

February Update from the Field 2023: Electrical Safety

Electrocution Hazards on the Farm

Electrocution hazards on the farm. (2013). In *Iowa State University Extension and Outreach* (PM 1265k). USDA Cooperative Extension Services. Retrieved December 29, 2022, from https://nasdonline.org/static_content/documents/2473/d002299.pdf

Rain clouds are moving in quickly and you want to finish harvesting that last field. Another wagon is ready to dump, and more will be arriving soon. You need to move the portable auger to the next storage bin. To stay on schedule, you decide to move the auger without first lowering the height. Without warning, the auger contacts overhead power lines and two workers are electrocuted. It was too late to do anything.

This scenario is repeated on dozens of farms throughout the United States each year. Electrocution is quick and deadly, killing an estimated 35 agricultural workers every year.

The tragic aspect is that these deaths could have been prevented. Farm workers can reduce their risks of electrocution by knowing how they, or others on the farm, can unknowingly come in contact with electricity. This publication focuses on electrical hazards posed by overhead power lines, standby generators, and general operating procedures of electrical systems at the farm work site.

Changing Trends In Electrical Burns From A Tertiary Care Centre - Epidemiology And Outcome Analysis

Arumugam, P. K., Thakur, P., & Sarabahi, S. (2021). Changing Trends In Electrical Burns From A Tertiary Care Centre - Epidemiology And Outcome Analysis. *Annals of burns and fire disasters*, 34(4), 351–359.

Electrical burn injuries result in significant mortality and morbidity. Most of these injuries are preventable. We conducted a retrospective analysis of various aspects of electrical injuries presenting to our center over a period of 1 year from September 2018 to August 2019. Demographic characteristics of patients along with burn characteristics and associated injuries

were analysed. Outcomes including length of hospital stay, need for fasciotomy, amputation, renal failure and mortality were also analysed. A total of 6380 patients presented to our center during the study period, of which 471 (7.38%) had electrical burns. Total burn admissions were 1530, of which 283 (18.49%) patients were admitted with electrical burns. The mean age in our cohort was 25.31±12.76 years and mean TBSA was 29.22±23.81%. The most common cause of electrical burns was occupational (33.3%), followed by those that occurred on the rooftop of houses (31%). A historical comparison with data published from our center in 2011 showed a significant increase in occupational burns (18.72% vs. 33.3%) and rooftop electrical burns (8.21% vs. 31%), and a decrease in agriculture-related (42.46% vs. 9.1%) and domestic electrical burns (26.02% vs. 6.7%). There was also a significant rise in proportion of high voltage injuries (71.23% vs. 86.90%). Logistic regression analysis showed electric contact burn to be a risk factor for fasciotomy and limb gangrene. Risk factors for renal failure were age, percentage burn, electric contact burn and rural residence, and those for mortality were percentage burn and renal failure. Emphasis on preventive strategies, especially against occupational injuries and injuries occurring on rooftops, is necessary to prevent such devastating injuries.

Clinical spectrum of electrical burns – A prospective study from the developing world

Sokhal, A. K., Lodha, K. G., Kumari, M., Paliwal, R., & Gothwal, S. (2017). Clinical spectrum of electrical burns – A prospective study from the developing world. *Burns*, 43(1), 182–189. <https://doi.org/10.1016/j.burns.2016.07.019>

Electrical burns are devastating, posing development of multiple injuries with high morbidity and mortality. Electrical burn management benefits from a multidisciplinary, multispecialty collaborative approach to improve outcomes. To highlight the clinical spectrum of electrical burns in the developing world, including common etiologies, presentation, intervention, associated injuries, and complications. A prospective study was conducted from January 2010 to December 2015 that included 78 patients (75 men and 3 women), who presented with a history of electrical burns. Patients were interviewed for detailed clinical history and physical examination. The study comprised 78 patients (high-voltage group: 38.46% and low-voltage group: 61.54%). The most affected age group was the 21–40 year age group. High-voltage

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injuries were more devastating. The most common complication was septicemia in 24.4% of the patients, which included 43.3% from the high-voltage group. Electrical burns affecting young adult men can impose a significant burden in developing countries. Electrical burns, especially due to high voltage, involve multiple organs benefitting from multidisciplinary management and have significant residual sequelae. Public awareness and education and proper training of industry workers remain the best way to minimize the prevalence of electric burns in the developing world.