

Alcohol and Trauma

Judy Mikhail
1:45



Alcohol and Trauma: It's A Conundrum June 5, 2018

Judy Mikhail
MTQIP Program Manager



Alcohol and Trauma

What is the relationship?

MTQIP and Alcohol Data Collection

- Alcohol Screen: Blood alcohol level
- Alcohol Use Disorder (AUD)
- Alcohol Withdrawal Syndrome (AWS)

MTQIP Data Dictionary Alcohol Screen

Which of the following is correct?

Answers:

- a. First recorded, within 18 hrs of injury, at final hospital
- b. Highest recorded, within ED, after first hospital encounter
- c. First recorded, within 24 hrs of injury, after first hospital encounter
- d. First recorded, within 24 hrs of injury, at final hospital

MTQIP Data Dictionary Alcohol Screen

Which of the following is correct?

Answers:

- a. First recorded, within 18 hrs of injury, at final hospital
- b. Highest recorded, within ED, after first hospital encounter
- c. First recorded, within 24 hrs of injury, after first hospital encounter**
- d. First recorded, within 24 hrs of injury, at final hospital

MTQIP Definitions

Are these comorbidities or complications?

Alcohol Use Disorder

- Evidence of chronic use such as withdrawal episodes **or**
- In the 2 wks prior to admission:
 - >2 oz hard liquor/daily
 - >2 (12 oz) beers/daily
 - >2 (6 oz) wine/daily
- Binge Drinker
 - Total Drinks during binge/7 days
 - Then apply definition

Amounts

Alcohol Withdrawal Syndrome

- Occurs 6-48 hrs after ETOH cessation
- Characterized by:
 - Tremor
 - Sweating
 - Anxiety
 - Agitation
 - Depression
 - Nausea
 - Malaise
 - Seizures
 - Delirium

Symptoms

Alcohol Spectrum in General Population

Alcohol
Use
Disorder (AUD)

Comorbidity

Alcohol
Withdrawal
Syndrome
(AWS)

Complication

Delirium
Tremens
(DT)

Failure to Rescue??

AUD
10-20%

AWS

DT

½ Of these

5% Of these

Occurrence

co·nun·drum

/kəˈnəndrəm/ 

noun

a confusing and difficult problem or question.

"one of the most difficult conundrums for the experts"

synonyms: problem, difficult question, difficulty, quandary, dilemma; *informal* poser

"the conundrums facing policy-makers"

- a question asked for amusement, typically one with a pun in its answer; a riddle.

synonyms: riddle, puzzle, word game; *informal* brainteaser

"Rod enjoyed conundrums and crosswords"

Unraveling Alcohol and Trauma

- Injury occurrence, severity, type?
- Mortality?
- Resource use?
- ICU LOS? Hospital LOS?
- Readmission?



Alcohol and Trauma

- Trauma leading cause of death in alcoholics
- 40% to 50% of admitted trauma have +BAC
- ½ of all trauma beds occupied by intoxicated pts

Data Collection Concerns (Delirium)



Excerpta Medica

The American Journal of Surgery 187 (2004) 332–337
Scientific paper

The American
Journal of Surgery^{*}

Admission characteristics of trauma patients in whom delirium develops

Richard D. Blondell, M.D.^{a,d,*}, Glen E. Powell, M.S.P.H.^a, Heather N. Dodds^a,
Stephen W. Looney, Ph.D.^b, James K. Lukan, M.D.^c

^aDepartment of Family and Community Medicine, University of Louisville, Louisville, KY, USA

^bLouisiana State University Health Sciences Center, School of Public Health, New Orleans, LA, USA

^cDepartment of Surgery, University of Louisville, Louisville, KY, USA

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Manuscript received February 10, 2003; revised manuscript August 11, 2003

- **Blondell et al 2004**
- Level I Trauma Center
- 2 yr Trauma Registry review
- n=11,140
- Case Control Study
 - 120 delirium cases
 - 145 non-delirium controls

Chart review/trained reviewers:

- Non-Delirium Controls
 - **38 cases missed with delirium**
- Delirium cases
 - **9 not confirmed**
- *Per reviewers: “confusion usually not coded as having delirium”*

MTQIP Alcohol Related Data Collection

Opportunities for Improvement

MTQIP Data

Center ID	Alcohol use disorder			Total
	0	1	3	
35	0	0	0	35
36	1	0	0	37
41	3	1	1	45
26	0	2	2	28
37	0	1	1	38
53	0	2	2	55
53	1	1	1	55
32	0	0	0	21
0	0	0	0	48
0	0	0	0	39
1	1	1	1	7
2	2	2	2	28
3	3	3	3	46
1	1	1	1	21
2	2	2	2	21
0	0	0	0	28
1	1	1	1	45
1	1	1	1	28
32	0	2	2	34
40	1	0	0	41
51	2	2	2	55
34	2	0	0	36
48	0	0	0	48
20	0	1	1	21
21	0	0	0	21
42	2	0	0	44
56	0	2	2	58
5	0	2	2	7
48	1	2	2	51
Total	988	24	29	1,041

