



International Journal of Psychology and Psychoanalysis

RESEARCH ARTICLE

Patients with Suicidal Ideation and Evidence of Alcohol Use are Discharged at Higher Rates from the Emergency Department

Michael P Wilson^{1,2*}, Sam Frenkel², Jesse Brennan^{1,2}, Jordan Simanjuntak¹, James Deen¹ and Gary M Vilke^{1,2}

Department of Emergency Medicine, University of Arkansas for Medical Sciences, USA

*Corresponding author: Michael Wilson, MD, PhD, FAAEM, FACEP, Assistant Professor, Department of Emergency Medicine, University of Arkansas for Medical Sciences, USA, E-mail: Mpwilso1@outlook.com

Abstract

Background: Despite the knowledge that alcohol and drug use are risk factors for suicide, the change in outcomes from testing urine drug screens is a point of contention between emergency physicians and psychiatrists. The influence of alcohol levels on disposition from the emergency department has never been tested.

Objectives: The purpose of this study was to assess the utility of alcohol and UDS testing in SI patients, which may be more useful in this subset of patients than in mental health patients as a whole. Variables important for suicide risk such as age, a previous suicide attempt, a serious current attempt, stated future intent, current psychiatric treatment, and history of psychiatric hospitalization were controlled for using logistic regression.

Methods: Data on patients' disposition (admitted/transferred versus discharged), alcohol level, and Urine Drug Screens (UDS) were obtained in patients with suicidal ideation. Logistic regression with admission/transfer versus discharge was used to analyze the influence of alcohol and substance use on disposition.

Results: After controlling for other variables important for suicide risk, patients without evidence of alcohol use were admitted/transferred at higher rates compared to patients with evidence of alcohol use. Urine drug screens did not influence disposition.

Conclusions: Alcohol use was associated with final disposition in patients with suicidal ideation. The reasons for this are unclear. Although some patients with alcohol use may be better treated in an outpatient setting, it is also possible that emergency physicians are using alcohol levels to incorrectly discharge suicidal patients at presumably higher risk from the emergency department.

Introduction

The assessment and formulation of risk in patients with suicidal ideation is a complex process. The first step in evaluating patients with psychiatric complaints in the Emergency Department (ED) setting is typically a history and physical examination. This is commonly termed "medical clearance", although many experts have urged that this term be dropped from clinical use [1-4]. In many emergency departments, however, the assessment of suicide risk is further performed by professional mental health workers. Commonly, these mental health workers request laboratory assessments of substance use, despite the fact that the utility of routine laboratory testing has been criticized in both experimental studies [5-7] as well as expert guidelines regarding the screening of psychiatric patients in the ED [8-10]. Nonetheless, at least one study has indicated that many emergency physicians are routinely required to obtain labs for psychiatric patients [11]. In this study, Broderick and colleagues randomly surveyed 290 emergency physicians, finding that approximately 35% were required to perform certain routine laboratory tests, even though few respondents believed routine testing was necessary during a psychiatric medical screening exam.

In theory, of course, knowledge about exposure to drugs of abuse could potentially alter diagnosis and disposition from the emergency department. However, such routine testing is a point of contention with many emergency clinicians, as it is believed that such testing may not affect patient safety and outcomes. Interesting-



Citation: Wilson MP, Frenkel S, Brennan J, Simanjuntak J, Deen J, et al. (2017) Patients with Suicidal Ideation and Evidence of Alcohol Use are Discharged at Higher Rates from the Emergency Department 3:019. doi.org/10.23937/2572-4037.1510019

Received: July 21, 2017; **Accepted:** September 26, 2017; **Published:** September 28, 2017

Copyright: © 2017 Wilson MP, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

ly, although emergency physicians are often required to obtain alcohol testing for mental health patients as well, there have been few studies investigating the utility of this testing in the ED. This is somewhat surprising, as patients with suicidal patients are at increased risk of suicide following discharge from either the emergency department or inpatient psychiatric unit [12-16]. Alcohol and drug use are thought to elevate this risk of suicide, particularly if patients are more impulsive while intoxicated [11,16-21]. Thus, routine testing may be more useful in patients with thoughts of self-harm.

The purpose of this study therefore was to assess the association between evidence of drug use, evidence of alcohol use, and patient disposition in a select group of mental health patients, namely those who presented with Suicidal Ideation (SI) at ED triage.

