JAMDA xxx (2017) 1–6

JAMDA

journal homepage: www.jamda.com

Original Study

Use of Medical Orders for Scope of Treatment for Heart Failure Patients During Postacute Care in Skilled Nursing Facilities

Hillary Lum MD, PhD [a,b,*], Oluyomi Obafemi MD [c], Joanna Dukes MS [a], Molly Nowels MA [d], Kristina Samon BSN [e], Rebecca S. Boxer MD, MS [a,b]

[a] Division of Geriatric Medicine, University of Colorado School of Medicine, Aurora, CO
[b] Veterans Affairs Eastern Colorado Geriatric Research Education and Clinical Center, Denver, CO
[c] Department of Preventive Medicine, University of Colorado School of Medicine, Aurora, CO
[d] Colorado School of Public Health, Aurora, CO
[e] University of Colorado College of Nursing, Aurora, CO

Keywords:
POLST
heart failure
advance directives
subacute rehabilitation
skilled nursing facility
goal-concordant care

A B S T R A C T

Background: Individuals with heart failure (HF) who are hospitalized and admitted to skilled nursing facilities (SNFs) are at high risk for rehospitalization and death. The care preferences of this high-risk population have not been studied.
Objectives: To describe care preferences of patients with HF admitted to SNFs for rehabilitation based on Medical Orders for Scope of Treatment (MOST) documentation, and evaluate goal-concordant care based on MOST documentation, emergency department (ED) visits, and hospitalization.
Design, setting, and participants: Retrospective study of patients with HF in 35 SNFs enrolled in a randomized controlled trial of HF-disease management versus usual care between July 2014 and May 2016.
Measurements: Validity of MOST forms, care preference documentation, and ED visits/hospitalizations within 60 days of SNF admission.
Results: Of 370 patients (mean age 78.6 years, 58% women, 25% systolic HF), 278 (75%) had a MOST form in the SNF chart, of which 96 forms (35%) were invalid. The most common reason for an invalid MOST form was missing date accompanying patient or provider signature. Of 182 valid MOST forms, 47% of patients chose no cardiopulmonary resuscitation ("No CPR"), 58% selected "Full Treatment," 17% chose "Selective Treatment," and 23% chose "Comfort-Focused Treatment." Patients who were older [odds ratio (OR) = 1.50, 95% confidence interval (CI) = 1.25, 1.81] and female (OR = 2.33, 95% CI = 1.18, 4.59) had higher odds of choosing "No CPR." Sixty-six of 182 patients (36%) with valid MOST forms had an ED/hospital visit within 60 days of SNF admission; only 3 patients received medical care that was potentially discordant: all 3 chose "Comfort-Focused Treatment" and were hospitalized for more than symptom management.
Conclusion: Seventy-five percent of patients with HF admitted to SNFs had care preferences documented using the MOST form, and 95% received goal-concordant care based on care preferences documented during the SNF admission. Clinicaltrials.gov # NCT01822912.

Heart failure (HF) is a progressive, debilitating disease with frequent hospitalizations, care transitions, and high mortality. A national HF registry showed that approximately two-thirds of patients admitted for acute decompensated HF were rehospitalized within 1 year and one-third died.[1] In addition, 1 in 5 patients hospitalized for HF is discharged to a skilled nursing facility (SNF).[2] HF patients who were discharged to SNFs demonstrated a 14% 30-day mortality and a 54% 1-year mortality.[2] In contrast, patients who were discharged home had a 4% 30-day mortality and a 29% 1-year mortality.[2] There is a critical need to elicit, document, and provide medical care that aligns with individual preferences, especially in the SNF setting where patients have functional limitations and high risk of mortality.

The Medical Orders for Scope of Treatment (MOST) form is a tool to assist with decisions, documentation, and communication about

The authors declare no conflicts of interest.

* Address correspondence to Hillary Lum, MD, PhD, Division of Geriatric Medicine, Department of Medicine, University of Colorado School of Medicine, 12631 E 17th Ave B-179, Aurora, CO 80045.
E-mail address: hillary.lum@ucdenver.edu (H. Lum).

http://dx.doi.org/10.1016/j.jamda.2017.05.021
1525-8610/

specific medical care preferences. As part of the national Physician Orders for Life-Sustaining Treatment (POLST) program,[3] the MOST form was introduced in Colorado in 2010 via statue 15-18.7 and revised in April 2015.[4] Many studies have shown a strong concordance between POLST form documentation and medical treatment.[5,6] Prior research has included residents of long-term care nursing facilities where POLST forms are frequently used, but not patients receiving postacute care in the SNF setting.[6]

Because there are no studies describing the use of MOST or POLST forms to document care preferences for patients with HF admitted to SNFs after hospitalization, we accessed data from an HF-disease management clinical trial called SNF-Connect to (1) determine the rate of valid MOST form completion, (2) describe care preferences as documented with MOST forms, (3) explore patient-level characteristics associated with "No CPR," and (4) evaluate concordance between SNF MOST documentation and health care utilization after SNF admission.

