Evaluation of electrical injury in East Azarbaijan Province, Iran

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Original Article

Abstract

BACKGROUND: Electrical injury is a worldwide health issue. In this research we studied the epidemiology and demography of electrical injury in the north-west of Iran.

METHODS: This is a cross sectional, descriptive study conducted in 2008-2011 in the burn center of Sina Hospital, Tabriz, East Azarbaijan, Iran. All patients with all kinds of electrical injuries were included in this study.

RESULTS: The participants consisted of 229 patients; 204 (89.1%) men and 25 (10.9%) women. Moreover, from among these cases the injury of 2 people was fatal and the others were treated.

CONCLUSIONS: Based on the findings of our study and other studies, which showed a higher incidence of electrical injury in young people and in the workplace, we need to visit workers in the workplace and perform prevention programs.

KEYWORDS: Electrical injury, Demography, Incidence

Citation: Shams Vahdati S, Moradi M, Hemmat Ghadim J. **Evaluation of electrical injury in East Azarbaijan Province, Iran.** J Analyt Res Clin Med 2013; 1(1): 22-24.

Received: 10 Jun. 2013 **Accepted: 16 Aug. 2013**

Introduction

Electrical injury is a worldwide health problem. It is more prevalent in low-income countries because of their lower level of safety knowledge. Despite the efforts to reduce the number of electrical injuries, its incidence has been gradually increasing; it is about 32% of the cases referred to burn care centers.[1-7] In many studies, it has been observed that symptoms of EI patients are very similar to traumatic brain injury, including cognitive and neurobehavioral deficits. Electrical injury (EI) is a cause of injury and death, and most EI occur on the job.[8] Workplace accidents are a serious occupational problem in the US. EI cause approximately 13 days away from work, and nearly one fatality everyday.[9] In this study we studied the epidemiology and demography of electrical injury in the north-west of Iran.

Methods

East Azarbaijan is in the north-west of Iran and the province covers an area of approximately 47,830 km². This is a cross sectional, descriptive study conducted in 2008-2011 in burn center of Sina Hospital, Tabriz, East Azerbaijan, Iran. All patients with all kinds of electrical injuries were included in this study. All data were collected, analyzed by SPSS for Windows 15.0 (SPSS Inc., Chicago, IL., USA), and descriptive analysis was run for them.

Results

In our study, the participants were 229 patients who had referred to all hospitals of

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Tabriz with electrical injury. 204 (89.1%) of the participants were men and 25 (10.9%) were women. The highest age group was 21-30 years with 101 incidences (44.1%). The incidence of electrical injury in urban areas was 203 (88.6%), and in rural areas 25 (10.9%). EI accrued most frequently in the workplace; 116 (50.7%). The number of occurrences at home was 93 (40.6%). The highest frequency was, respectively, in June [38 (16.6%)] and December [35 (15.3%)]. Moreover, among these cases 2 people were fatal and others were treated.

The age distribution of referred patients is visible in figure 1.

Discussion

Studies conducted in the US showed that 0.5\100000 population died per year due to EI; it accounts for about 1000 deaths annually. EI is the cause of 5000 cases of emergency treatment, and 4-7% of electrical burn injury admissions.[10-13] In a study in the Shaanxi Province of China during the 10-year period from 2000 to 2009, in 383 patients admitted to the burn unit because of electrical injury 346 were male (90.3%), 300 cases occurred in the workplace, and 223 (58.2%) cases in rural areas.[14]

Although there is a 6% incidence of electrical burn in the western world, in India's hospitals it has increased from 6.8% in 1997 to 12% in 1998.[15] In another study during 2004-2009 in India 84 patient suffered from EI, the age of patients ranged from 3 to 61 years, and 84.5% of them were male.[16] In another study from 1994 to 2008 in the burn center of the Medical University of Vienna from among 56 patients, men (74.1%) were more than women, and the average age of the victims was 35.3 years.[17]

One study in Bangladesh in 2003 showed that from among 604 people referred for electrical injury, 63% were male and 37% were female, and 87% were from rural areas and only 13% from urban areas. The average age was 24.8 years, and ranged from 2 years to 91 years. The rate of electrical injury was 73.7 per 100,000 people per year.

The highest and the lowest rate of electrical injury, respectively, were found amongst the age groups of 51–60 years and 21–30 years, (101.1 and 50.3 per 100,000 per year). In addition, it was estimated that about 110,000 people suffer from electrical injury every year with incidence rate of 73.7 per

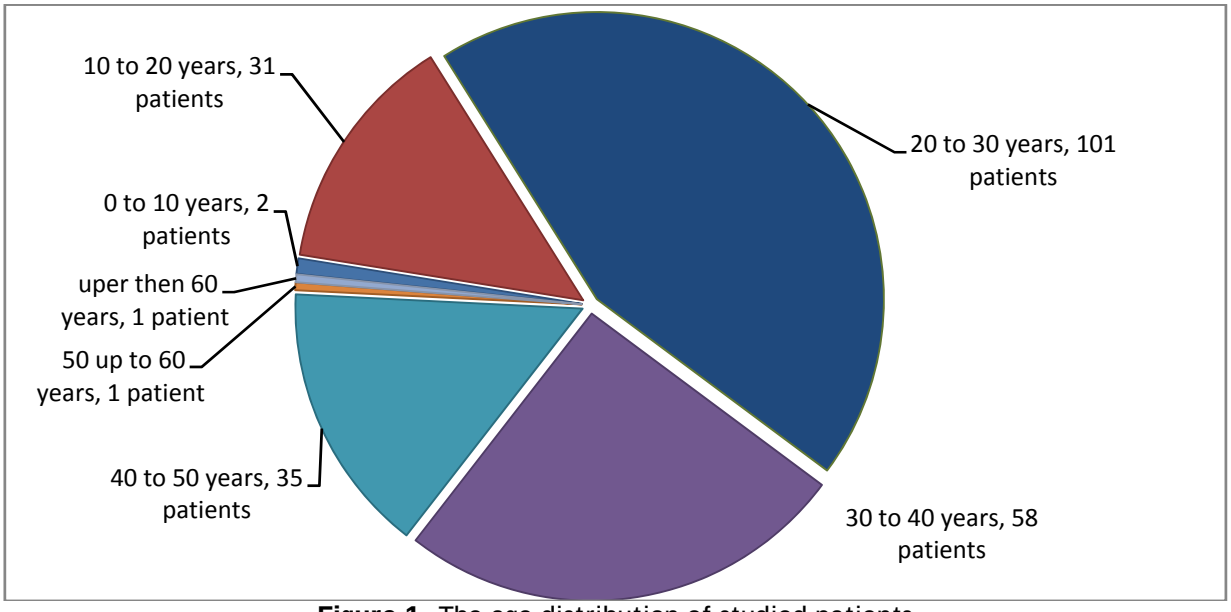

Figure 1. The age distribution of studied patients

100,000 per year. The most common place of electrical injury was home with more than 50% and EI resulted in 13 deaths per year 11 (85%) of which were male and 2 (15%) female.[18]

Based on the findings of our study and other studies, which showed a higher incidence of electrical injury in young people and in the workplace, we need to visit workers in the workplace and perform prevention programs.

Conflict of Interests

Authors have no conflict of interest.

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