Original communication

An annual analysis of clinical diagnosis versus autopsy findings in fatal motor vehicle accident in legal medicine organization of Kerman province, Iran

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ABSTRACT

Introduction: One of the most common causes of death in Iran and other developing countries, are traffic accidents. Accordingly, this study was done based on the investigation and prevention of traffic injuries.
Method: This cross sectional study includes all fatal traffic accidents in the province of Kerman during a year; moreover, spss19 software is used for analyzing data. The main references of this survey were both the clinical reports of the victims of the road accidents as well as their Autopsy findings in forensic medicine center of the Iranian province of Kerman. In this study, 1185 victims of road accidents have been under supervision. Furthermore, statistical information such as age, sex, education, career, position of the occupant (Car drivers, motorcycle drivers and pedestrians), injuries related to the accident, type of vehicle, City-location of the accident and Place of death are observed. The main causes of death victims of road accidents were categorized into six groups. Occupational groups according EE0-1Job category were classified into 9 groups. Results are reported as descriptive as a frequency index (%), mean ± standard deviation, in addition, chi squared test was used to compare the clinical findings and autopsy And $p < 0.05$ was considered to indicate significance.
Result: In total 1185 people, there are 939 men (79.2%) and 246 women (20.8%). Most deaths occurred in young adult, 26.7% (19–24 years, n = 316). Injuries recorded during the autopsy examination include abrasion (n = 267, 22.5%) and laceration (n = 201, 17%) That was different significantly (p = 0.0001). In comparing of the skin lesions and Fractures between the hospital clinical records and autopsy finding, the difference was significant (p = 0.0001). The most common brain injury in hospital was epidural hematoma (n = 152, 12.8%). There was significant difference when compared with autopsy (n = 165, 13.9%) then brain contusion was most autopsy findings (n = 144, 12.2%). Whereas 141 cases was diagnosed in the hospital (11.9%) (p = 0.0001), And the diagnosis of diffuse axonal injury in both groups was similar (n = 75).
Discussion: The morbidity and mortality caused by head injury not only caused by traumatic brain injury, but it is sometimes due to cause delay in diagnosis and surgical procedures. We recommend abrasion & laceration injuries that could be suggestive of more serious injuries to more accurately assess the patient's bedside.
Conclusion: In spite the high rate of deaths in road accidents in the Iranian province of Kerman, Epidemiological data on road accidents in this area is still low. Although all improvement in clinical approach and medical facilities in Iran, a clinical diagnosis cannot be replaced autopsy in the diagnosis of death's causes. All in all, data registration and strong attention to findings of clinical tests such as laceration & abrasion is firmly encouraged to estimate of financial loss in the case of patients' survival.
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1. Introduction

One of the most common causes of death in Iran and other developing countries is traffic accidents.[1] According to recent World Health Organization report, one million and 240 thousand people die annually in the world due to injuries from traffic accidents. Two hundred and seventy thousands of them are pedestrians.[1] Pedestrian accidents are the most vulnerable.[2] Review of traffic accident deaths in Iran violators of the last 19 years doesn't show only a reduction of statistics, but the number of accidents has been steadily increasing. Suburban events underlie 61 percent of total traffic deaths in the country as well as the three factors, staffing, quality road vehicles and enhanced driving deaths in the country.[3–5] According to statistics is provided by the center, the number of traffic accidents increased from 32,505 in 1994 to 164,986 cases in 2006.[1] The rate of increase in the number of Wounded has been increasing faster than crashes. Meanwhile, the annual increase in the percentage of traffic accident rate is 4.9 in this period. The number of wounded increase at the same volume equivalent to 6.8 percent.[1] Despite the tremendous rate of death in road accidents in the Iranian province of Kerman, Epidemiological data on road accidents is still low in this area. Accordingly, this study was done based on the investigation and prevention of traffic injuries.

2. Method

This cross sectional study includes all fatal traffic accidents in the province of Kerman during a year; moreover, spss19 software is used for analyzing data. The main references of this survey were both the clinical reports of the victims of the road accidents as well as their Autopsy findings in the forensic medical center of the Iranian province of Kerman.

