

Abstract Title:	The Effects Of Alcohol On Burn Outcomes: A Silent Killer
Author and Co-authors:	Salomon Puyana, MD, (Chief Resident PGY-5), Samuel Ruiz, MD, Elizabeth Young, Shaikh Hai, MD, Rizal Lim, MD, Morad Askari, MD, MBA, Mark Mckenney, MD, MBA, Harris Mir, MD Kendall Regional Medical Center, Miami, FL
Objective:	1) Describe the relationship between alcohol use and burn outcomes on patients.
Abstract:	<p>Background: More than 1 million burn injuries occur every year in the United States. Alcohol and drug use have been associated with poor traumatic wound healing. Ethanol dramatically impairs immune function and also lowers leukocyte production. The effects of alcohol use as a preexisting medical condition or comorbidity is not fully understood in thermal injuries. No large-scale study has shown the direct causal relationship between alcohol use and burn outcomes. Our aim was to describe the association of alcohol use on mortality, length of stay (both hospital and ICU), and ventilator days, in a national compendium of burn injured patients. Our hypothesis proposes a detrimental effect of alcohol on burn patient outcomes.</p> <p>Methods: This was a 10-year national retrospective review of the American Burn Association Burn Registry from 2002 through 2011. We stratified the patients into two groups: blood alcohol level above the legal limit 0.08 mg/dl (group 1) vs. blood alcohol level below legal limit of 0.08 mg/dl (group 2). Demographic characteristics, admission and outcome variables were collected and compared between each group. Patients with incomplete data recorded were not included. Our outcome measures included in-hospital mortality rate, hospital length of stay, ICU length of stay, and ventilator days. Chi-Squared and t-test analyses were used with significance defined as $p < 0.05$</p> <p>Results: A total of 11,286 burn patients met our inclusion criteria. We had 1,544 patients (13.7% of the total study population) with blood alcohol level equal or above legal limit 0.08 mg/dl (group 1) and 9,742 patients with blood alcohol levels below the legal limit 0.08 mg/dl (group 2). Group 1 had an average age of 37.7 years while the average age in group 2 was 34.5 years. The percentage of full thickness total body surface area (TBSA) burn was on average 2.08% in group 1 and statistically similar at 2.32% in group 2 ($p = 0.293$, t test). However, there was a significantly higher ICU Length of Stay at 5.91 days in group 1 compared to 3.66 in the group 2 ($p = 0.0001$, t test). There was no</p>

statistically significant difference in the hospital length of stay at 11.09 days in group 1, compared to 10.94 in the group 2 ($p = 0.783$, t test). The ventilator days were significantly higher in alcohol positive group at 5.67 vs group 2 at 3.06 ($p = 0.01$, t test). The in-hospital mortality was also significantly higher in group 1 at 4.86% vs group 2 at 3.91% ($p = 0.0001$, χ^2).

Conclusion: Burn patients who tested above the legal limit for alcohol on was associated with increased inpatient mortality. Elevated blood alcohol level on burn admission was also associated with an ICU length of stay and increased ventilator days. We thus propose that a positive admission blood alcohol level may be an independent predictor of worse outcome, prolonged ICU length of stay and increased health care costs.