Methods

Study design

The XXXX mandated universal suicide screening for all patients in the emergency department beginning September 1, 2011. This study was a structured medical chart review of a historical cohort of patients over five months (9/1/11-2/28/12) who screened positive for SI at triage, documented in the chart as “Does the patient express suicidal ideation (Y/N)?”, at two EDs. Alcohol and urine drug testing are expected by psychiatric consultants, and are mostly ordered routinely in the EDs. Both EDs belong to a single university system and have a combined annual census of approximately 65,000 visits per year. This study was approved by the local Institutional Review Board committee (IRB) prior to data collection.

Selection of participants

The cohort was identified by a simple electronic query of the Electronic Medical Record (EMR). Patients were included if they screened “yes” for the triage screening question and were at least 18-years-old. Patients were excluded if physician or nursing notes indicated that this documentation was in error; if the patient was incarcerated (since these patients are not typically admitted); if they were transferred from the local County Mental Health (CMH) facility, as patients transferring from this facility are not generally treated for their SI in the ED, but rather come for treatment of medical conditions and are transferred back for treatment of their mental health condition; or if they expired or left the ED prematurely (i.e. against medical advice or eloped).

Data collection and processing

Data abstraction of medical charts for eligible patients was conducted utilizing a pre-specified data abstraction tool by at least two trained research associates who were blinded to study purpose. All data were subsequently checked for outliers and nonsensical values. Finally, data for 25 patients were manually re-abstracted using a random integer generator to select patients

at random [22]. The reliability of key variables was then compared using Cohen’s kappa.

Variables queried from the EMR included triage date/time, age, gender, and chief complaint. Additional results were abstracted from the EMR for presence on the UDS of amphetamines, barbiturates, cocaine, methadone, PCP, propoxyphene, or cannabinoids (as measured by the UDS); alcohol levels (as measured either by the Alco-III breathalyzer® or serum); final disposition (discharge, admission, or transfer), stated future suicide intent (typically documented in the psychiatrist notes); serious current attempt, defined as any attempt which might plausibly end the patient’s life (such as fall from high height, etc); any history of psychiatric hospitalization; and current psychiatric treatment. On the UDS, benzodiazepines/opioids/oxycodone was excluded so as to prevent inclusion of patients who might have received these medications in the emergency department or prior to arrival.

Primary data analysis

Two separate logistic regression analyses were conducted using patient visit as the unit of analysis, comparing patients who were either admitted or transferred for further care to patients who were discharged home to determine the independent association of several clinically relevant predictors. The first model was constructed using only patients with documentation of alcohol testing and included the following predictors: A positive alcohol level, age, a previous suicide attempt, a serious current attempt, stated future intent of suicide, current psychiatric treatment, and any history of psychiatric hospitalization. The second model was constructed using only patient visits with documentation of a urine drug screen and utilized the following predictors: Any positive finding on a urine drug screen as defined above, age, a previous suicide attempt, a serious current attempt, stated future intent of suicide, current psychiatric treatment, and any history of psychiatric hospitalization. In an additional step, chi-square analysis was used to test the association of the subsets of serious attempts and alcohol use and current suicidal ideation and alcohol use. All statistics were performed using R Studio 0.88.485 (running R version 3.2.2). All variables in both logistic regression models were tested for collinearity using variance inflation factors calculated with package “car” before inclusion into the model. Variables with VIF > 2.5 were dropped from further analysis.

Results

A total of 535 patient visits, representing 477 unique patients, were initially identified as screening positive for SI during the study period. Interrater reliability on data abstraction was strong (Cohen’s Kappa = 0.88). After applying all inclusion and exclusion criteria, 428 visits were included for analysis. The mean age was 42.4 years (range 18-95; 37% female). Of the 428 patient vis-

its that screened positive for SI, 55% of patients were admitted or transferred and 45% were discharged.

349 different visits (82% of total) had a Blood Alcohol Level (BAL) measured. ED clinicians found measurable alcohol levels in 103 patient visits (30% of visits in which alcohol was tested), with an average level of 170 mg/dL. All variance inflation factors were < 2, and so all variables were retained in the final model (Table 1).

Table 1: Odds of admission/transfer among SI patients who underwent alcohol testing.

