Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.JournalofSurgicalResearch.com

Association for Academic Surgery

Discharge destination and readmission rates in older trauma patients

David S. Strosberg, MD,[a] *Blain Chaise Housley, BA,*[a] *Daniel Vazquez, MD,*[b] *Amy Rushing, MD,*[b] *Steven Steinberg, MD,*[b] *and Christian Jones, MD*[c,*]

[a] *Department of Surgery, The Ohio State University College of Medicine, Columbus, Ohio*
[b] *Division of Trauma, Critical Care and Burn, Department of Surgery, The Ohio State University College of Medicine, Columbus, Ohio*
[c] *Division of Acute Care Surgery, Department of Surgery, Johns Hopkins University, School of Medicine, Baltimore, Maryland*

ARTICLE INFO

Article history:
Received 3 February 2016
Received in revised form
23 May 2016
Accepted 7 July 2016
Available online 15 July 2016

Keywords:
Discharge destination
Comorbidity-polypharmacy score
Readmissions
Trauma
Elderly
Quality

ABSTRACT

Background: In older trauma patients, the impact of discharge destination on readmission rates is not known. The objective of this study was to evaluate the association between the discharge destination and the 30-day readmission rate in older trauma patients.

Materials and methods: A previously validated database of all patients aged 45 years or older undergoing trauma evaluation at our level 1 trauma center between January 1, 2008 and December 31, 2008 was analyzed to retrospectively compare the incidences of 30-day readmission between patients discharged to home, to inpatient rehabilitation facilities, and to other extended care facilities (ECFs). Demographic information including age and gender and potentially confounding factors including injury severity, trauma activation level, comorbidities, medications, and preinjury functional status were included. Univariate analysis was undertaken using chi-square testing. Multiple logistic regression was performed with potential confounding variables to evaluate for independent contribution to readmission risk.

Results: A total of 960 patients were evaluated; 81 patients (8.4%) were excluded, leaving 879 patients included in the analysis. Seventy-six patients (8.6%) were readmitted within 30 d of discharge. Overall, 6% of those discharged to home, 13% of those discharged to ECF, and 16% of those discharged to rehabilitation were readmitted ($P < 0.01$ on univariate analysis). Overall, 866 (98.5%) patients had data recorded for all variables analyzed using multiple logistic regression; among these, only discharge destination was independently associated with the rate of readmission ($P < 0.01$).

Conclusions: Discharge to ECFs and inpatient rehabilitation facilities appear to be an independent risk factor for hospital readmissions in this population despite controlling for injury severity and comorbidities. Recognition of this risk factor may aid in the disposition planning of these patients and suggests the need for further evaluation of this correlation at other US medical centers.

© 2016 Elsevier Inc. All rights reserved.

* *Corresponding author*. Division of Acute Care Surgery, Department of Surgery, Johns Hopkins University, 1800 Orleans St Ste 6107, Baltimore, MD 21287. Tel.: +1-410-955-2244; fax: +1-410-955-1884.
E-mail address: on-call@christianjones.md (C. Jones).

0022-4804/$ – see front matter © 2016 Elsevier Inc. All rights reserved.
http://dx.doi.org/10.1016/j.jss.2016.07.015

Introduction

The rate of unplanned readmissions is a quality measure often used to evaluate individual hospital care.[1,2] Readmissions pose a major economic burden, with associated costs of $12 billion annually in 2005[3] and account for 17% of total hospital payments from Medicare in 2004.[4] Preventing avoidable readmissions may improve patient quality of life and the financial state of the health system. As a result, the Affordable Care Act instituted the Hospital Readmissions Reduction Program in 2012 allowing the Centers for Medicare and Medicaid Services to reduce payments to hospitals with excess disease-specific and hospital-wide readmissions to incentivize improvement in the quality of care.[2]

Hospital readmissions after hospitalization for traumatic injury are frequent. Nearly 30% of 30-d readmissions are due to complications of injury and treatment; in the older population, this is most frequently due to anastomotic disruption, wound infection, pneumonia, and iatrogenic congestive heart failure.[4] Elderly trauma patients in particular are at increased risk for morbidity and mortality after injury in both the inpatient and the postdischarge settings.[5,6] Determining the best discharge destination for patients in this population may be difficult, as it is based on medical, functional, and social aspects of the patient's injury in association with the patient's acute and chronic medical conditions.[7] Although there is some literature identifying independent risk factors for hospital-wide readmissions,[8] little is known about the relationship between discharge destination and readmission in older trauma patients.

