Full length article

Unhealthy alcohol use in older adults: Association with readmissions and emergency department use in the 30 days after hospital discharge☆

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ABSTRACT

Background: Unhealthy alcohol use could impair recovery of older patients after medical or surgical hospitalizations. However, no prior research has evaluated whether older patients who screen positive for unhealthy alcohol use are at increased risk of readmissions or emergency department (ED) visits within 30 days after discharge. This study examined the association between AUDIT-C alcohol screening results and 30-day readmissions or ED visits.

Methods: Veterans Affairs (VA) patients age 65 years or older, were eligible if they were hospitalized for a medical or surgical condition (2/1/2009–10/1/2011) and had an AUDIT-C score documented in their VA electronic medical record in the year before they were hospitalized. VA and Medicare data identified VA or non-VA index hospitalizations, readmissions, and ED visits. Primary analyses adjusted for demographics, comorbid conditions, and past-year health care utilization.

Results: Among 579,330 hospitalized patients, 13.7% were readmitted and 12.0% visited an ED within 30 days of discharge. In primary analyses, high-risk drinking ($n = 7,167$) and nondrinking ($n = 357,086$) were associated with increased probability of readmission (13.8%, 95% CI 13.0–14.6%; and 14.2%, 95% CI 14.1–14.3%, respectively), relative to low-risk drinking (12.9%; 95% CI 12.7–13.0%). Only nondrinkers had increased risk for ED visits.

Conclusions: Alcohol screening results indicating high-risk drinking that were available in medical records were modestly associated with risk for 30-day readmissions and were not associated with risk for ED visits.

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1. Introduction

Efforts to improve the quality of hospital care often focus on readmissions within 30 days of hospital discharge because readmissions can reflect a poor outcome for patients and higher costs for the health care system (Jencks et al., 2009). Hospital readmissions are common among older adults and are an international hospital quality indicator (Blunt et al., 2015; Gerhardt et al., 2014; Jencks et al., 2009; Parker, 2005). In the U.S., the Centers for Medicare and Medicaid Services (CMS) recently implemented the hospital readmission reduction program (Centers for Medicare and Medicaid

Services, 2014) and funded implementation of care coordination interventions (Brock et al., 2013; Voss et al., 2011), based on evidence that readmissions can be prevented with proper transitional support and discharge planning (Coleman et al., 2006; Leppin et al., 2014). Use of emergency departments (ED) could also indicate poor transitions following inpatient care (Baier et al., 2013; Kocher et al., 2013), but has received less attention from policy makers and is not currently monitored as a hospital quality metric. However, previous literature has highlighted many complex patient-level characteristics that may contribute to risk for readmissions and ED visits, such as patient age, gender, or socioeconomic status (Amarasingham et al., 2010; Arbaje et al., 2008), which may not be modifiable characteristics within the control of hospitals.

Unhealthy alcohol use is a potentially modifiable health behavior that may be a risk factor for readmissions in the elderly. While several studies have examined the association between unhealthy alcohol use and readmissions (Kartha et al., 2007; Rubinsky et al., 2012; Walley et al., 2012; Wei et al., 2015), no prior study has focused on older adults. Prior studies have also not utilized alcohol screening results documented in the electronic health record (EHR) as part of routine care, and have not examined the association between unhealthy alcohol use and ED visits in the 30 days after discharge. While unhealthy alcohol use is less common among older adults, nearly 9% drink at unhealthy levels based on self-reported consumption (Kirchner et al., 2007), although the exact prevalence is unknown. Older adults are particularly vulnerable to the adverse effects of alcohol (National Institute on Alcohol Abuse and Alcoholism, 2005), but are less likely than younger patients to have alcohol use assessed during clinical care (Burman et al., 2004; Duru et al., 2010).

Routine alcohol screening with the Alcohol Use Disorder Identification Test-Consumption (AUDIT-C) screening questionnaire was implemented in the U.S. Veterans Health Administration (VA) in 2004 (Bradley et al., 2006). The VA is the largest integrated health care system in the U.S. and provides care for over 5 million patients annually (Kizer and Dudley, 2009). VA patients generally have poorer health status and more comorbidities, including mental health conditions, than non-VA patients (Ajmera et al., 2011; Selim et al., 2010). The VA has emerged as a leader in implementation of alcohol screening and other health systems are increasingly implementing alcohol screening as well (Jonas et al., 2012). Yet, it is currently unknown whether available alcohol screening results, collected as part of routine care during outpatient visits, could be useful for identifying hospitalized older adults at increased risk for hospital readmissions and ED visits within 30 days of hospital discharge.

