Gatti, & Jacobson, 2009). Self-reported physical health will be evaluated with the PROMIS 10-item scale (Hays, Bjorner, Revicki, Spritzer, & Cella, 2009). Hospital readmissions and deaths will be evaluated with medical records using a chi-square test. In addition, a self-report measure developed for this study will assess the five adherence factors described by the World Health Organization as mechanisms of action of adherence among participants. Feasibility and acceptability of Meds to Beds will be assessed with successful medication delivery and a self-report measure, respectively.

Results: Data collection is presently underway and expected to be completed Spring 2019.

Conclusion: By providing participants medication during the critical period after hospital discharge (Oosterom-Caló, et al., 2013), this intervention addresses all five adherence barriers as recommended by the World Health Organization (2003). Results will indicate whether the Meds to Beds intervention has promising effects on outcomes compared to usual care. Specifically, results will show if patients possess prescribed medication before they leave the hospital, they may reduce non-adherence, improve health and reduce hospital readmissions by overcoming adherence barriers. Thus, if Meds to Beds is feasible and satisfactory to patients, the intervention could be implemented and tested on a larger scale in other hospital settings.
Title:
A Medication Possession Intervention to Improve Adherence and Outcomes of Heart Failure Patients After Hospitalization

Keywords:
heart failure, medication adherence and patient discharge

References:


Abstract Summary:
There are no published medication possession interventions for heart failure patients at hospital discharge. This randomized control trial will pilot test Meds to Beds, in which medications are delivered before discharge. Results will indicate whether receiving medications at the hospital improves adherence and health outcomes among heart failure patients.

Content Outline:
I. Background

A. U.S./ global burden of heart failure
B. Importance of medication adherence as heart failure treatment
C. Barriers to medication adherence
   1. WHO recommendations for medication adherence
   2. Medication adherence intervention to address barriers

II. Methods of Pilot Randomized Control Trial

A. Enrollment
   1. Inclusion criteria
   2. Participants in control receive usual care
   3. Participants in intervention receive Meds to Beds

B. Follow Up Procedures
   1. Medical records for 60 days
   2. Follow-up phone call at 30 days

III. Data Analysis

A. Main Outcomes
   1. Adherence -- ANOVA
      a) Pharmacy Records
      b) ARMS measure
   2. Health -- ANOVA
      a) PROMIS measure

B. Adverse outcomes -- Chi square
   1. Hospital Readmission
   2. Death
C. Mechanisms of Action

1. Self-report

D. Feasibility

1. Deliveries

E. Acceptability

1. Self-report

IV. Discussion

A) Data collection underway

B) Intervention addresses WHO adherence recommendations

C) Intervention expectations

1. Potential to improve adherence and health outcomes

2. Potential to implement in other health settings

First Primary Presenting Author

**Primary Presenting Author**

Lila de Tantillo, MS, BSN, RN
University of Miami
School of Nursing and Health Studies
Doctoral Candidate
Coral Gables FL
USA

**Author Summary:** Lila de Tantillo is a doctoral candidate at the University of Miami School of Nursing and Health Studies. She is co-investigator of the Heart Failure Medication Adherence Study, a randomized control study to pilot test a medication possession intervention among heart failure patients after discharge. She has co-authored more than a dozen publications on health disparities and prevention of chronic disease.

**Any relevant financial relationships?** Yes

<table>
<thead>
<tr>
<th>Relationship</th>
<th>Description of Potential Conflict</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Grant</td>
<td>This work received support from the Beta Tau Chapter of Sigma</td>
</tr>
</tbody>
</table>

Signed on 11/17/2018 by Lila de Tantillo

Second Secondary Presenting Author
Corresponding Secondary Presenting Author

Johis Ortega, PhD, ACNP-BC, ENP-BC, FNP-BC, FAAN
University of Miami
School of Nursing and Health Studies
Associate Professor of Clinical
Coral Gables FL
USA

Author Summary: Dr. Ortega is Associate professor and Associate Dean for Master programs and Global Initiatives at the University of Miami School of Nursing and Health Studies. He is board certified as an Acute Care, Emergency, and Family Nurse Practitioner by the American Nurses Credentialing Center. Dr. Ortega has presented at national and international conferences in several countries in the areas of patient safety, advanced practice in the United States and Simulation in the Nursing Curriculum.

Third Author

Juan M. Gonzalez, DNP, ARNP, AGACNP-BC, FNP-BC, CEN
University of Miami
School of Nursing and Health Studies
Assistant Professor of Clinical
Coral Gables FL
USA

Author Summary: Dr. Gonzalez has been involved in academic and clinical nursing since 2011. As a certified emergency nurse and adult gerontology acute care nurse practitioner he has worked extensively with emergency room nurses and has contributed to their formal and informal education. Additionally, he engages in health promotion and disease prevention activities in the emergency department and the local community.

Fourth Author

Martin M. Zdanowicz, PhD, MAEd, MA
University of Miami
School of Nursing and Health Studies
Professor
Coral Gables FL
USA

Author Summary: Dr. Zdanowicz serves as the Associate Dean for Health Studies at the University of Miami School of Nursing and Health Studies where he oversees programs in public health, health science and informatics. His current research interests include pharmacogenomics, drug addiction, curriculum development and active learning techniques.