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Whatever happens to trauma patients who leave against medical advice?

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Abstract

BACKGROUND: Although trauma patients are frequently discharged against medical advice (AMA), the fate of these patients remains mostly unknown.

METHODS: Patients with traumatic injuries were identified in the California State Inpatient Database, 2007 to 2011. Readmission characteristics of patients discharged AMA were compared with patients discharged home.

RESULTS: There were 203,756 (75.65%) patients discharged home and 4,480 (1.66%) discharged AMA. Compared with those discharged home, patients discharged AMA had significantly higher 30-day readmission rates (17.12% vs 6.75%), rates of multiple readmissions (3.83% vs 1.12%), and likelihood of being readmitted at different hospitals (44.83% vs 33.82%) (all $P < .001$). The commonest reasons for readmission in patients discharged AMA were psychiatric conditions [adjusted odds ratio: 1.67 (1.21 to 2.27)].

CONCLUSIONS: Discharge AMA is associated with multiple readmissions and higher rates of readmissions at different hospitals. Early identification of vulnerable patients and improved modalities to prevent discharge AMA among these patients may reduce the negative outcomes associated with discharge AMA among trauma patients.

Discharge against medical advice (AMA) is a leading cause of premature hospital discharge in the United States, accounting for more than 500,000 premature discharges annually.[1] The decision to leave AMA has far-reaching implications not just for the patients but also for their care providers. These patients are more likely to have early postdischarge complications leading to frequent emergency department visits and readmissions.[2–4] These consequences ultimately lead to worse patient outcomes, disintegration of patient care, and higher cost of care.[5,6] The characteristics of patients who leave AMA are well-established and include male sex, young

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age, lack of private insurance, and substance abuse or other psychiatric diagnoses.[4,7–10] Identifying patients at increased risk for leaving AMA is useful in early interventions to prevent this unwanted event.

Patients with traumatic injuries are a unique group of patients who are often admitted under sudden, unexpected, and sometimes involuntary circumstances. The choice of the hospital, surgeon, and in some cases, procedures performed are often beyond the control of the patient. In addition, the setting of acute care is usually tense increasing the likelihood for inadequate communication between care providers and patients.[11] Lack of adequate communication between care providers and patients is known to increase the likelihood of patients leaving AMA.[12,13] Furthermore, the demographic and social characteristics of patients who leave AMA are found in high proportions among patients treated for traumatic injuries. These factors put together highlight the need to examine the characteristics and outcomes of trauma patients who leave AMA.

Although multiple studies have examined risk factors and characteristics of patients who leave AMA in diverse patient populations, there is sparse data on leaving AMA in trauma patients. Attempts to study these patients among trauma populations have only included the initial hospitalizations.[14,15] The cross-sectional design of these studies made it impossible to measure longitudinal outcomes such as readmissions. In addition, as patients may seek care in multiple hospitals over the course of their recovery, analyses of data from single or few institutions cannot capture the complete picture of readmissions in these patients. Therefore, to make a comprehensive assessment of the patterns of readmission and subsequent outcomes of trauma patients who leave AMA, we analyzed multiple years of patient data from a statewide database.

Methods

Selection of study population

The California State Inpatient Database, Healthcare Cost and Utilization Project, Agency for Healthcare Research and Quality includes hospital discharge records from over 98% of the hospitals in the State of California.[16] This database assigns unique patient identifiers to individual patients making it possible to track patients' hospital records in multiple hospitals over time. Using data from 2007 to 2011, we identified all admissions with admitting diagnoses of trauma as defined by International Classification of Disease-9th revision (ICD-9) codes 800 to 904, 910 to 929, and 950 to 959 excluding those with isolated hip fractures. Patients with isolated hip fractures were excluded because their age and sex distribution, comorbid conditions, injury severities, and treatment patterns are significantly different from the rest of the trauma population.[17] All patients included were between 18 and 64 years of age and were discharged at least 30 days before the last day of follow-up data. We restricted analyses to patients who were either discharged home or discharged AMA.

Patient, admission, and hospital characteristic variables

We extracted relevant patient data such as sex, age, race/ethnicity (White, Black, Hispanic, Asian/Pacific Islander, Native American, Other), and insurance type (Public, Private, Self-pay, other). Patients' comorbid conditions were determined and individual Charlson Comorbidity Scores were generated using the CHARLSON module in Stata.[18] The Charlson Comorbidity Score is a composite measure that assesses patients' long-term risk of mortality by assigning weighted scores to 19 possible comorbid conditions.[19] Using ICD-9 codes, patients' histories of psychiatric conditions such as schizophrenia, mood disorders, alcohol-related problems, substance abuse, and dependence were assessed.

Injury Severity Scores (ISSs) were calculated for each admission using the ICDPIC program in Stata.[20] Scores were further categorized as less than 9, 9 to 15, 16 to 24, and greater than or equal to 25. Length of stay and whether patients developed complications while on admission were determined.

We linked the State Inpatient Database to the American Hospital Association database to determine the characteristics of the hospitals that patients were discharged from. Hospital characteristics included teaching hospital status, trauma center designation, and hospital bed size.

Determination of readmission characteristics

All admissions that occurred within 30 days of discharge after trauma admissions were termed readmissions. Readmissions that were likely to have been planned such as adjustment of prosthetic devices, attention to artificial openings, and aftercare involving plastic surgery were not included. Reasons for readmission were determined using the admitting ICD-9 diagnosis codes and were categorized into clinically meaningful groups. We also determined the number of subsequent readmissions by assessing readmissions within 30 days after discharge from the previous readmission. Other readmission characteristics such as the length of stay, the complication rate, and the discharge disposition were determined.

Among the patients who were readmitted, we determined the proportions who were readmitted at hospitals different from where they received their initial care. We also examined hospital factors that may influence the location of readmission.

Statistical analysis

Among patients who were discharged AMA, we determined the proportion of patients who belonged to various