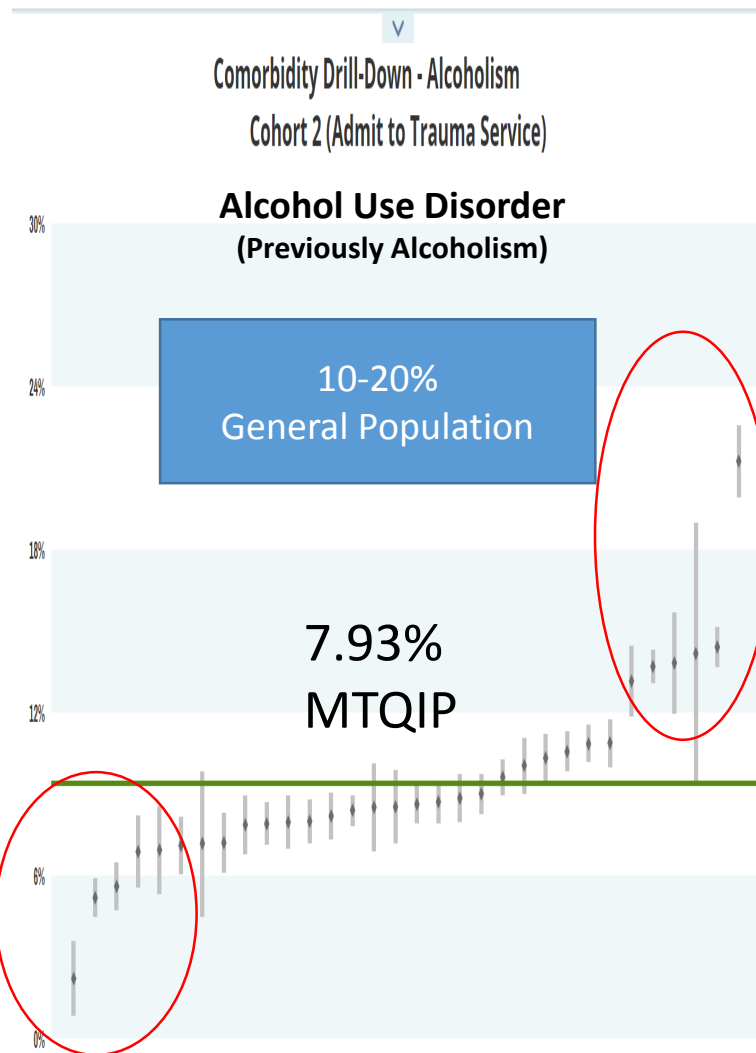
Data Validation

Under Over

Alcohol Use Disorder

- Evidence of chronic use such as withdrawal episodes **or**
- In the 2 wks prior to admission:
 - >2 oz hard liquor/daily
 - >2 (12 oz) beers/daily
 - >2 (6 oz) wine/daily
- Binge Drinker
 - Total Drinks during binge/7dys
 - Then apply definition

← Variable Capture →



MTQIP Data

Center ID	Alcohol use disorder		
	0	1	3
35	0	0	0
36	1	0	0
41	3	1	1
26	0	0	2
37	0	0	1
53	0	0	2
53	1	1	1
20	1	0	0
47	1	0	0
38	1	0	0
6	0	0	1
25	1	2	2
42	1	3	3
20	0	1	1
19	0	2	2
27	1	0	0
39	5	1	1
27	0	1	1
32	0	2	2
40	1	0	0
51	2	2	2
34	2	0	0
48	0	0	0
20	0	1	1
21	0	0	0
42	2	0	0
56	0	2	2
5	0	2	2
48	1	2	2
Total	988	24	29

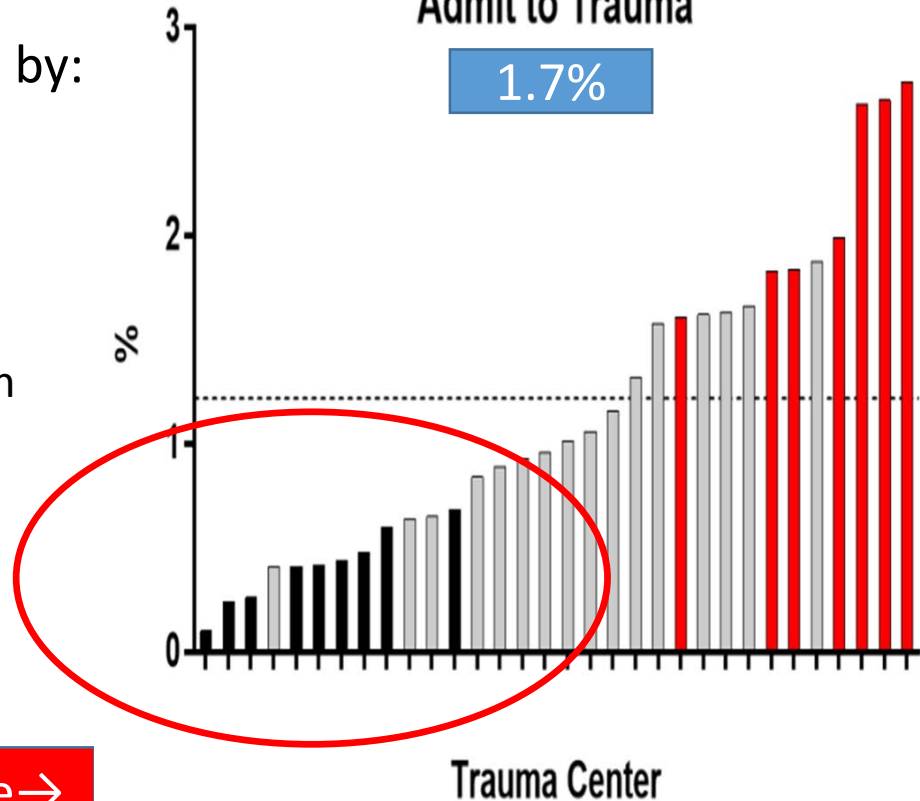
Alcohol Withdrawal Syndrome

- Characterized by:

1. Tremor
2. Sweating
3. Anxiety
4. Agitation
5. Depression
6. Nausea
7. Malaise
8. Seizures
9. Delirium

← Under capture →

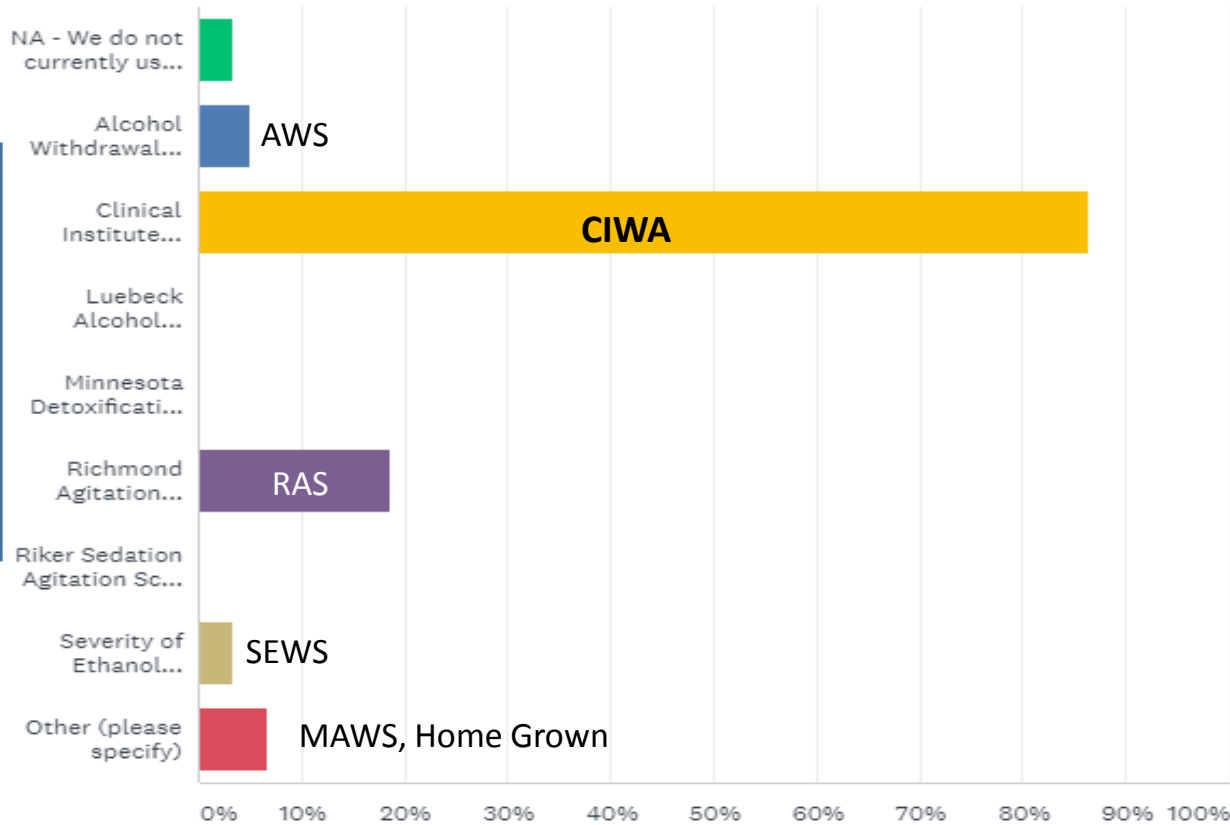
Drug or Alcohol Withdrawal - Cohort 2 Admit to Trauma



Which of the following ICU scoring tools are used to assess and manage alcohol withdrawal?

Answered: 59 Skipped: 0

Best Practice
Data Collection
Tip:
Look for
Scoring Tool



Alcohol Withdrawal Syndrome in Trauma

The Journal of **TRAUMA**[®] *Injury, Infection, and Critical Care*

2006

Alcohol Withdrawal Syndrome: Turning Minor Injuries Into a Major Problem

Michael R. Bard, MD, FACS, Claudia E. Goettler, MD, FACS, Eric A. Toschlog, MD, FACS, Scott G. Sagraves, MD, FACS, Paul J. Schenarts, MD, FACS, Mark A. Newell, MD, FACS, Mark Fugate, MD, and Michael F. Rotondo, MD, FACS

