

## Workplace Ladder-Related Electrical Accidents: “Repetitive Injuries”

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### Dear Editor,

Every year, many workers throughout the world are killed or injured as a result of inadvertent contact with power-line conductors. Surprisingly, over half of those killed are not in traditionally electrical fields, i.e., not linemen, electricians, technicians, etc. (1). Electricity remains a serious workplace hazard to anyone who works in an industrial environment (2).

Contact between portable metal ladders and overhead power lines cause serious and often fatal injuries to workers. Data show that during the years 1980 to 1985, the contact of metal ladders with overhead power lines accounted for approximately 4% of all work-related electrocutions in the United States (e.g., 17 out of 382 deaths for 1985) (3). Workers often misjudge wire distances or lose control of fully extended ladders, thereby exposing themselves to electrocution hazard (4). Ladder contact with power lines usually occurs during the erection, lowering, or relocation of the ladder (5).

- Case history: Contact with a high-voltage overhead power line happened in March 2014, while five workers (mean age 24) relocated a 6-meter four-wheeled metal stool. First, the victims were transferred to a private general hospital without a dedicated burn unit. After two days, they were referred to our tertiary burn center. Sadly, all of them sustained serious injuries and standard treatments had not yet been carried out. On the first day of their admission, the average burn size of the victims was 15.8%. One death occurred due to sepsis and organ failure. Nine limb amputations (upper or lower, proximal to the wrist or the ankle) were performed. In 2 cases, amputation of 3 extremities was carried out.

Discussion: Unfortunately, these tragic stories of workplace fatality or injuries are frequent, happening every day. How are ladder-related electrical fatalities and injuries among workers to be prevented? There are clear regulations to prevent workers' deaths and injuries from contact with overhead power lines when using metal ladders or similar appliances. Implementation of the following oc-

cupational safety rules should be mandatory in operations when working near overhead power lines:

- 1) All workers should be trained in the operation's overhead power-line hazards.
- 2) Overhead power lines should be de-energized or insulated before the start of work.
- 3) Non-conductive ladders (fiberglass or wood) should be used around power lines.

Careful attention to occupational safety regulations will reduce the incidence of occupational injuries (6). If occupational regulations had been applied by these workers and their manager, this event might have been prevented.

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