The Autopsies are performed for all deaths to identify either trauma or accident is the cause of death, according to Iranian law. In this study, 1185 victims of road accidents have been under supervision. Furthermore, statistical information such as age, sex, education, career, position of the occupant (Car drivers, motorcycle drivers and pedestrians), and injuries related to the accident, Type of vehicle, City-location of the accident and Place of death are observed. The main causes of death victims of road accidents were categorized to six following groups: 1. Head injury 2. Internal bleeding 3. Multiple fractures 4. Burns 5. Illegal substances 6. Crush Injuries. Age is categorized into 7 groups. Kids<12 years, teenager: 12–18years, young adult: 19–24 years, adult: 25–39 years, middle age: 40–60 years and older than 60 years. Occupational groups according EE0-1 Job category were classified into 9 groups being included: 1; Officials and Managers: Occupations requiring administrative and managerial personnel who set broad policies, exercise overall responsibility for execution of these policies, and direct individual departments or special phases of a contractor's operations. 2; Professionals: Occupations requiring either college degree or work experience comparable to the background. 3; Technicians: Occupations requiring a combination of basic scientific knowledge and manual skill, it can be obtained through a two years of post high school education, being offered by many technical institutions and junior colleges or through equivalent on the job training. 4; Sales Workers: Occupations engaging wholly or primarily in direct selling. 5; Office and Clerical Workers: Includes all clerical types of works regardless of their difficulty level. 6; Craft Workers (Skilled): Manual laborers of relative high skill level who possess a thorough and comprehensive knowledge of the processes relating to their work. They reserve considerable independent judgment and usually receive an extensive period of training. 7; Operatives (Semi-Skilled): Workers who operating machines or processing equipments or performing other factory-type duties in regard to their skill level. This type of skill can be mastered in a few weeks and required only simple training. 8; Laborers (Unskilled): Workers in manual operations who generally require no special training to perform elementary duties that may be learned in a few days and required to pass little or no independent judgment. 9; Service Workers: Workers in both protective and non protective occupations.

Results are reported as descriptive as a Frequency index (%), mean ± standard deviation, in addition, chi squared test was used to compare the clinical findings and autopsy And $p < 0.05$ was considered to indicate significance.

3. Result

In total 1185 people, there are 939 men (79.2%) and 246 women (20.8%) (Fig. 1). Most deaths occurred in young adult (26.7%, n = 316). Two Hundreds and Ninety two decedents (24.6%) were uneducated and 104 (8.8%) decedent had university education. Three hundred forty six cases were sales worker (29.2%), that had the largest number of accidents; Moreover, the lowest statistics related to professional occupational group (2.7%, n = 32). Five Hundreds and forty four decedents were drivers (45.9%), 289 decedents were front passenger (24.4%), 144 victims were back passenger (12.2%) and 208 victims were pedestrian (17.6%). The highest mortality rate happened in the first 24 h of the accident (n = 1020, 86.1%). Most common had multiple trauma (n = 755, 63.7%) then head and face injury (n = 387, 32.7%). Vehicle accidents in this study include 11 bicycles (0.9%), 241 motorcycles (20.3%), 436 light vehicles (36.8%), 497 heavy vehicles (41.9%). Most of the traffic accidents statistics are in spring (n = 372, 31.4%) and in May (n = 139, 11.7%). Most of the accidents in Kerman province, were between cities accidents (n = 276, 23.3%). All of the 399 people who died in hospital, Radiography was performed for 194 patients (25.9%), CT scan was performed for 261 patients (34.8%) and sonography was performed for 295 patients (39.3%). Surgical treatment was performed in 241 patients (60.4%) and 158 patients (39.6%) received non-surgical procedure. The most common cause of death was head trauma (n = 751, 63.4%) and then multiple fracture (n = 249, 21%), afterwards internal bleeding (n = 92, 7.8%). Six Hundred and Twenty two decedent (52.5%) died at the accident scene, 153 decedent died during transport to the hospital, 399 cases
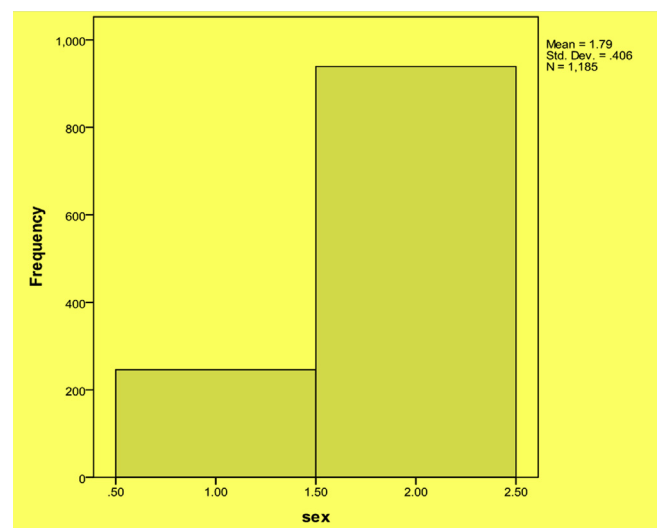

Fig. 1. Frequency of men and women.