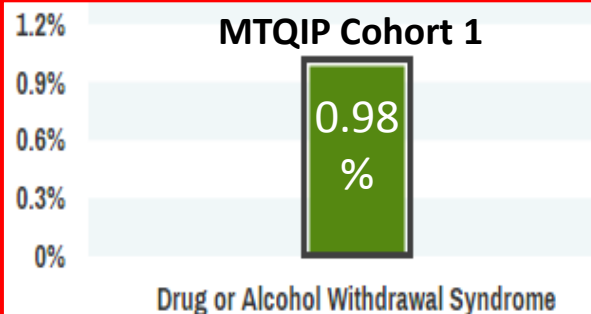
Single Trauma Center 5 yr review Adult trauma ISS<16

Single Trauma Center
5 yr review
Adult trauma
ISS<16
n=6,431

Alcohol use, abuse, and dependence is prevalent among trauma populations.^{1,2} When alcohol-dependent patients are injured and require surgery, they often experience an abrupt cessation of which places them at an increased risk for withdrawal syndrome (AWS). Clinically, AWS is characterized by anxiety, confusion, tachycardia, and tremors.³ In severe cases, patients may experience seizures.

Delirium has been evaluated and studied throughout the elderly population and found to be associated with increased length of stay (LOS), morbidity, mortality, and cost. Recent

One such complication is AWS. Although the literature

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Lina [REDACTED]

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KEYWORDS:
Alcohol
Alcohol
Trauma

Two Trauma Centers
10 yr review
Adult trauma
n=19,369

hypothesized that a withdrawal (AW).
008 were evaluated

for patients aged at least 16 years

RESULTS: Of 19,369 trauma admissions, 159 patients had AW. Blood alcohol concentration (BAC) testing was performed in 21.6% of the patients. BAC was significantly higher in AW patients versus other patients (mean 0.02 ± 0.01 vs 0.01 ± 0.01 g/dL). BAC was 0 in 14.4% of AW patients. As compared with other patients, AW patients had a mean age a significantly greater age (50.2 vs 42.1 years), mean length of stay (2 vs 0 days), need for mechanical ventilation (25% vs 2.3%). AW patients were less frequently discharged to home (10% vs 22%).

0.82%

Alcohol use and abuse is highly prevalent in trauma patients. Alcohol has been reported to be involved in 31% of

method used. An estimate from the US highway, National Highway Traffic Safety Administration in 1999 indicated

Occurrence, Predictors, and Prognosis of Alcohol Withdrawal Syndrome and Delirium Tremens Following Traumatic Injury

Kristin Salottolo, MPH^{1,4}; Emmett McGuire, MD¹; Charles W. Mains, MD²;
Erika C. van Doorn, MD³; David Bar-Or, MD¹⁻⁵

Objectives: We sought to determine occurrence, predictors, and prognosis of a score greater than or equal to 10 (odds ratio, 6.05; $p = 0.02$)

Design: Retrospective
Setting: Three hospitals
Patients: Twenty-two admitted from the community
Interventions: None

Interventions:
Measurements
of alcohol with
acteristics, ris
outcomes, ph

Revised (CWA-Ar) scores. Alcohol withdrawal syndrome severity was defined by CWA-Ar score as *minimal* (≤ 10), *moder-*

ate (10–20), and severe (> 20). Alcohol developed in 0.68% ($n = 246$), including moderate, and 53% severe. Alcohol withdrawal progressed to delirium tremens in 11%. Before withdrawal syndrome severity was associated

hypokalemia, baseline CIWA-Ar score, and established alcohol withdrawal syndrome risk factors. Logistic regression identified the following predictors of delirium tremens: baseline CIWA-Ar

$p = 0.02$); otherwise, there were no differences in mortality by severity (4%, 4%, and 0% by minimal, moderate, and severe