Variable	Adj Odds Ratio (OR)	OR CI	p-value
Age	1.02	[1.00,1.03]	0.079
Measurable alcohol	0.49	[0.29,0.80]	0.005
Previous suicide attempt	1.72	[1.03,2.89]	0.04
Serious attempt	2.44	[1.43,4.26]	0.001
Current psychiatric treatment	0.62	[0.39,1.00]	0.05
History of psychiatric hospitalization	1.05	[0.61,1.82]	0.852

Table 2: Percentage of positive substances on UDS*.

Tested Substance	%
Amphetamines	10.1
Barbiturates	3.0
Cocaine	5.9
Methadone	3.9
PCP	1.2
Propoxyphene	0.3
Cannabinoids	18.1

*Calculated as #positives on UDS/total number of UDS obtained for each substance.

Table 3: Odds of admission/transfer among SI patients who underwent urine drug screen testing.

Variable	Adj odds Ratio (OR)	OR CI	p-value
Age	1.01	[1.00,1.03]	0.098
Any UDS finding	0.64	[0.40,1.01]	0.056
Previous suicide attempt	1.89	[1.10,3.24]	0.022
Serious attempt	2.14	[1.24,3.76]	0.007
Stated future intent	1.82	[1.12,2.97]	0.016
Current psychiatric treatment	0.77	[0.47,1.25]	0.287
History of psychiatric hospitalization	0.97	[0.55,1.7]	0.929

Table 4: Emergency department based studies suggesting that UDS screens are not associated with patient management or disposition.

Author	# patients	Setting	Methodology	Population	Other factors considered?*
Korn, et al. [6]	212	ED	Retrospective cohort	Psychiatric patients in ED	No
Eisen, et al. [23]	133	ED	Prospective observational	ED	Yes, in design †
Fortu, et al. [24]	652	Pediatric ED	Retrospective cohort	Psychiatric patients in peds ED	No
Janiak & Atteberry [7]	502	ED	Retrospective cohort	Psychiatric patients in ED	No
Montague, et al. [25]	107	ED	Prospective observational	Overdose patients in ED	No
Olshaker, et al. [5]	352	ED	Retrospective cohort	Psychiatric patients in ED	Yes, in design † †
Schiller, et al. [26]	392	PES	Prospective randomized	PES	No † † †

*see text for description; † Before/after design asking physicians whether results of UDS altered care plans; † † Other labs and elements of the history/physical included in analysis; † † † physicians allowed to order screens for all patients based on clinical judgment.

In a logistic regression analysis controlling for other variables likely to be important for admission in patients with SI, patients with no measurable alcohol level were more likely to be admitted or transferred for further care than patients without measurable alcohol levels. Patients with a serious attempt and stated future intent were also likely to be admitted. In chi-square analysis of a subset of these patients, however, alcohol was not associated with disposition (serious attempt: $p = 1$; stated future intent: $p = 0.11$).

337 patient visits (79% of total visits) had a UDS measured, with 126 (37.4%) screening positive for any measured substance (Table 2). In general, the same variables in the previous model were significant with all variance inflation factors less than 2. The only exception was that patients with a negative urine drug screen were only marginally more likely to be admitted or transferred for further care. Unlike the model including alcohol intoxication, however, this difference was not statistically significant (Table 3). Urine drug screening did not prove more useful in subsets of patients with serious attempts ($p = 0.48$) or stated future intent ($p = 0.28$).

Discussion

The assessment and formulation of risk in patients with suicidal ideation is a complex process [17]. In many emergency departments, this is carried out by professional mental health workers who, during information-gathering, often request laboratory assessments of substance use. In theory, of course, knowledge about exposure to drugs of abuse could potentially alter diagnosis and disposition from the emergency department. However, this study confirms several previous studies which have indicated that this is not the case (Table 4); [5-7,23-26]. Many of these studies are not prospective and have not attempted to account for other factors which might impact admission decisions by emergency clinicians. This may be problematic as detailed below. However, based on studies of this type, the American College of Emergency Physicians in a 2006 guideline stated that "Routine urine toxicologic screens for drugs of abuse in alert, awake, cooperative patients do not affect ED management and need not be performed as

part of the ED assessment”, although this was listed as only a Level C recommendation [27]. Later recommendations from ACEP have echoed this sentiment, although have not explicitly addressed urine drug screens [10].

