Indian Journal of Medical Case Reports ISSN: 2319–3832
Online, International Journal, Available at http://www.cibtech.org/jcr.htm
2021 Vol.10, pp. 47-50/Muneeb and Mudasir
Case Report (Open Access)

DEEP BURN IN LOW VOLTAGE BURN AND RURAL INDIAN MYTH LEADING TO DEATH

[*]Muneeb ur Rashid[1] and Mudasir Ahmad Mir[2]
[1]Department of Emergency and Critical Care Medicine, Anil Baghi Hospital Ferozpur, Punjab, India
[2]Department of Critical Care Medicine, Anil Baghi Hospital Ferozpur, Punjab, India
**Author for Correspondence: docshahmuneeb@gmail.com*

ABSTRACT
Electrocution injuries are very common in India. According to the latest data available with the National Crime Records Bureau, in 2015 alone, 9,986 electrocution deaths were recorded across the country. In India, the standard household voltage is 230 V and the frequency is 50 Hz. Generally, the higher the current and voltage associated with AC or DC, the greater the electrical damage will be. High-voltage current (greater than 500 V to 1000 V) typically will result in deep burns, while low-voltage current (110 V to 120 V) is more likely to result in tetany1. We here present a case of superficial as well as deep burn along with tetany with household live wire resulting in the death of a patient due to immense loss of time in transportation to the hospital and lack of CPR owing to the myth that sprinkling flour on the electrocuted body will restore life in these patients, a myth very popular in rural India.

Keywords: *Electric Burns, Myths Regarding Electric Burns in India, Burns*

INTRODUCTION
Electrocution injuries are much more prevalent in India than reported, add the injury many patients don't make it to the hospital on time resulting in loss of lives owing to myths and false first aid provided by local medical practitioners, especially in rural India. Here we report a case of a young Indian male who had electrocution with less intense local injury and possibly had arrhythmia induced cardiac arrest which probably could have been treated by a timely cardio-pulmonary resuscitation in or outside the hospital, but instead, he was taken to a local practitioner who advised to have a dry flour bath of the whole body of patient resulting in wastage of time.

CASE
A 25 years boy had an electric shock from a live wire while taking bath, he was recovered from the bathroom after about 05 mins, after recovering from the washroom patient was seen by his father as pale with no pulse and absent respiratory efforts, instead of resorting to layman CPR patient`s father and family thought of sprinkling wheat flour of the body, this process consumed about 15 precious minutes, failure of this process finally leads them to hospital. when we received the patient there were no signs of life, pupils were fixed and dilated with rigor mortis set in and there was a deep burn on the left palmer aspect of the hand with multiple superficial burns on the dorsum (fig 1-4) and body full of wheat flour on it, no other injuries were noted.

DISCUSSION
Electrical injuries are generally divided based on the voltage of the injury source into high-voltage injuries (≥1000 V), low-voltage injuries (<1000 V). Standard domestic electricity is AC (alternating current) as compared to DC (direct current) used in batteries. The usual frequency of AC household supply is 50- to 60-Hz AC in India. At similar frequencies, AC can be more dangerous than similar levels

of DC because of the alternating current fluctuations which can result in ventricular fibrillation, muscular tetany (cannot let go of the electrical source) (Zemaitis *et al.,* 2017). Electricity produces different kinds

Figure 1: degloving injury dorsum of hand and forearm

Figure 2: Grade 3 burn on palm, entry wound

of injuries includes but is not limited to: arrhythmias including asystole or ventricular fibrillation (the commonest cause of death before arrival in the ED) (Wick *et al.,* 2006), Myocardial ischemia, Conduction blocks, CNS and spinal cord injuries, blindness, GBS like illness, cutaneous burns (are typically painless, Gray to yellow, depressed areas), fractures, etc. Low-voltage AC can produce ventricular fibrillation by direct effects of current on myocardium or as sequelae of transient respiratory arrest post-shock.

Cutaneous burns are generally seen in high voltage burns and sometimes in low voltage burns (Bounds *et al.*, 2020), key to the successful management of victims of electric shock injury and asystole is timely

Figure 3: dry flour applied to whole body and part involved

Figure 4: inability to open victim's hand post burn sequelae

CPR and management according to ACLS guidelines without delay. The need for reporting this case is to make people and clinicians aware of the different myths about the electrical injuries people of rural India are having regarding electric shock and consequent injuries which lead to poor outcomes in potentially

salvageable patients. This case also taught us that deep burns are also possible with low voltage electric injuries.

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