VS
8%

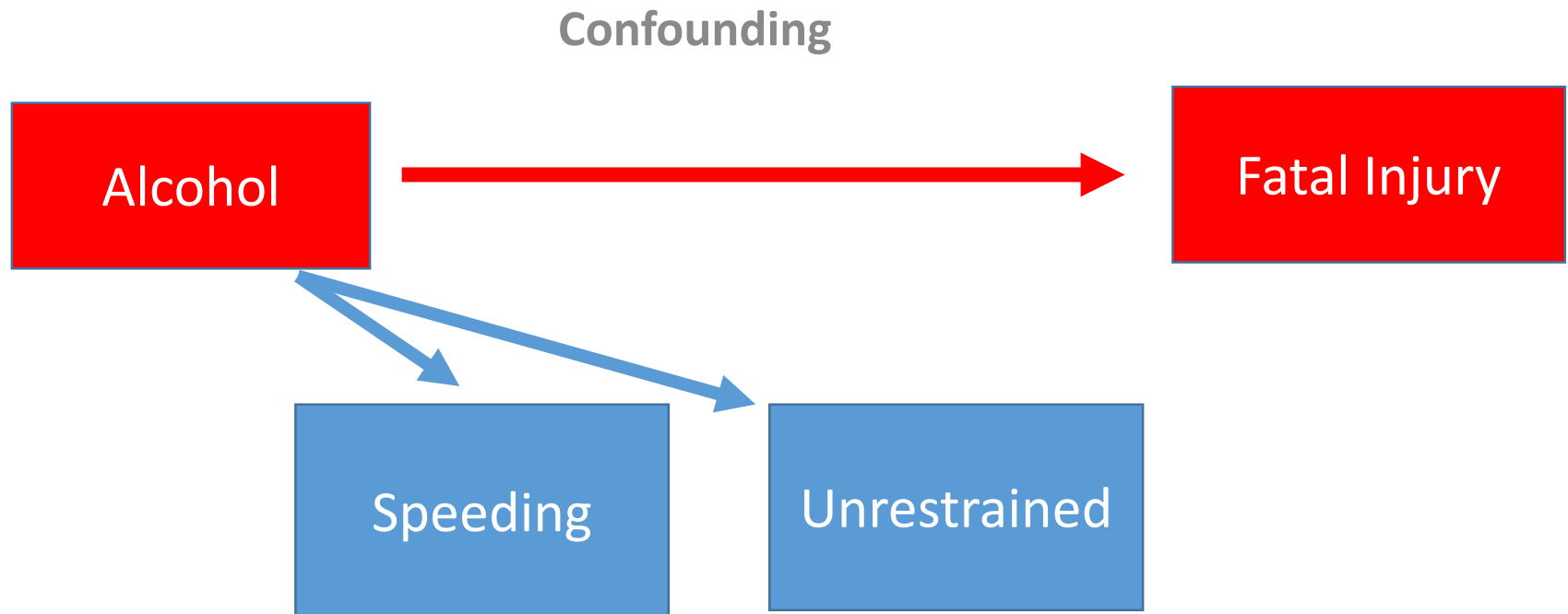
Key Words: alcohol withdrawal syndrome; Clinical Institute Withdrawal Assessment for alcohol; delirium tremens; mortality

Three Trauma Centers
5 yr review
Adult trauma
n=28,101

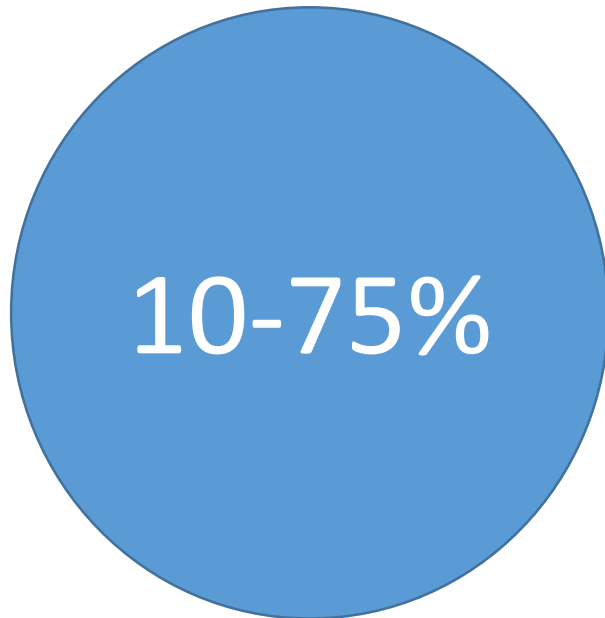
AWS
0.88%

Alcohol and Injury Occurrence

Police data: Alcohol significantly associated with increased risk of fatal injuries



% Admitted Trauma With Positive BAC



Article
Rivara, 1993
Cherpitel, 1993
Borges, 2005
Chirpitel, 2007
Greiffenstein, 2008
MacLeod, 2011
Miller, 2012

What is the prevalence of alcohol related injury?

1966-2007
15 studies

Aggregate Prevalence
32.5%



Alcohol-related injury visits: Do we know the true prevalence in U.S. trauma centres?

2011

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Keywords:
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Injuries
Prevalence
Trauma centres
Hazardous drinking

ABSTRACT

Introduction: Alcohol consumption is a significant risk factor for injuries. Further, level I trauma centres are mandated to screen and provide a brief intervention for identified problem drinkers. However, a valid population-based estimate of the magnitude of the problem is unknown. Therefore, the goal of this study is to evaluate the extent to which the present literature provides a valid estimate of the prevalence of alcohol-related visits to U.S. trauma centres.

Methods: A Medline search for all articles from 1966 to 2007 that might provide prevalence estimates of alcohol-related visits to U.S. trauma centres yielded 836 articles in English language journals. This review included only papers whose main or secondary goal was to estimate the prevalence of positive blood alcohol concentration (BAC) or acute intoxication. Both a crude aggregate estimate and sample size adjusted estimate were calculated from the included papers and the coverage and comparability of methods were evaluated.

Results: Of the 15 studies that met inclusion criteria, incidence estimates of alcohol-related visits ranged from 26.2% to 62.5% and yielded an aggregate, weighted estimate of 32.5%. Target population, capture rate, and threshold for a positive screening result varied considerably across studies. No study provided a comprehensive estimate, i.e., of all trauma patients hospitalised, treated and released, or who died.

Conclusions: Although the incidence of alcohol-related visits to U.S. trauma centres appears very high perhaps higher than any other medical setting, the validity of our aggregate estimate is threatened by crucial methodological considerations. The lack of a methodologically valid prevalence estimate hinders efforts to devise appropriate policies for trauma centres and across medical settings.

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Does Blood Alcohol Level (BAC) Predict Injury Severity in MVC?