The present study's objectives were to examine whether unhealthy alcohol use, according to AUDIT-C scores documented in the VA's EHR, was associated with (1) increased risk for readmissions or (2) increased risk for ED visits, in the 30 days following a hospitalization for a medical or surgical condition in a national sample of older VA patients. If unhealthy alcohol use was associated with increased 30-day hospital readmissions or ED visits, it could indicate an opportunity for clinicians and health systems to deliver targeted alcohol-related interventions for hospitalized patients in an effort to reduce hospital readmissions or ED use.

2. Methods

2.1. Data sources and study sample

The VA's Corporate Data Warehouse (CDW) provided data for VA acute care hospitalizations, outpatient utilization, AUDIT-C scores, demographics, and date of birth and death. The VA Information Resource Center (VIReC) provided Medicare Inpatient, Outpatient, and Carrier standard analytic files for non-VA inpatient and outpatient utilization.

The study sample included all VA outpatients age 65 or older who were hospitalized for a medical or surgical condition at a VA or non-VA hospital (2/1/2009–12/31/2011) and had at least one AUDIT-C score available in their VA medical record (2/1/2008–12/31/2011). Study eligibility criteria were then applied to this sample based on 30-day readmission measures developed for CMS (Horwitz et al., 2013), with some modifications in order to include only community-dwelling older adults discharged to the community. The study was restricted to patients discharged to the community because the mechanism by which unhealthy alcohol use was hypothesized to impact the risk of readmission or ED visits – decreased medication adherence and self-care, or falls due to drinking after discharge – was unlikely to impact institutionalized patients. Patients were included if they met the following criteria: (1) survived the hospital stay, (2) length of stay <30 days, (3) primary diagnosis not for a psychiatric condition, cancer, or physical rehabilitation, (4) admitted from the community, (5) not discharged to another facility, (6) not discharged against medical advice, (7) discharged before 10/1/2011 (to allow adequate follow-up), and 8) documented AUDIT-C score 1–365 days prior to admission (Fig. 1). Hospitalizations were categorized as medical or surgical based on the Diagnosis Related Group (DRG) code; hospitalizations without a valid DRG were excluded. Finally, patients enrolled in Medicare managed care plans in the year before or 30 days after hospitalization were excluded because information on readmissions and comorbidities would be incomplete. The final study cohort included 579,330 eligible patients (54% of total hospitalized patients; Fig. 1). For patients with multiple eligible hospitalizations, only the first stay was included. This study received human subjects approval, including waivers of informed consent and HIPAA authorization, from the University of Washington and VA Puget Sound Institutional Review Boards.

2.2. Outcomes

This study assessed two outcomes in the 30 days after discharge from the "index" (i.e., initial) hospitalization: (1) any hospital readmission and (2) any ED visit. Readmissions were defined as any unplanned hospital admission within 30 days of discharge. The algorithm for identifying eligible readmissions was adapted from the CMS hospital-wide all-cause readmission measure (Supplementary material 1[1]; Horwitz et al., 2013). Potentially planned procedures were identified based on DRG codes used in a previous study (Jencks et al., 2009) and were excluded unless an acute principal diagnosis was present (Horwitz et al., 2013). ED visits were defined as any treat-and-release ED visit within 30 days of discharge (i.e., ED visits not resulting in re-hospitalization).

2.3. Alcohol risk group

Alcohol risk group was the independent variable of interest, based on each patient's most recent AUDIT-C score in the year before index hospitalization. The AUDIT-C is a brief 3-item screening questionnaire that was validated against in-depth interviews for identifying past-year hazardous drinking and/or DSM-IV alcohol use disorders (AUD; Bradley et al., 2003, 2007; Bush et al., 1998). The AUDIT-C is scored 0–12 points with scores of 0 indicating no past-year alcohol use and increasing scores associated with

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[1] Supplementary material can be found by accessing the online version of this paper at http://dx.doi.org and by entering doi:10.1016/j.drugalcdep.2015.11.008.