Material and Methods

Study Design, Setting, and Participants

This is a retrospective analysis of MOST forms among SNF-Connect trial participants and is approved by the University of Colorado Multiple Institutional Review Board. The SNF-Connect Trial is a randomized control trial of an HF-disease management program versus usual care.[7] We used the SNF-Connect trial to evaluate real-world use of MOST forms since the HF-disease management trial does not affect MOST form use. Patients were admitted to one of 35 SNFs. The parent study outcomes include all-cause rehospitalizations, HF rehospitalizations, and mortality within 60 days from SNF admission. Patients eligible for SNF-Connect had a primary or secondary HF diagnosis at hospital discharge. Exclusion criteria included patients on dialysis, a life expectancy less than 6 months, cognitive impairment without a power of attorney, and residing in a long-term care facility prior to hospitalization.[7] Of the 378 patients who enrolled in SNF-Connect between July 1, 2014, and May 31, 2016, a total of 8 patients withdrew from the parent study and were excluded from analysis. Investigators were blinded to study group assignment. All patients or authorized representatives for those with dementia provided informed consent.

Data Collection Procedures

Patient characteristics, including demographics and clinical characteristics, were collected by trained SNF-Connect study personnel. Beginning December 2015, research staff retrospectively obtained the MOST forms to determine the rate and validity of MOST form completion. The percentage of MOST forms available from each SNF ranged from 47% to 100%.

Evaluation of MOST Forms

MOST form data were managed using REDCap electronic data capture tools.[8] Data included presence or absence of a MOST form, SNF where patient was enrolled, signature and date of patient or authorized representative, signature and date of health care provider, and orders for care preferences. The form has 3 sections to address individual care preferences for:

1. Cardiopulmonary resuscitation (CPR)
2. Medical interventions with options for "Full Treatment" including transfer to hospital and intensive care if required; "Selective Treatment," which permits transfer to hospital but avoids intensive care unit admission; and "Comfort-Focused Treatment," which avoids transfer to hospital if comfort measures can be met in the current location
3. Artificially administered nutrition with options for long-term/permanent artificial nutrition versus short-term/temporary artificial nutrition versus no artificial nutrition by tube.

The forms were categorized as valid or invalid based on specific requirements for a legally valid Colorado MOST form from the legal statute (Table 1).[4] A form was deemed valid if all of the requirements for care preferences, signatures, and dates were completed. Additionally, the revised 2015 MOST form required that selection of "Yes CPR" in section A necessitate selection of "Full Treatment" in section B. These criteria were applied across all MOST forms, including 128 original MOST forms and 150 revised MOST forms. Two trained research assistants reviewed 10% of MOST forms to ensure accurate adjudication and entry of care preferences. The original and revised 2015 MOST forms are included as an Appendix.

Evaluation of Health Care Events for Goal-Concordant Care

To determine if patients experienced a health care event (ED visit or hospitalization within 60 days), study personnel contacted patients/family by phone and when applicable, requested ED or hospitalization records electronically. Additionally, the statewide health information exchange system was checked for ED visits or hospitalizations. Records from only the first ED visit or hospitalization were reviewed because care preferences could change across multiple events and transitions. Two trained research assistants reviewed records for whether CPR occurred, for hospital admission, and for intensive care unit–level care during admission. To determine goal-concordant care, we defined 3 potential types of discordant care: (1) patient preference for "No CPR" but received CPR; (2) patient preference for "Comfort-Focused Treatment" but was hospitalized; (3) patient preference for "Selective Interventions" but was admitted to the intensive care unit. Ten percent of records were reviewed by a third team member to ensure reviewer consistency.

Data Analyses

First, sociodemographic and baseline medical characteristics were described. As appropriate, 2-sample *t* tests, chi-square tests, and Fisher exact tests were performed to determine differences in patient groups by (1) presence or absence of a MOST form or (2) validity of a MOST form. Then, we conducted multivariable logistic regressions to determine patient-level characteristics that were associated with choosing "No CPR." We selected patient-level characteristics as covariates a priori, based on potential clinical relevance or known association with mortality. The covariates chosen were sociodemographic variables (age, gender, race, and education level), an indicator of health care utilization (prior ED visit), and risk related to medical comorbidity. Additionally, any ED visit in the prior year was dummy coded as a health care utilization variable. Nearly all patients had an inpatient hospitalization in the prior year, and thus this variable was not used in regression analyses because of low discriminatory power. Medical comorbidities were classified according to the Charlson

Table 1
Requirements for a Legally Valid Colorado MOST Form

- Selection of treatment preferences in at least Section A, B, or C
- Congruent treatment preferences—specifically "Yes CPR" requires choosing "Full Treatment" in Section B.
- Signature and date by Patient or surrogate legal decision maker
  - Provider signature and date is required, but "in the absence of a provider signature, the patient selections should be considered as valid, documented patient preferences for treatment."