ORIGINAL RESEARCH PAPER

Forensic Medicine

PATTERN OF INJURIES IN ELECTROCUTION DEATHS IN KAMRUP, ASSAM

KEY WORDS: Electrocution, Kamrup, Males, Extremity, Burns

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ABSTRACT

Electrical injuries are responsible for considerable morbidity and mortality in our country especially in our regions. The present study has been carried out to study pattern of injuries in electrocution deaths in Kamrup, Assam. Cases were collected from autopsy cases in Department of Forensic Medicine, GMCH. Total number of cases was 36. Most of the affected persons were male. The classical electrical injury feature of entry and exit wound was found in most of the cases. The entry wound was found in the upper extremities and exit in the lower. Burns of all nature were noted in depth. The morbidity and mortality can be reduced by educating the people and the use of protective measures must be made compulsory to the workers especially employees of electric department.

INTRODUCTION

One of the marvels of the modern society has been the invention and use of electricity. A day without electricity is difficult to comprehend for all and can put the workings of a country to a standstill. In this viewpoint deaths due to electrocution hold a special regard, as use of electricity is not going to diminish in the near future. Indian national data on accidental deaths and suicides for calendar year 2010 & 2011 has reported 9059 & 8945 electrocution deaths respectively, with a share of 2.4% of total accidental deaths.1 Hence, the present study has been carried out to study the incidence of electrocution deaths in Kamrup, Assam and study the pattern of injuries sustained by the victims.

MATERIALS AND METHODS

This retrospective study was carried out in the Department of Forensic Medicine, Gauhati Medical College and Hospital during a period of 1 year, extending from 1st June 2017 to 31st May 2018. Analysis of the medico legal reports of electrocution cases brought for autopsy have been carried out as regards the history of the cases, police papers, and post-mortem examination findings. The findings were recorded in proformas and analyzed.

OBSERVATION AND RESULTS

In the present study period there were a total number of 36 deaths attributed to electrocution. Most of the affected persons were male. The classical electrical injury feature of entry and exit wound was found in most of the cases.

TABLE 1 showing characteristic entry and exit wound in cases

Characteristic	Number of cases	Percentage
Entry only	3	8.33
Entry and exit	28	77.77
No entry or exit	5	13.88

Table 2 showing site of entry wound Mostly the entry wound was in the hands and the fingers of the upper limbs

Site of entry wound	Number of cases	Percentage
Upper extremity	21	58.33
Lower extremity	8	22.22
Head and Neck	2	5.55
Chest and abdomen	0	
No entry	5	13.88

Table 3 showing site of exit wound Exit wound was detected in the lower limbs mostly

Site of exit wound	Number of cases	Percentage
Upper extremity	9	25
Lower extremity	17	47.22
Head and Neck	1	2.77
Chest and abdomen	1	2.77
No exit	8	22.22

TABLE 4 showing cases with electrical burns

Burns involving	Number of cases	Percentage
Epidermal	15	41.66
Dermo- Epidermal	12	33.33
Deep	9	25

The electrical burns were mostly epidermal and dermo epidermal in nature and present mostly on the upper extremities.

Table 5 showing site of burns

Site of burns	Number of cases	Percentage
Upper extremity	18	50
Lower extremity	8	22.22
Head and Neck	4	11.12
Chest and abdomen	6	16.66

DISCUSSION

The distinct injury marks produced at the site of contact with electric wire (entry mark) and joule burns in electrocution cases can be considered as a classical external sign of electrocution.

Previous studies have reported much higher percent- age of entry marks varying from 72% to 86.27%.2,3,4 The hands and fingers of the upper extremities are the most frequent sites for electrical injuries (entry marks), while exit wounds were commonly located on the soles & toes of lower extremities, because extremities are the most common sites of contact with the source of electric current. Similar findings were reported from other studies.2,3,4

The involvement of burns were similar to other studies.[5,6,7]

CONCLUSION

Electrocution can be prevented by educating people about the equipments, precaution to be taken while working with electrical equipments, replacing old electrical installations with new one, use of protective measures like gloves and harness to avoid fatal electrocution. Electrocution is occupation related death as work place is common place of occurrence. The morbidity and mortality can be reduced by educating the people and the use of protactive measures must be made compulsory to the workers especially employees of electric department.

REFERENCES

1. Accidental deaths and Suicides in India 2011. National Crime Records Bureau. Ministry of Home Affairs. Avail- able at http://ncrb.nic.in/CD-ADSI2011/ADSI-2011%20 REPORT.pdf. accessed on 14 July 2017
2. Rautji R, Rudra A, Behara C, Dogra TD. Electrocution in South Delhi; A retrospective study. Med Sci Law 2003; 43(4):350-2.
3. Tirasci Y, Goren S, Subasi M, Grukan F. Electrocution related mortality: A review of 123 deaths in Diyarbakir, Turkey between 1996 and 2002. Tohoku J Exp Med 2006

Feb;208(2):141-5.
4. Ragui S, Meera T, Singh KP, Devi PM, Devi AS. A study of electrocution deaths in Manipur. J Med Soc 2013; 27:124-6.
5. Sheikhazadi A, Kiani M, Ghadyani MH. Electrocution-related mortality: A survey of 295 deaths in Tehran, Iran between 2002 and 2006. Am J Forensic Med Pathol 2010;31:42-5.
6. Hyldgaard L, Sondergaard E, Leth P. Autopsies of fatal electrocution in jutland .scand J forensic sci 2004;1:8-12.
7. Manish Shrigiriwar et al. Electrocution: a six year study of Electrical fatalities, JIAFM 2007; 29[2]50-37.