ORIGINAL ARTICLE

EPIDEMIOLOGIC PROFILE AND SATISFACTION LEVEL OF PATIENTS PRESENTING MUSCULOSKELETAL TRAUMA ASSISTED IN A PUBLIC EMERGENCY HOSPITAL IN BRAZIL

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SUMMARY

Objective: The purpose of this study is to describe the epidemiological profile of trauma victims assisted in a public hospital in Fortaleza – Brazil. It also intends to establish a relationship between the waiting time for primary care and the satisfaction level of those patients. Another topic assessed here is the analysis of the most frequent musculoskeletal pathologies in this population. Methods: A cohort randomized study was conducted during 2002-2003 in a public trauma hospital in Fortaleza – Brazil, where 500 emergency patients were enrolled. Results: The epidemiological profile found in this study is as follows: males (60.4%), young adults (ages ranging 15 – 30 years old) (55%), Fortaleza residents (74%), low familiar income (60%), and relatively healthy, being the fractures the most frequent lesions observed (48%). Conclusion: Patients assisted in trauma hospitals constitute a major social problem, and, most of the cases, they present with severe lesions, which demonstrates the need and importance of investments in emergency medical services.

Keywords: Fractures; Injuries and lesions; Emergency Medical Services; Epidemiology

INTRODUCTION

Considering today's reality, when the multiplication of violence and of the number of cars is seen, especially in big metropolis, traumatic pathologies are progressively accounting for a differentiated share in diagnosis and hospitalization statistics. It was found that trauma reached the first position in morbid-mortality etiology in the population within 0 – 39 years old, turning to be a severe public health problem requiring prompt interventional measures.

According to literature data, 60 million traumas occur by year in the United States, from these, 30 million require health care. Trauma accounts for about 150,000 deaths/ year. Nevertheless, this number increases by three fold when permanently disabled patients are included[1]. Trauma is the cause of the highest number of lost years, exceeding cancer and cardiovascular diseases[2]. Costs resulting from trauma exceed 400 billion dollars when missed wages, healthcare expenses, administrative costs, property damages, fire-related losses, labor burdens and indirect losses by labor accidents are analyzed[1].

In Brazil, according to data from the Ministry of Health, 724,584 hospitalizations occurred due to external causes in the year of 2003. In 2001, 120,819 deaths were directly related to trauma, with 80% of those patients receiving healthcare in emergency hospitals[3].

The more expressive those data can be, the true costs to society can only be evaluated when we remember that trauma reaches specially the younger and potentially productive individuals. This relatively healthy population tends to develop more active and challenging activities. A significant percentage of carelessness and inconsequence, frequently encouraged by an entrepreneur personality, is directly related to dangerous activities, which represent a risk of accident occurrences. Indeed, the more tragic any accidental death could be, it is more significant when happening to young people. It is estimated that 80% of the deaths among teenagers and 60% of deaths among children are secondary to traumas[2].

There are many available methods and modalities for preventing the majority of traumas. Unfortunately, public awareness of the worthiness of those preventive measures has not been translated into acceptance and use.

Musculoskeletal system injuries are frequently presented in a dramatic form and occur to up to 85% of the patients suffering closed trauma and, although they rarely cause a imminent risk to life, interventions for preventing injuries that might endanger the affected limb become essential[1]. Other predominant factor is that the presence of severe injuries on musculoskeletal system presumes high-energy traumas, which might have reached other organs, imposing a risk to patient's life.

The prognosis for those patients is directly related to the quality of healthcare provided, to the promptness such healthcare is provided[2] and to the established doctor-patient relationship, which are proven to be good markers of good outcomes in the medium- or long-term follow-up of patients.

Our population lacks more specific studies on the epidemiology and sociodemographic profile of trauma patients, as well as on the quality degree of healthcare provided and their satisfaction

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regarding this service. Thus, further studies better defining those variants related to the target audience being assisted in our emergency public healthcare system in a daily basis are of crucial importance[4,5].

