

454 Hot Water Challenge: An Emerging Threat

J. Heard, MD, Y. Liu, MD, S. Herrera, MD,
K. Romanowski, MD

University of Iowa Hospitals and Clinics, Iowa City, IA

Introduction: In the era of social media and the misguided need for “going viral”, new patterns of burn injuries have evolved. The first evidence of this new trend occurred circa 2014 with the “Fire Challenge.” Participants, would cover parts of their body in household accelerants, light the accelerant, and rapidly attempt to extinguish the ensuing flames. As the “Fire Challenge” dwindled, new “challenges” emerged, such as the “Hot Water Challenge,” which is postulated to play on popular “Ice Bucket Challenge.” In this challenge, participants will boil hot water and either dump it on themselves, drink the boiling water, or even more disturbingly, throw boiling water on unsuspecting victims. In 2017, there have been several reports of the “Hot Water Challenge” in the national media which is becoming a public health concern.

Methods: The medical record of one victim of the hot water challenge at our institution was reviewed and an internet search was performed to identify other victims of this challenge. YouTube (www.youtube.com) was searched, and these videos as well as news stories were analyzed to gather objective data for analysis. Date of injury, age of participants, race/ethnicity of participants, burn location, burn depth, and the need for surgery were collection.

Results: The patient reviewed was a 10-year-old African-American (AA) male who sustained a 3% total body surface area (TBSA) second degree burn to his neck and torso when his cousin poured boiling water on him as he slept. He did not require surgery, but did have unhealed areas of burn more than two weeks after injury. After reviewing many videos and news stories, 11 unique videos were identified. One video was from 2016 and 10 videos from 2017. All but one participant were teenagers or young adults. Five participants were Caucasian, four were AA, and two were Hispanic. The average estimated TBSA was 2.1% and all appeared second degree. Two went on to require surgery. One boy required skin grafting and a girl from Florida required tracheostomy and ultimately died after being dared to drink boiling water.

Conclusions: Burn injuries in the developed world are decreasing due to targeted burn prevention campaigns and legislative efforts. However, in the era of social media, new trends in burn injuries have emerged. The true extent of these so called “challenges” is likely much more significant than apparent in the available literature, news stories and online videos. In order to prevent senseless burn injuries such as these, burn prevention programs need to evolve and adapt as rapidly as new injury patterns emerge.

Applicability of Research to Practice: Monitoring for new and evolving trends in mechanisms of burn injury can help not only treat but prevent burn injuries.

455 The Long-Term Outcomes of Electrical Burn Injuries: A Burn Model Systems National Database Study

L. F. Espinoza, BA, L. C. Simko, BS,
D. N. Herndon, MD, M. Rosenberg, PhD,
L. Rosenberg, PhD, W. J. Meyer, MD, N. Gibran,
MD, G. J. Carrougner, RN, MN, K. Kowalske,
MD, C. M. Ryan, MD, J. C. Schneider, MD

Spaulding Rehabilitation Hospital, Harvard Medical School, Boston, MA; University of Texas Medical Branch, Shriners Hospitals for Children, Galveston, TX; University of Texas Medical Branch, Galveston, TX; University of Washington, Harborview Medical Center, Seattle, WA; University of Texas Southwestern Medical Center, Dallas, TX; Massachusetts General Hospital, Shriners Hospitals for Children, Harvard Medical School, Boston, MA

Introduction: Electrical burns are severe injuries that often result in a different set of complications than other types of burns. The objective of this study is to examine long-term physical, mental health, and employment outcomes of burn survivors with electrical injuries and compare them to those of survivors with fire/flame injuries.

Methods: Data from the Burn Model System National Database (1993 - 2015) were analyzed. Individuals over 18 years of age that were alive at time of discharge were included. Demographic and clinical characteristics of those with fire/flame injuries and those with electrical injuries were compared. The following outcome measures were assessed at 24 months post-injury: the Mental Health Composite Scale (MCS) and the Physical Health Composite Scale (PCS) of the 36/12-Item Short Form Health Survey, as well as employment status. Regression analyses were used to compare outcomes of burn survivors with fire/flame and electrical injuries at 24 months post-injury, controlling for age, gender, race/ethnicity, burn size, inhalation injury, number of days on a ventilator, and pre-injury employment status.

Results: The study included 2,108 individuals with fire/flame burns and 216 with electrical burns. Those with electrical injuries were younger, had smaller burns and shorter lengths of stay, and were more likely to be male, be burned at work, undergo an amputation, and have neuropathy (Table). In regression analyses, those with electrical burns had significantly lower PCS scores ($\beta=-0.534$, $p<0.001$) and were about half as likely to be employed ($OR=0.45$, $p=0.002$) at 24 months post-injury compared to those with fire/flame injuries. MCS scores did not differ between the two groups.

Conclusions: Burn survivors with electrical burns experience worse physical function and employment outcomes at 24 months post-injury compared to those with fire/flame injuries.

Applicability of Research to Practice: Electrical burns cause significant long-term morbidity, and burn survivors with electrical injuries may require additional treatment. Complications should be closely monitored and addressed at follow-up.

Variable	Fire/flame (N=2,108)	Electrical (N=216)	p-value
Age, mean (SD)	43.0 (16.0)	38.3 (11.6)	<0.001
Male, % (N)	75.9 (1600)	97.2 (210)	<0.001
TBSA % burned, mean (SD)	23.0 (17.1)	11.6 (12.6)	<0.001
Length of stay in days, mean (SD)	33.1 (36.1)	22.6 (22.5)	<0.001
Work-related burn, % (N)	14.4 (302)	79.2 (168)	<0.001
Amputation, % (N)	5.4 (106)	26.4 (56)	<0.001
Neuropathy, % (N)	8.3 (105)	16.9 (25)	0.001