Notably, only one prospective study in the literature by Eisen and colleagues attempted to control for the potential influence of other factors important for admission decisions [23]. In this study, physicians were asked about care plans for the patient, shown the results of the patient’s UDS, and then immediately interviewed again about care plans for the patient. Eisen and colleagues concluded that the urine drug screen is “rarely helpful” in changing patient care management in the ED, although this study may be limited by the use of self-report methodology, the immediate repetition of questions, and the use of a general ED population instead of only mental health patients.

Most of the other studies, however, have reached negative conclusions by examining the simple association between drug testing and final disposition, but previous such studies have not investigated alcohol testing. The study presented here suggests not only that emergency physicians are potentially using alcohol testing to incorrectly discharge patients who are at presumably higher risk of suicide, but that previous studies regarding ED disposition must be interpreted with caution since complicated decisions about admission were often reduced to simple associations (i.e. admit/discharge). This approach may have serious methodological limitations, since it lumps together many different types of psychiatric patients (and in some cases, may even combine them with non-psychiatric patients). In addition, simple associations potentially ignore other confounding factors such as severity of the mental illness or whether the patient changes their report of suicidal ideation, which may have a greater effect on the ED course or disposition. Finally, assessment and formulation of suicide risk are complex processes, and it is reasonable to believe that mental health workers - like emergency physicians - use multiple pieces of information to help inform this complex decision-making. Thus, studies investigating only simple associations may be too simplistic to model clinical practice.

Of note, the direction of association between alcohol testing and suicide is somewhat surprising in this sample, as patients without alcohol levels are more likely to be admitted or transferred than those with measurable levels. Although alcohol use has been identified as an independent risk factor for suicide [11,16,20,21], patients with SI and evidence of substance abuse in the study institution are sometimes treated in a less restrictive outpatient setting, thus saving scarce mental health beds for patients with more severe illness. It is also possible that ED physicians are potentially discharging patients at presumably higher risk of suicide.

Limitations

There are several limitations in this study that are inherent to any retrospective review. Positive UDS do not necessarily indicate intoxication or even active agent in the blood at the time of evaluation, since these screens are quantitative, not qualitative. In addition, there is no way of distinguishing false positives and false negatives on these screens. Finally, this study is limited to the density of documentation made by the treating clinicians.

Conclusions

Suicidal patients presenting to the emergency department are often discharged home. Even after controlling for other potentially confounding variables, disposition decisions may be associated with the results of alcohol testing and marginally related to results of urine drug testing. While our data is preliminary and requires larger numbers of patients, more prospective data, and perhaps control over more variables including type of psychiatric illness before confirming its external validity, based on this data ED physicians may be inappropriately discharging suicidal patients from the ED. Consistent with previous studies, the UDS should be used sparingly and only for patients who have a clinical question unanswered based on initial clinical encounter, similar to other lab work and imaging required for medical clearance of SI patients.

References

1. Tintinalli JE, Peacock FW 4th, Wright MA (1994) Emergency medical evaluation of psychiatric patients. *Ann Emerg Med* 23: 859-862.
2. Anderson EL, Nordstrom K, Wilson MP, Peltzer-Jones JM, Zun L, et al. (2017) American association for emergency psychiatry task force on medical clearance of adults part i: Introduction, review and evidence-based guidelines. *West J Emerg Med* 18: 235-242.
3. Wilson MP, Nordstrom K, Anderson EL, Ng AT, Zun LS, et al. (2017) American association for emergency psychiatry task force on medical clearance of adult psychiatric patients. part ii: Controversies over medical assessment, and consensus recommendations. *West J Emerg Med* 18: 640-646.
4. Tolia V, Wilson MP (2013) The medical clearance process for psychiatric patients presenting acutely to the emergency department. In: Zun LS, Chepenik L, Mallory MNS, Behavioral Emergencies: A handbook for emergency physicians. Cambridge University Press, Cambridge.
5. Olshaker JS, Browne B, Jerrard DA, Prendergast H, Stair TO (1997) Medical clearance and screening of psychiatric patients in the emergency department. *Acad Emerg Med* 4: 124-128.
6. Korn CS, Currier GW, Henderson SO (2000) Medical clearance of psychiatric patients without medical complaints in the emergency department. *J Emerg Med* 18: 173-176.
7. Janiak BD, Atteberry S (2012) Medical clearance of the psychiatric patient in the emergency department. *J Emerg Med* 43: 866-870.
8. Nordstrom K, Zun LS, Wilson MP, Md VS, Ng AT, et al. (2012) Medical evaluation and triage of the agitated patient: Consensus statement of the American association