This study has as main objective to describe the sociodemographic profile of trauma patients receiving healthcare in a reference public hospital in Fortaleza – Brazil. It also intends to compare the waiting time for healthcare to the service provided. Other issue addressed here is the analysis of the most frequent musculoskeletal pathologies in this population, as well as the previous pathologies history of those patients.

METHODOLOGY

The study has a descriptive-explorative nature. A transversal study, non-randomized by convenience, was conducted during the years of 2002 and 2003 in an emergency public reference hospital in the city of Fortaleza – Brazil. The sample included 500 patients who have suffered some kind of musculoskeletal trauma, receiving healthcare at the trauma emergency room in that institute. Data were recorded in a questionnaire developed according to study's objectives and applied by the moment of emergency room release. Then, those information have been gathered in a database and analyzed by a statistics software Epi Info® , version 2000. All included patients reported availability to participate in the study after signing an informed consent.

The following criteria have been assessed: gender, race, age, familiar income (distributed in ranges: up to two, from two to five, and above five minimum wages), origin (capital city, countryside, other states), average waiting time in hospital until healthcare was provided, the satisfaction degree with services received, main complaints regarding healthcare received, most frequent pathologies seen, and previous pathologies history of trauma patients.

RESULTS

1. Sample distribution regarding gender and race

There was a prevalence of males (60.7%, $p<0.05$), in a 1.55:1 ratio.

The majority of patients were "mulattos" (55%, $p<0.01$), followed by Afro-Brazilians and Caucasians (20% each) and other races, 5%.

2. Sample distribution regarding age group

In our sample, ages ranged from 2 to 84 years old. Average was 25.5 ± 15.8 years old, with median of 23 years old (Chart 1).

3. Sample distribution regarding familiar income

In our case series, 60% of patients receiving healthcare mentioned a familiar income below two minimum wages (Chart 2, $p<0.01$). In the 2 – 5 minimum wages income range, we found 26% of those included in the study, with only 14% of the patients with familiar income above five minimum wages. The trend was one minimum wage.

4. Sample distribution regarding origin

Approximately 74% of the patients receiving healthcare came from the Capital city ($p<0.01$), totaling representatives of 44 different neighborhoods of Fortaleza. Patients coming from the countryside totaled 24% of the healthcare provided and 2% accounted for patients from other states (Chart 3).

5. Sample distribution regarding average waiting time in hospital until primary healthcare was provided

The average waiting time before primary care was given was 64 minutes, with 42% of patients receiving healthcare within the first 30 minutes after hospital admittance. However, 27% of the patients had a waiting time above 120 minutes (Chart 4).

6. Sample distribution regarding satisfaction degree and complaints about healthcare services.

When patients were requested to assign a value in a 1 – 10 scale regarding their personal satisfaction degree concerning the healthcare provided, with 1 being the worst service and 10 the best one, we noticed that almost 90% considered service as good (7-8) or very good (9-10) ($p<0.01$). Only 7% of patients considered services as fair (5-6) and 4% as bad (3-4). No patient considered the healthcare provided as terrible(1-2), (Chart 5).

One third of the patients mentioned some kind of complaint about services. The most common complaint was regarding long-time waiting for healthcare (71%), followed by lack of organization (21%) (Chart 6).

No statistic significance was observed when standby time for healthcare was compared to the degree of satisfaction or to complaints ($p>0.05$).

7. Sample distribution regarding kind of injury and most common diagnosis

Based on Table 1, we can report that approximately half of musculoskeletal trauma care were related to fractures (48%), followed by sprains (25%) and contusions (17%).

Specifically concerning diagnosis, the ankle sprain was the most common pathology, accounting for 21% of the cases; followed by distal radius fracture, with 7% of the cases; foot contusion (6%), and elbow dislocation, open fractures and forearm bones fractures, each accounting for 5% of the cases (Table 2).