Hindawi Publishing Corporation
Emergency Medicine International
Volume 2011, Article ID 616323, 6 pages
doi:10.1155/2011/616323
2011

Clinical Study

Is Blood Alcohol Level a Good Predictor for Injury Severity Outcomes in Motor Vehicle Crash Victims?

Bikaramjit Mann,¹ Ediriweera Desapriya,^{2,3} Takeo Fujiwara,^{2,4} and Ian Pike^{2,3}

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⁴ Department of Social Medicine, National Research Institute for Child Health and Development, Tokyo 1578535, Japan

Correspondence should be addressed to Bikaramjit Mann, bikaramjit@hotmail.com

- Retrospective cross-sectional study
- British Columbia Trauma Registry
- 2003-2005 (n=2,323)
- Classified into
 - No alcohol
 - Low alcohol (<0.08 g/dL)
 - High alcohol (>0.08 g/dL)
- Results:
 - Higher BAC related to less severe injuries
 - TBI
 - Thoracic
 - Extremity

Alcohol & Injury Severity (ISS)

Association of Alcohol & Major Trauma (ISS>15)

↓ or No impact on ISS

- Tien, 2006
- Plurad, 2006
- Salim, 2009
- Talving, 2010
- Zeckey, 2011
- Mann, 2011
- Berry, 2011
- Berry, 2019

↑ ISS

- Hsieh, 2013
- Plurad, 2010

Multiple Trauma & Alcohol



2011

Alcohol 45 (2011) 245–251

ALCOHOL

Alcohol and multiple trauma—is there an influence on the outcome?

Christian Zeckey^{a,*}, Silke Dannecker^a, Frank Hildebrand^a, Philipp Mommsen^a, Ralph Scherer^b,
Christian Probst^a, Christian Krettek^a, Michael Frink^a

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Received 26 May 2010; received in revised form 27 July 2010; accepted 7 August 2010

Abstract

A relevant number of trauma patients are intoxicated with alcohol at admission in trauma centers. Meanwhile, some studies provide data suggesting a profound influence of ethanol on the posttraumatic clinical course; others could not confirm these findings. Knowledge of the influence of ethanol in a multiple trauma cohort is lacking. Therefore, we performed a retrospective outcome study of initially intoxicated multiple trauma patients in a German level-I trauma center. Patients with an Injury Severity Score greater than or equal to 16 and aged 16–65 years were included in our study. Ventilation time, duration of intensive care unit treatment, the course of cytokines, and the incidence of systemic inflammatory response syndrome (SIRS), sepsis, and multiple organ dysfunction syndrome (MODS) were analyzed. Total in-patient time, mortality, and the requirement for blood products were evaluated. Logistic regression analyses were performed. Injury severity was comparable in both groups but there were more severe abdominal injuries in alcohol-intoxicated patients. The clinical course was comparable in both groups. Alcohol consumption was not an independent risk factor to sustain SIRS (odds ratio [OR], 1.00; 95% confidence interval [CI], 0.59–1.70), sepsis (OR, 0.84; 95% CI, 0.54–1.31), or for mortality (OR, 1.08; 95% CI, 0.53–2.13). There was a trend toward an increased incidence of MODS in alcohol-intoxicated patients (OR, 2.74; 95% CI, 0.90–8.35).

Blood alcohol level at the time of admission is not a valuable marker for worse or improved outcome in multiple trauma patients. There were no ethanol-related differences concerning overall injury severity; however, more severe abdominal injuries were found in alcohol-intoxicated patients. There was no increased risk for posttraumatic complications in primarily alcohol-intoxicated multiple trauma

- German Trauma Registry
- BAC unrelated to injury outcomes
- BAC unrelated to ISS
- BAC unrelated to complications
- ↑BAC = ↑severe abdominal injuries

Multiple Trauma & Alcohol

Does Alcohol Intoxication Protect Patients from Severe Injury and Reduce Hospital Mortality? The Association of Alcohol Consumption with the Severity of Injury and Survival in Trauma Patients

CHI-HSUN HSIEH, M.D.,*† LI-TING SU, M.S.C.,* YU-CHUN WANG, M.D.,*‡ CHIH-YUAN FU, M.D.,*† HUNG-CHIEH LO, M.D.,* CHIU-HSIU LIN, M.S.C.*

From the *Department of Trauma and Emergency Surgery, China Medical University Hospital, China Medical University, Taichung, Taiwan, Republic of China; the †Trauma and Emergency Surgery Department, Taipei Medical University-Wan Fang Hospital, Taipei, Taiwan, Republic of China; and the ‡School of Medicine, China Medical University, Taichung, Taiwan, Republic of China

Alcohol-related motor vehicle collisions are a major cause of mortality in trauma patients. This prospective observational study investigated the influence of antecedent alcohol use on outcomes in trauma patients who survived to reach the hospital. From 2005 to 2011, all patients who were older than 18 years and were admitted as a result of motor vehicle crashes were included. Blood alcohol concentration (BAC) was routinely measured for each patient on admission. Patients were divided into four groups based on their BAC level, which included nondrinking, BAC less than 100, BAC 100 to 200, and BAC 200 mg/dL or greater. Patient demographics, physical status and injury severity on admission, length of hospital stay, and outcome were compared between the groups. Odds ratios of having a severe injury, prolonged hospital stay, and mortality were estimated. Patients with a positive BAC had an increased risk of sustaining craniofacial and thoracoabdominal injuries. Odds ratios of having severe injuries (Injury Severity Score [ISS] 16 or greater) and a prolonged hospital stay were also increased. However, for those patients whose ISS was 16 or greater and who also had a brain injury, risk of fatality was significantly reduced if they were intoxicated (BAC 200 mg/dL or greater) before injury. Alcohol consumption does not protect patients from sustaining severe injuries nor does it shorten the length of hospital stay. However, there were potential survival benefits related to alcohol consumption for patients with brain injuries but not for those without brain injuries. Additional research is required to investigate the mechanism of this association further.

