

Original Article

Traumas' Management in a Primary Health Care Level

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Abstract

Purpose: The aim of this study was the recording of traumas and their management in a primary health care level, health center of Xylokastro, Greece. **Material and Method:** This research is a cross-sectional observation study. The data were retrieved from the emergency files of the Health Center and included a total 871 patients visited the Center from September 2016 until August 2017. The statistical analysis was carried out using the Pearson's χ^2 test or Fisher's exact test. **Results:** 62.8% of the population visited the health center were males, the mean age was 42.8 years (± 24.8), and 57.5% were coming from an urban area. 51.8% of the patients had been diagnosed with open rupturing wounds, 24.5% with microtrauma, 16.6% were suffered from complicated wounds and 7.1% were diagnosed with friction burns. As far as the cause of trauma, 31.8% of patients visited the health center due to a fall, and 20.9% due to a work accident. The majority of the patients (66.2%) visited the health center did not need referral or transferring to another health care service. However, it was considered necessary the referral to the hospital for patients with complicated wounds. A statistical significant difference it was found between the age of patients, the cause and diagnosis of traumas. **Conclusions:** Despite the fact that the effective provision of emergency services is a key goal of the primary health care, however, it is imperative to be recognized that trauma is a preventive public health problem, and therefore the development of prevention strategies, is vital in order the mortality and disability of patients to be reduced.

Keywords: trauma, primary health, wound, prevention, emergency

Introduction

Traumas are an important issue of public health, since are the main cause of mortality in young

group ages worldwide, causing many lost years of life (Mock et al., 2004, Mock et al., 2005).

According to World Health Organization (WHO), more than 5 millions of people are dying

every year as a result of traumas, representing the 9% of all deaths globally and almost 1,7 times the number of lethal incidents caused by HIV / AIDS, tuberculosis, and malaria. For every death, it is estimated that there are decuple hospital stays, thousands of visits in emergency departments, and millions of medical appointments. A great percentage of people who survive of traumas, undergone temporary or permanent disabilities. Among individuals of 15-29 years old, the main cause of death are traumas caused from road accidents, whereas, in elderlies the falls are the most frequent cause of traumas connected with death (WHO, 2014).

The financial aspect of the burden is also an important issue, since the therapy and rehabilitation of wounded, represent a great percentage of many national budgets for the health. Almost 2% of the gross domestic product in high income countries is disposed for traumas caused by road accidents, whereas for the low and medium income countries, this percentage is 5%.

The main goals of trauma care, is the survival of wounded patients, the reduction of morbidity and the improvement of quality of life after the injury. There are important factors in trauma physiology that affect the outcome of the main trauma (the real accident its self), of the secondary trauma (interventions, therapy, incidents and complications followed the first injury) as well as of the individual biological response to trauma (comorbidity) (Bouillon, 2014).

The pre-hospital medical services of emergent care of traumas, can be divided into basic and life support services. The basics ones include medical care provided initially by the health professionals in order the vital functions to be ensured until the transporting of patients to another appropriate medical care. The specialized support includes the use of methods such as medication and intubation, usually provided by a specialized medical staff as anesthesiologists. (Ryynanen et al., 2010).

The recognition of the severe wounded individuals, the transport to an appropriate level of care and the therapeutic interventions, are considered the most important factors in pre-hospital care of (American College of Surgeons 2014; Kristiansen et al., 2010). It is estimated that the frequency of severe traumas which needs

hospitalization, is higher in rural areas (Boland et al., 2005; Coben et al., 2009; Jiang et al., 2007; Mitchell &Chong 2010). These areas have also higher levels of mortality rates compared to urban areas (Bakke et al., 2013; Fatovich &Jacobs 2009; Kristiansen et al., 2012; Kristiansen et al., 2014; Lagace et al., 2007).

The aim of this study was the recording of traumas and their management in a primary health care level and more specifically, in the health center of Xylokastro.

Methods

The present study is an observational study conducted from September 2016 to August 2017, in health center of Xylokastro which is a decentralized primary care unit of the general hospital of Corinth, in Greece. Xylokastro is a seaside city and belongs to region of Corinth. It is the seat of the municipality of Xylokastro – Evrostini, where, according to the 2011 census they live 17.365 permanent residents. Every summer the city receives thousands of visitors as is one of the most important tourist destinations in the Peloponnese.