8. Sample distribution regarding previous pathologies history (PPH)

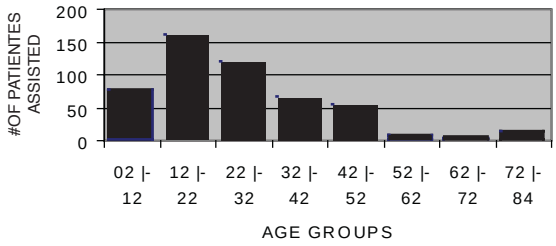

Chart 1 – Age groups distribution of patients assisted in trauma emergency room. Fortaleza, 2002/2003.

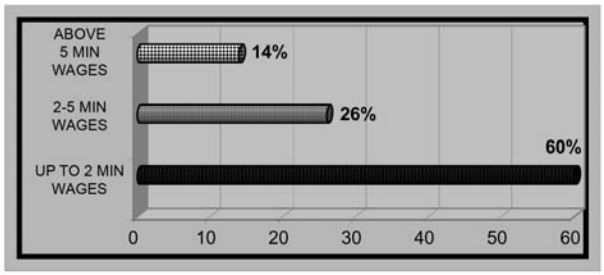

Chart 2 – Distribution regarding family income of patients assisted in trauma emergency room. Fortaleza, 2002/2003.

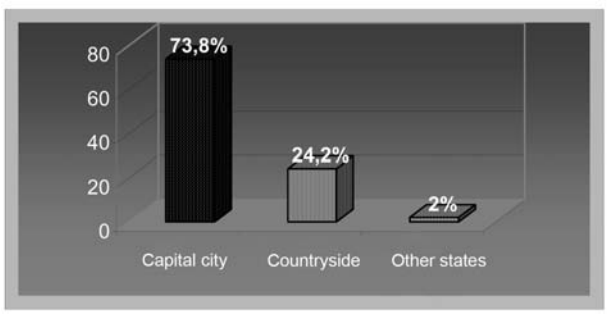

Chart 3 – Distribution of patients assisted in trauma emergency room regarding origin. Fortaleza, 2002/2003.

PPHs analysis has shown that 30% of the patients had already been hospitalized due to a diverse pathology. The most prevalent pathologies were systemic hypertension and dyspepsia in 5% of the cases, each. It is worthy to highlight that the patients mentioning those pathologies belonged to the age group above 40 years old (Table 3, $p<0.05$).

DISCUSSION

There was a prevalence of males (60.7%). This difference is in accordance to many other studies[4,5,6,7,8], since male individuals tend to show a risky behavior potentially causative of "accidents". This male predominance tends to disappear with age, and even an inversion of such behavior is seen in the elderly population, as described by Komatsu in Brazil and by Contreras in Chile[9,10]. This incidence inversion might be related to osteoporosis, a common pathology among post-menopausal women.

As evidenced by Chart 1, more than half of patients are within 12 -32 years old. This age group formed by teenagers and young adults is just the group mostly affected by accidents, either car, recreative or sports-related accidents[4,8,11].

Concerning the low income of patients receiving healthcare in trauma emergency rooms, it is worthy to highlight that the service where this study was conducted, due to its public nature, draws healthcare to less privileged patients, who do not have access to private hospitals or health insurances, which demonstrates the social importance of such unit. However, Gómez considers poverty, social differences, urbanization, and a low degree of instruction as important factors for the higher frequency of musculoskeletal injuries[12]. Thus, these two variants may have contributed to the high number of low-income subjects in our study.

We must still remember, in addition to what was considered in the previous item, that the age group affected by trauma (young adults) is extremely productive in terms of economy. So, we can infer that those traumas account for a great part of employees withdrawals[13] and resultant loss of productive capacity, whether temporary or permanent, which makes this public health problem to be also a very relevant social and economic problem, as discussed by Dellatorre[4,8].

When it comes to be a regional reference hospital, we can assume that an expressive number of patients originated from other cities of the state are expected, as well as from the various neighborhoods in Fortaleza. Nevertheless, those data are still of concern, because this polarization of care to people from all over the state in only one reference service can cause an overload of patients, which would consequently demonstrate a decrease of quality in healthcare. So, a development policy for countryside cities is essential in the sense of absorbing this existent demand, which would significantly contribute to the improvement in people's healthcare.

