

Medication Use Leading to Hospital Readmission in Frail Elders

Joshua S. Shapiro, MD, Rozalina G. McCoy, MD, Paul Y. Takahashi, MD, Bjorg Thorsteinsdottir, MD, Stephanie M. Peterson, BS, James M. Naessens, ScD, Parvez A. Rahman, MHI, Anupam Chandra, MD, Gregory J. Hanson, MD, Rachel D. Havyer, MD, Christina Y. Chen, MD, and Lynn S. Borkenhagen, DNP, FNP-C

ABSTRACT

Frail multimorbid elders are at high risk for hospital readmission and can benefit from dedicated care transitions programs. Nonetheless, some patients remain at disproportionately heightened risk. In this retrospective study of 717 frail multimorbid community-dwelling elders (mean age = 83 years) enrolled in a care transitions program, we assessed the effect of specific medications and postdischarge medication changes on 30-day readmission. Patients treated with opioids, anticholinergic agents, or antihistamines and those requiring ≥ 4 medication changes after hospital discharge were at a significantly greater risk. This knowledge provides nurse practitioners an opportunity to individualize and improve the care of this vulnerable population.

Keywords: frail elderly, home visits, medication reconciliation, opioids, patient discharge

© 2017 Elsevier Inc. All rights reserved.

Medication-related events are a potential cause of morbidity and death¹ and incur > \$21 billion in health care costs annually in the United States.² Geriatric patients with multiple chronic conditions are at increased risk for such events,³⁻⁵ including sedation, falls, hypotension, bleeding, hyperglycemia, and hypoglycemia.³ Medication-related events account for 12% of all reasons for medical admissions among elderly patients⁴ and 11% of emergency department visits.³ Hospitalizations and readmissions account for a large portion of health care costs,^{6,7} with an average cost of hospitalization in Minnesota in 2015 estimated around \$14,000.^{8,9} The American Geriatric Society Beers Criteria¹⁰ identify high-risk medication classes to be used with caution among the elderly, including anticholinergic agents, sedatives/hypnotics, muscle relaxants, anticoagulants, and certain hypoglycemic drugs,^{11,12} although their use is sometimes unavoidable in clinical practice. Previous studies have looked at medication-related events among older patients but are heterogeneous because of different

definitions and diagnostic detection of events.^{13,14} More recently, because hospital readmission rates have become an increasingly important quality metric, some studies have sought to identify specifically which medications increase readmission risk in older patients.^{15,16}

Patients are at particularly high risk for medication-related events after hospitalization because of process issues such as medication discrepancies, nonadherence, and inadequate reconciliation in handoffs during admission, transfer, and discharge,^{17,18} as well as posthospitalization syndrome that makes patients more vulnerable to adverse health events because of changes in nutrition, sleep, and activity levels.¹⁹ A number of hospital discharge programs have been developed to address potential medication-related problems and have shown reductions in hospital readmission rates,^{17,20-22} unplanned emergency department visits,^{17,23} and postdischarge adverse events.²⁴ The programs have been used in various patient populations and have been largely successful in geriatric cohorts.^{21,22,25}

Many discharge programs now include medication reconciliation as a core clinical process.¹⁷

Although medication reconciliation is a core component of discharge programs, it remains unclear whether more specific medication factors, such as medication classes or medication use issues, correlate with 30-day rehospitalization of elders in care transition programs; as such patients are among the most vulnerable of the geriatric population. Hence, we sought to look at the association of specific medications or the extent of medication changes made with the risk of 30-day hospital readmission among frail elders enrolled in the clinic care transitions (CCT) program.²⁵

METHODS

Study Design and Setting

We performed a retrospective cohort study of patients enrolled in the CCT program within employee and community health (ECH). ECH is an integrated, multispecialty primary care group practice that includes family medicine and internal medicine for the adult practice located in 4 diverse care sites. We conducted the study using the principles outlined in the Declaration of Helsinki. We sought and received approval from the institutional review board. Patients provided written consent for electronic health record (EHR) review.

CCT

The CCT program was launched in 2011 to improve care after hospitalization for high-risk elders released from the hospital to the community and has been previously described.²⁵ High-risk hospitalized patients were identified for potential CCT enrollment, and a registered nurse evaluated each patient while in the hospital. Those enrolled were visited in their home by a nurse practitioner (NP) within 1 to 5 business days after discharge. The NP reviewed the patient's medications and the hospital discharge summary. During this review, the NP inspected the medications and administration system and made and recorded medication changes. A follow-up NP home visit was completed the following week, and visits continued as needed for at least 1 month. A registered nurse case manager performed weekly phone calls to assess changes in the patient's clinical status.

Participants

The study population included all community-dwelling adults enrolled in the CCT between January 1, 2011, and March 31, 2015. Participants had an assigned primary care provider within ECH, were age ≥ 60 years at program entry, and had an Elders Risk Assessment (ERA) score ≥ 16 .²⁶ The ERA measures age, previous hospital utilization, and medical comorbidity from administrative EHR data. High ERA scores have been validated in our patient population to predict a 2-year risk of hospitalization and emergency department use.²⁶ The score is used clinically for all patients to determine eligibility for case management. Patients meeting CCT criteria were approached for potential enrollment in the program. By special exception, patients can be accepted into CCT without meeting the criteria.

Exclusion criteria included patients admitted to a nursing home for a long-term stay, those who received a diagnosis of terminal illness or dementia, and those enrolled in hospice care. Patients who did not have an initial CCT encounter within 30 days of discharge were also excluded. In addition, exclusion criteria included the absence of consent for EHR review. Minnesota allows patients to opt out of retrospect health record review.²⁷

Independent Variables

For each participant, data on age, sex, and comorbid health conditions were obtained from the EHR. Individual medications and medication classes at the time of CCT enrollment were administratively abstracted from the EHR on the basis of active medication orders at 1 day before the first home visit. Medications were classified using the National Drug File Reference Terminology criteria,²⁸ with the exception of aspirin, acetaminophen, and warfarin, which were listed individually because of their prevalence and potential adverse event profile (Table 1). Three study investigators independently reviewed and validated the medical classification of the medications and made adjustments by consensus when clinically indicated. In areas of disagreement, the senior geriatrician served as the final arbiter for medication class ascertainment. The total number of individual medications per patient (≤ 8 , 9-14, and

Download English Version:

<https://daneshyari.com/en/article/8573299>

Download Persian Version:

<https://daneshyari.com/article/8573299>

[Daneshyari.com](https://daneshyari.com)