The health center of Xylokastro is responsible for primary healthcare provided in the region and cooperates with 10 regional primary care clinics, servicing approximately 21.155 population of responsibility, in the area of the Municipalities of Xylokastro and Evrostini. This health center is operating 24 hours a day, providing services of general medicine, dentistry, microbiological laboratory as well as emergency department. According to available statistical data of 2011, the health center provided health care services in 9.198 emergent incidents whereas in 2012 had managed 8.794 emergent incidents.

The population was surveyed, were patients visited the health care center in order to receive health care due to an accident. The data was retrieved from the record of emergencies, were transported to a special form, and especially designed for the study. This form contained patients' demographic data, as well as data related to the trauma such as cause, diagnosis, management methods and necessity of transporting for a further specialized care. The criterion for inclusion in this study was trauma. However, incidents with missing data related the injury, as diagnosis, causes and management, were excluded from the study.

Statistical analysis

The collected data were statistically analyzed with the statistical program S.P.S.S. 21 (Statistical Package for Social Sciences). The descriptive statistics are presented in percentage distribution, mean and standard deviations on population's characteristics, diagnosis of incident, cause of trauma, way of management, need for further management or transporting. Furthermore, statistical differences were performed using Pearson's χ^2 test or Fisher's exact test (where it was necessary). The significance level was set to 0.05.

Results

The overall population visited the health center was consisted of 871 individuals. The majority of the sample was males (62.8%). The mean age was 42.8 years old (± 24.8) with the age of one year old to be the lower, and the age of 105 to be the higher age. 57.5% of the sample was coming from an urban area (**Table 1**). Months with a higher number of visitors compared with the other months, were August (11.5%), following by July (10.8%) and June (9%).

As far as the diagnosis of trauma, 51.8% of the patients had been diagnosed with open rupturing wounds, 24.5% with microtrauma, whereas 16.6% with complicated wounds and 7.1% were diagnosed with friction burns. The fall was the main cause of trauma for the majority of patients had visited the health center (31.8%) (**Table 2**).

Regarding the trauma management, the majority (66.2%) was managed in the health center (**Table 3**). However, for 22.3% of cases the patient had to be referred to another health care structure and for 11.5% an ambulance service was used for their transportation to secondary or tertiary health care structures.

Statistical significant differences were obtained among cause of traumas and age group. More

specifically, 34.1% of person who had visited the center because of a fall, was belonged to the age group over 71 years old, followed by the age group of 1 – 10 years old (23.5%) with a significant statistical difference compared to the other age groups ($p = 0.001$ and $p = 0.001$ respectively). The majority of the sample (27.5%) which needed health care services due to work accident was belonged to the age group of 51 to 60 years old and 23.4% to the ages of 31 to 40 years old. The road accident incidence was higher in younger age groups and specific in those of 21-30 years old (25.5%) and 31-40 years old (21.8%) compared to the other age groups ($p = 0.001$).

Additionally, the beating cases were mainly concerning the 33.3% of age groups 11-20 and 41-50 years old, whereas the cases of a dog's bite, was concerning the ages of 1-10 (21.1%) and 61-70 years old (21.1%) without being observed a significant statistical difference between specific causes of injury and age group.

Statistically significant difference was found between patients who were diagnosed with complicated trauma and were referred to another health care structure and those who were diagnosed with other type of trauma ($p \leq 0.001$). Furthermore, 20% of patients who were diagnosed with complicated trauma, were needed to be transported with an ambulance compared to other traumas ($p \leq 0.001$) (**Figure 1**).

As was mentioned above, the majority of cases regardless causes of trauma were managed in the center. However, was necessary the referring for the 53.8% of beating cases, 26.6% of the traumas due to fall, 20.9% of incidents due to a work accident, and in 27.3% of cases due to foreign body aspiration. The transportation was judged necessary in 42.9% of road accident cases (**Figure 2**).