ALCOHOL INGESTION is associated with a significantly increased risk of traffic-related hazards and continues to be the major cause of motor vehicle collisions.¹⁻³ Because alcohol intoxication impairs one's motor skills, reaction time, and judgment, acute alcohol consumption has been shown to be associated with more severe injuries in drivers.⁴⁻⁶ In fact, alcohol-intoxicated driving (blood alcohol level above a certain value) is prohibited by law in most countries.

Studies have demonstrated that alcohol intoxication could adversely affect cardiovascular and metabolic

responses after injury,⁷⁻¹⁰ increase the risk of severe injuries, and magnify the cost of trauma care.^{11, 12} However, several studies have also shown that serum ethanol was independently associated with decreased mortality in patients with traumatic brain injuries (TBIs).^{13, 14} Recognizing this controversy, the objective of this study was to examine the effects of antecedent alcohol use on the severity of injury and hospitalization outcome in patients involved in motor vehicle crashes (MVCs).

Materials and Methods

This report describes a prospective observational study of all adult trauma patients admitted to China Medical University Hospital whose primary trauma mechanism was MVCs. Patients who were older than 18 years and were injured between 2005 and 2011 were included in this study. Blood alcohol concentration

- China Trauma Center
- 2005-2011
- Classified by Alcohol Level
- None, Low, High
- +BAC ↑ craniofacial injury risk
- +BAC ↑ thoracoabdominal injury
- ↑↑↑ BAC in ISS>15 with TBI=protective

Address correspondence and reprint requests to Chi-Hsun Hsieh, M.D., Department of Trauma and Emergency Surgery, China Medical University Hospital, School of Medicine, China Medical University, 2 Yuh-Der Road, Taichung, 404, Taiwan, Republic of China. E-mail: hsiehchihsun@yahoo.com.tw.

This work is supported by a China Medical University Hospital research grant, DMR-101-056.

Multiple Trauma & Alcohol

2016

Injury, Int. J. Care Injured 47 (2016) 83–88



Injured patients with very high blood alcohol concentrations

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Gordon S. Smith^{d,g}



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Accepted 22 October 2015

Keywords:

Injury

Injury prevention

Blood alcohol level

Ethanol

Trauma; intoxication

ABSTRACT

Objective: Most data regarding high blood alcohol concentrations (BAC) ≥ 400 mg/dL have been from alcohol poisoning deaths. Few studies have described this group and reported their alcohol consumption patterns or outcomes compared to other trauma patients. We hypothesized trauma patients with very high BACs arrived to the trauma centre with less severe injuries than their sober counterparts.

Method: Historical cohort of 46,222 patients admitted to a major trauma centre between January 1, 2002 and October 31, 2011. BAC was categorised into ordinal groups by 100 mg/dL intervals. Alcohol questionnaire data on frequency and quantity was captured in the BAC ≥ 400 mg/dL group. The primary analysis was for BAC ≥ 400 mg/dL.

- Baltimore Trauma Center
- 2002–2011
- Categorized BAC (None, Low, High)
- Highest BAC = ↓ ISS
- Lower to None BAC = ↑ ISS

Alcohol and Readmissions



Contents lists available at ScienceDirect

Injury

journal homepage: www.elsevier.com/locate/injury



Review

The prevalence of alcohol-related trauma recidivism: A systematic review



James Nunn^a, Mete Erdogan^b, Robert S. Green^{b,c,*}

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ARTICLE INFO

Article history:
Accepted 9 January 2016

Keywords:
Trauma
Injury
Alcohol
Recidivism
Systematic review

ABSTRACT

Objective: Recur

known as trauma

trauma recidivi

purpose of this r

alcohol use amc

recidivism relat

as a secondary

Methods: Four

inception until

recidivism relat

for screening. O

for traumatic in

assess study cha

weighted estim

Results: A total

2014. Overall, t

recidivists with

aggregated sam

recidivism. In f

four found a p

Studies varied c

Conclusion: Evid

alcohol. Due to

underestimate

Systematic Review
1989 to 2014
Range 27% -77%
Weighted avg: 41%

traumatic injury is
nd associated with
ell described. The
d the prevalence of
portion of trauma
ism was evaluated

ere searched from
portion of trauma
lded 2470 records
l or trauma centre
istics were used to
l use. An aggregate

etween 1989 and
portion of trauma
edian 46.4%). The
ol-related trauma
was examined; all
traumatic injury.
divism, definitions

