G129 When Lightning Strikes: 17 Fatal Lightning Strikes in New Mexico

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The goals of this presentation are to describe the prevalence of fatal lightning strikes, familiarize attendees with the most frequent decedent and scene demographics identified in fatal lightning strike scenes and autopsies, and have attendees recognize the importance of thorough scene investigation and full autopsy examination with histology and specific examinations in lighting strike fatalities.

This presentation will impact the forensic science community by providing data identified in lighting strikes fatalities and suggesting investigative steps to provide the most thorough scene and autopsy examination.

Hypothesis: There are specific demographics with lightning fatalities in New Mexico that may help identify risk factors and target a population or region for preventative measures.

Methods: A retrospective review of all fatal lightning strikes in New Mexico between January 1979 and December 2009 was performed using an electronic database searching the key words “lightning” and “electrocution.” Cases of electrocution that were not from lightning were eliminated. Demographics evaluated included county of strike, underlying health conditions, month and time of day of strike, activities performed, toxicology, exam findings and the age, sex, and race of the decedent.

Results: During this 30-year time period, 17 lightning strike fatalities were identified. Fill autopsies were performed on 14 cases and three were external only examinations. The cases were distributed over 14 different counties; with the highest number of cases in a single county being two. All (17/17) of the cases were male. The majority of cases (52%) of the cases fell between 31-50 years. 52.9% (9/17) of the cases had underlying health conditions. 56% percent of the cases occurred between 2:00 p.m. and 6:00 p.m. 62% of occurred in opens spaces, roadways and parking lots. Exam findings included the classic arborizing Lichtenberg figures (35%), burns and singed hair (50%), and blunt force injuries (24%). Only four of the 14 full autopsies documented examination of the tympanic membranes. On cases where toxicology was performed (70.5%), no drugs of abuse or ethanol were detected.

Conclusions: Full scene investigation including weather reports, location of strike, time of day, month, activities performed, equipment used during the strike, and a thorough medical history should be collected when evaluating a fatal lightning strike. A full autopsy should include not only documentation of all external and internal injuries with evaluation of the tympanic membranes but identify natural disease. Intoxication does not appear to be a factor in the lightning deaths reviewed. To prevent lightning deaths, public service announcements in New Mexico for lighting warnings should be targeted towards males during spring and summer and emphasize the avoidance of open spaces.

The goal of this review was to compare the epidemiology of lightning strike fatalities in New Mexico to those previously described in national studies, and provide suggestions for the standardization of autopsy evaluation of lighting strike fatalities so that data may be used for prevention strategies.

Lightning, Autopsy, Prevention

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