Table 1: Socio-demographic characteristics of the sample

Characteristics		N	%
Gender	Men	547	62.8
	Women	324	37.2
Mean Age: 42.8 (SD 24.8)			
Residence	Rural	370	42.5
	Urban	501	57.5

Table 2: Causes of trauma

	N	%
Fall	277	31.8
Work accident	182	20.9
Road accident	112	12.9
Beating	13	1.5
Dog bite	21	2.4
Foreign body aspiration	33	3.8
Other	233	26.8

Table 3: Trauma care management

	Suturing	Simple wound care	First aid before referral or transportation to secondary or tertiary health care structures
Open rupturing wounds	58.8%	29.5%	11.8%
Complicated wounds	61.4%	26.2%	12.4%
Microtrauma	56.3%	31.5%	12.2%
Friction burns	59.7%	27.4%	12.9%

Figure 1: comparison of trauma’s diagnosis for which a referral was required.

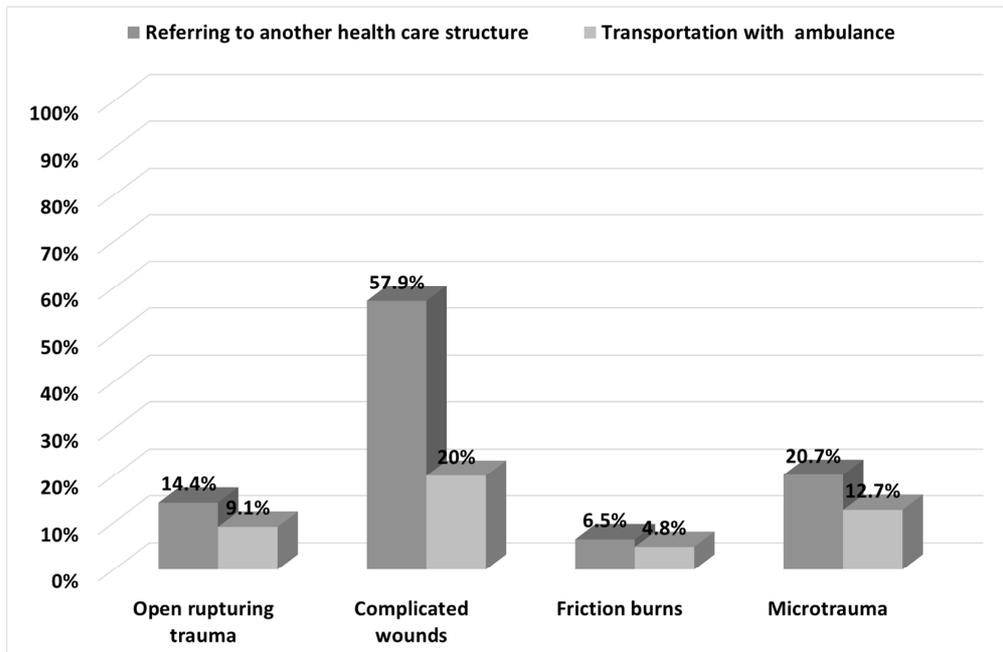
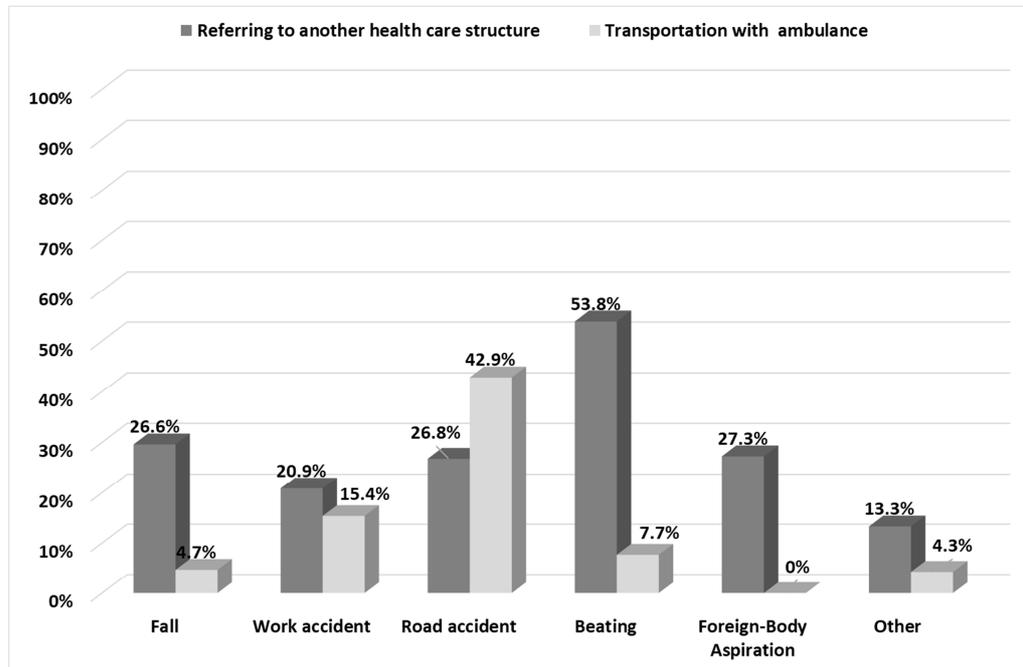