The objective of this study was to identify the proportion of older trauma patients who required unplanned hospital readmission and to evaluate the association between the discharge destination and 30-d readmission rates.

Materials and methods

We used a previously validated database of trauma patients evaluated at the Ohio State University Wexner Medical Center, an American College of Surgeons verified level 1 trauma center, between January 1, 2008 and December 31, 2008. The database was formed by querying the trauma registry for all patients aged 45 years and over; our group's prior work[9,10] established this age as a lower threshold for meaningful evaluation of trauma patients with multiple comorbidities and pre-existing medications. Level of trauma alert (1, the most critically injured; 2, moderately injured; or 3, trauma consult), Glasgow coma score (GCS), injury severity score (ISS), length of stay (LOS), intensive care unit (ICU) LOS, and age was obtained from the trauma registry for each patient. Manual review of electronic medical records was used to identify patients who were incarcerated or pregnant, who died before discharge, and who were readmitted to our institution within 30 d of discharge, as well as to record each patient's gender, number of preinjury medical problems, number of preinjury prescription medications, preinjury functional status (independent, partially dependent, or fully dependent on assistance), preinjury location (home or extended care facility [ECF]), and discharge destination, grouped as home, inpatient rehabilitation, or other ECFs (including long-term acute care hospitals, skilled nursing facilities, and nursing homes). Comorbidity-polypharmacy score (CPS) was evaluated for each patient using the preinjury medical problems and medications.[9,10] Creation and use of this database for research purposes was approved by the institutional review board of The Ohio State University.

Our analysis included all patients aged 45 years or older who were evaluated by the trauma team at our institution during the 2008 calendar year. Excluded patients were those who were incarcerated, patients who died during their hospitalizations, patients who were discharged to hospice, and pregnant patients.

Patients' reasons for discharge to a facility other than home, functional status at time of discharge, incidences of admission to other medical centers, and specific reasons for readmission were not available in the database.

With the dichotomous outcome of 30-d readmission, univariate analysis for association was undertaken using chi-square testing for categorical variables (trauma level, gender, initial functional status, preinjury location, and discharge destination), and simple logistic regression was used for interval variables (age, CPS, GCS, LOS, and ICU LOS). Variables which demonstrated a univariate association with readmission ($P < 0.10$) were included in a multiple logistic regression model to evaluate for an independent contribution to readmission risk; a P value of less than 0.05 on multiple logistic regression was considered statistically significant. For the categorical variables of discharge destination, linearly independent contrasts of home *versus* ECF and home *versus* rehab were coded for use in the multiple logistic regression evaluation.

Results

During the 1-y study period, 960 patients aged 45 years and older were evaluated. Overall, 81 (8.4%) patients met exclusion criteria, leaving 879 patients to comprise the study population (Fig. 1). Patients without data available for a particular variable were excluded from analysis of that variable. In addition, two homeless patients were excluded from analysis of the "preinjury location" variable and two patients with impossible GCS values were excluded from that analysis.

Baseline characteristics included an age range from 45 to 103 y (median 58), with an ISS range 0-50 (median 5), and CPS range 0-39 (median 7). Further characteristics of the patients are listed in Table 1.

Seventy-six patients (8.6%) were readmitted within 30 d of discharge. Thirty-three patients were readmitted of 564 patients discharged to home (6%). Twenty-two patients were readmitted of 175 discharged to an ECF (13%), and 21 patients were readmitted of 133 discharged to inpatient rehabilitation (16%; Fig. 2). Seven patients had indeterminate discharge destination or were homeless and discharged to a shelter; none were readmitted. Univariate analysis comparing readmission rates after discharge to home, rehab, ECF, or other demonstrated statistical significance, with $P = 0.00009$. Other

Download English Version:

https://daneshyari.com/en/article/5733909

Download Persian Version:

https://daneshyari.com/article/5733909

Daneshyari.com