- for emergency psychiatry project Beta medical evaluation workgroup. *West J Emerg Med* 13: 3-10.
9. Wilson MP, Nordstrom K, Shah AA, Vilke GM (2015) Psychiatric emergencies in pregnant women. *Emerg Med Clin North Am* 33: 841-851.
 10. American College of Emergency Physicians Clinical Policies Subcommittee on the Adult Psychiatric Patient, Nazarian DJ, Broder JS, Thiessen ME, Wilson MP, et al. (2017) Clinical policy: Critical issues in the diagnosis and management of the adult psychiatric patient in the emergency department. *Ann Emerg Med* 69: 480-498.
 11. Broderick KB, Lerner EB, McCourt JD, Fraser E, Salerno K (2002) Emergency physician practices and requirements regarding the medical screening examination of psychiatric patients. *Acad Emerg Med* 9: 88-92.
 12. Olfson M, Marcus SC, Bridge JA (2014) Focusing suicide prevention on periods of high risk. *JAMA* 311: 1107-1108.
 13. Ahmedani BK, Simon GE, Stewart C, Beck A, Waitzfelder BE, et al. (2014) Health care contacts in the year before suicide death. *J Gen Intern Med* 29: 870-877.
 14. Da Cruz D, Pearson A, Saini P, Miles C, While D, et al. (2011) Emergency department contact prior to suicide in mental health patients. *Emerg Med J* 28: 467-471.
 15. Gairin I, House A, Owens D (2003) Attendance at the accident and emergency department in the year before suicide: retrospective study. *Br J Psychiatry* 183: 28-33.
 16. Ronquillo L, Minassian A, Vilke GM, Wilson MP (2012) Literature-based recommendations for suicide assessment in the emergency department: A review. *J Emerg Med* 43: 836-842.
 17. Wilson MP, Nordstrom K, Zeller SL (2014) Practical management of the suicidal patient in the emergency department. *Emer Med Rep* 35: 1-12.
 18. Betz ME, Boudreaux ED (2016) Managing suicidal patients in the emergency department. *Ann Emerg Med* 67: 276-282.
 19. Roy A, Lamparski D, DeJong J, Moore V, Linnoila M (1990) Characteristics of alcoholics who attempt suicide. *Am J Psychiatry* 147: 761-765.
 20. Suokas J, Lönnqvist J (1995) Suicide attempts in which alcohol is involved: A special group in general hospital emergency rooms. *Acta Psychiatr Scand* 91: 36-40.
 21. Borges G, Rosovsky H (1996) Suicide attempts and alcohol consumption in an emergency room sample. *J Stud Alcohol* 57: 543-548.
 22. www.random.org .
 23. Eisen JS, Sivilotti ML, Boyd KU, Barton DG, Fortier CJ, et al. (2004) Screening urine for drugs of abuse in the emergency department: Do test results affect physician's patient care decisions? *Can J Emerg Med* 6: 104-111.
 24. Fortu JM, Kim IK, Cooper A, Condra C, Lorenz DJ, et al. (2009) Psychiatric patients in the pediatric emergency department undergoing routine urine toxicology screens for medical clearance. *Pediatr Emerg Care* 25: 387-392.
 25. Montague RE, Grace RF, Lewis JH, Shenfield GM (2001) Urine drug screens in overdose patients do not contribute to immediate clinical management. *Ther Drug Monit* 23: 47-50.
 26. Schiller MJ, Shumway M, Batki SL (2000) Utility of routine drug screening in a psychiatric emergency setting. *Psychiatr Serv* 51: 474-478.
 27. Lukens TW, Wolf SJ, Edlow JA, Shahabuddin S, Allen MH, et al. (2006) Clinical policy: Critical issues in the diagnosis and management of the adult psychiatric patient in the emergency department. *Ann Emerg Med* 47: 79-99.