Alcohol & Resource Use

Extreme Blood Alcohol Level Is Associated with Increased Resource Use in Trauma Patients

ALISSA SWEARINGEN, M.D.,* VAFA GHAEMMAGHAMI, M.D.,* TERRENCE LOFTUS, M.D.,* CHRISTOPHER J. SWEARINGEN,† HELEN SALISBURY, Ph.D.,* RICHARD D. GERKIN, M.D.,‡ JOHN FERRARA, M.D.*

From the *Department of Surgery, Banner Good Samaritan Medical Center, Phoenix, Arizona; the †Department of Biostatistics, Bioinformatics, and Epidemiology, Medical University of South Carolina, Charleston, South Carolina; and the ‡Banner Health Research Institute, Banner Good Samaritan Medical Center, Phoenix, Arizona

2010

- Level I Trauma Center
- 5 yrs Trauma Registry
- Categorized BAC: None, Low, High
- Low BAC = ↑ISS, ↑ICU LOS, ↑LOS
- High BAC = ↓ISS, ↑ICU admit, ↑LOS

This study aims to examine resource utilization and outcomes of trauma patients with extremely high blood alcohol concentrations. We hypothesized that higher blood alcohol concentration (BAC) predicts greater resource utilization and poorer outcomes. A retrospective analysis was performed on trauma patients admitted to an urban Level I trauma center over a 5-year period. Admission BAC categories were constructed using standard laboratory norms and legal definitions. Demographic data, premorbid conditions, injury severity scores (ISS), resource utilization (intensive care unit (ICU) admission rates/length of stay, total hospital days, use of consultants), and mortality were analyzed. Positive BAC on admission was associated with increased ISS ($P < 0.001$), length of stay ($P < 0.003$), and total ICU days ($P < 0.001$). Increased BAC admission level of patients was associated with a decreased ISS score ($P = 0.0073$), a higher probability of ICU admission ($P = 0.0013$), and an increased percentage of ICU days ($P = 0.001$). A positive BAC at admission was a significant predictor of both ICU admission and mortality (odds ratios 1.72 and 1.27, respectively). This study demonstrates that a positive BAC is associated with increased ISS, increased resource utilization, and worsened outcomes. Extreme levels of BAC are associated with increased resource utilization despite lower injury severity scores.



Contents lists available at ScienceDirect

Injury

Journal homepage: www.elsevier.com/locate/injury



Alcohol intoxication/dependence, ethnicity and utilisation of health care resources in a level I trauma center[☆]

Bahman Roudsari^{a,*}, Raul Caetano^a, Craig Field^b

2011

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^b University of Texas School of Social Work, Austin, TX, United States

ARTICLE INFO

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Keywords:

Injury

Trauma

Alcohol intoxication

Alcohol dependence

Resource utilisation

Health care

Resources

Minorities

ABSTRACT

Objective: To evaluate the potential influence of acute intoxication and dependence to alcohol on extra-utilisation of health care resources by ethnic minority trauma patients in a level I trauma center.

Methods: We analysed the data of 1493 patients enrolled in a study that evaluated the effectiveness of brief alcohol intervention among ethnic minority trauma patients. The database included detailed demographic, injury-related and drinking-related characteristics (including acute intoxication and alcohol dependency status). Patients were categorised into the following groups: non-intoxicated/non-dependent (NI/ND), non-intoxicated/dependent (NI/D), intoxicated/non-dependent (I/ND) and intoxicated/dependent (I/D). We compared utilisation of several diagnostic and therapeutic procedures among these four categories. We placed special emphasis on ethnicity as a potential effect modifier.

Results: Relative to NI/ND trauma patients, I/ND patients (relative risk (RR): 1.8, 95% CI: 1.2–2.8) and I/D patients (RR: 2.4, 95% CI: 1.6–3.6) had significantly higher chance of being evaluated by abdominal ultrasound during the first 24 h of hospital arrival. Similar pattern was observed for head CT scan (with the corresponding RRs of 2.1 and 2.6, respectively). Chance of admission to the intensive care unit (ICU) was not associated with intoxication/dependence status. Length of hospital stay was negatively

- ED
 - High BAC
 - ↑ Abd US
 - ↑ Head CT
- ICU
 - No difference ICU admit or LOS
- Hospital
 - No difference in hospital LOS
- Ethnicity
 - No difference

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Clinical Science

Alcohol use increases diagnostic testing, procedures, charges, and the risk of hospital admission: a population-based study of injured patients in the emergency department

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- Emergency Department
- Population Level Database
- Alcohol related injuries compared to non alcohol related injuries
- Alcohol Related:
 - More come by ambulance
 - More diagnostic testing
 - Longer ED LOS
 - Twice as likely to be admitted
 - ↑↑↑Costly

Is Alcohol Protective or Negative for TBI?

Multiple studies show alcohol
is protective for TBI!



Explanations

- Protective role of alcohol is its ability to blunt the sympathetic response
- TBI:
 - 5 Fold increase in catecholamines
 - massive increase in systemic metabolism
 - depleting available oxygen and glucose stores
 - narrowing of the peripheral blood vessels

Leads To:

- decreased cerebral cortical blood flow and decreased
- availability of oxygen and glucose required for cellular metabolism
- resulting in anaerobic metabolism, ischemia, neuronal death