Figure 2: Comparison of trauma's cause for which a referral was required

Discussion

The main goals of trauma care are not only the patient's survival, but also the improvement of quality of life after the trauma. During the last decades, the mainspring behind the development of trauma systems was the reduction of mortality in patients with traumas, and the trend of decongestion of secondary health care. This study aimed to record the types of traumas and their management in primary health care level as is a health care center.

According to the results of this recording, the majority of visitors had been diagnosed with open rupturing wounds, as well with microtrauma. The main cause of trauma was the fall and the work accident, whereas the management was performed was suturing, trauma care and the provision of first aid services before the transporting to another structure. The last concerned about 2 out of 10 patients. The month August and the other summer months, had the higher footfall. This is due to the fact that this district is a touristic destination, and is expectable the increased visits to the health center compared to the other months. A similar

survey of Tsoumakas (2006) reports that August is the main vacations' month where is observed an increased number of accidents.

As far as the difference between age and causes of traumas, it was found a high incidence of falls in age group over 71. The elderlies' falls, is an important problem of public health, especially when is viewed from the side of morbidity, mortality and cost of management. Almost the one third of individuals over 65 years old, have at least one fall in a year, and this percentage is increased up to 10 percentage points for persons over 75 years old (Downton & Andrews 1991).

This study displayed also that an important percentage of children had visited the center due to a trauma. This finding is in agreement with the statistical estimations, which show that in Greece, children 7-11 years old have increasing rates of traumas (Tsoumakas, 2006).

Important was also the percentage of persons of age groups of 51-60 and 31-40 years old which had visited the center due to a work accident. This finding was expectable if we consider that these group ages are belonged to the main workforce of population. From the other part the

decade of age group 21-30 consisted the majority of individuals who had visited the center because of a road accident, a finding which is in agreement with the ascertainment of WHO, that the age group is more affected by the road accidents is the group of 15 to 29 years old. Factors contribute to this estimation, are the lack of experience, the unawareness of risk, as well as the super self-estimation of young's' abilities (WHO, 2014). These results compromise also with the statistical data of Hellenic Police where for the age groups 5-14 and 30-44, the road accidents are the second and third cause of death respectively (Tsoumakas 2006).

An important result of our study was also the fact that approximately 7 out of 10 patients were visited the health center had been managed timely there, without to be a need of referring or transportation to another health structure as is a hospital. This is an especially optimist finding, as it demonstrates that the health center as a public structure of health care services' provision, can significantly decongest the secondary health care, servicing the purpose of primary health care which is not only the prevention and promotion of health, but also the provision of health care services, through the effective management of emergence incidents and the promotion of public health care.

Although this is a first attempt of traumas' recording and their management in the primary health care level, however, there are some potential limitations that should be discussed. The first limitation refers to the lack of a standardized and electronic registration form including more detailed data about traumas, and this deficiency didn't permit the capability of a further and more specific categorization of traumas. It should be also noted that the study was conducted only in a city of region of Corinth, thus our findings cannot be generalizable to the country.

Conclusions

Traumas are among the most important problems of public health globally. Besides the fact that consist the main cause of mortality especially among elderlies and young people, millions of non-deadly injuries have as a result disabilities and other health impacts. During the last decades the increasing realization that traumas are public health problems which can be preventable, has

led to the development of prevention strategies for the decrease of deaths and disabilities.

The health care center it seems that responds effectively to its role as a primary health structure as far as the management of emergency incidents of lower or higher severity, as well as the first aid services' provision for the decongestion of secondary and tertiary care. However, this role is required to be more extended with the implementation of integrated educational programs for the injuries and accidents' prevention as well as actions focused on the awareness of this district population.

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