Not to mention that the transportation of severe injured patients, victims of trauma in the countryside cities of the state, is not always correctly performed, which can worse such patients' status. Furthermore, the time spent in this transportation can compromise a better prognosis for these patients, limiting required therapeutic procedures success, as demonstrated by Sobania, who evidenced a mortality rate reduction in accident victims when correct transportation occurred[14].

The analysis of data regarding waiting time is quite complex, because, for a better understanding, we should take the time period from trauma to healthcare into consideration, including the time for transporting these patients and the

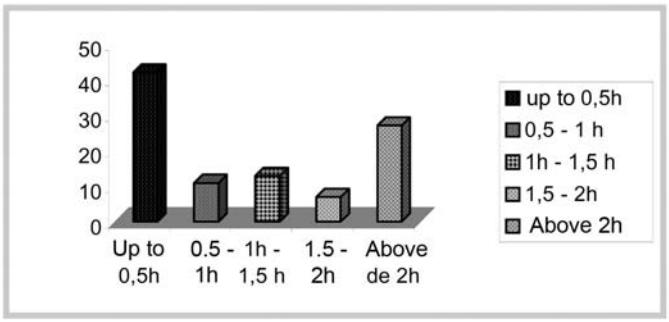

Chart 4 – Distribution of patients regarding average waiting time in hospital up to primary healthcare provided. Fortaleza, 2002/2003

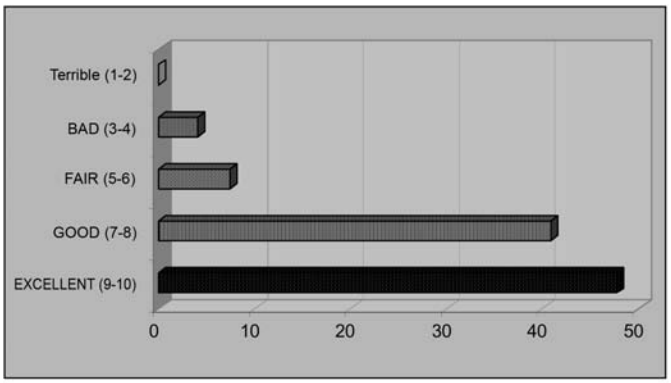

Chart 5 – Distribution of patients regarding personal satisfaction with the healthcare provided by medical service Fortaleza, 2002/2003.

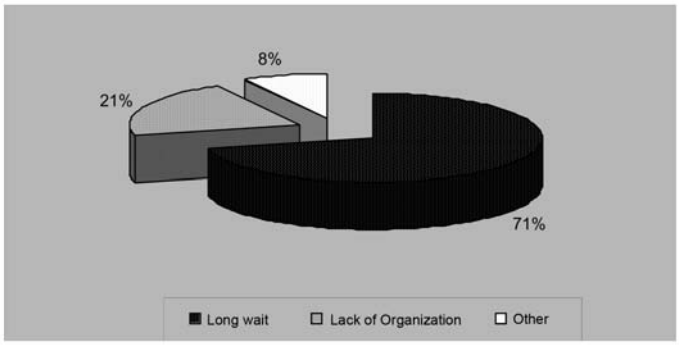

Chart 6 – Distribution of patients regarding complaints about healthcare provided by medical service. Fortaleza, 2002/2003.

Diagnosis	Number of Patients	Percentage
Fractures	240	48%
Sprains	125	25%
Contusions	85	17%
Dislocations	25	5%
Other	25	5%

Table– 1 – Distribution of patients regarding the most frequent kinds of injury. fortaleza, 2002/2003.

existence or not of a primary outpatient care.

Nonetheless, aware of those limitations, we can understand why more than half of those patients (53%) have received healthcare within the first sixty minutes after hospital admittance, but a significant portion (27%) was submitted to a waiting time above 120 minutes. Because this is an emergency hospital, waiting time becomes a parameter that must be strictly evaluated and improved.

Although there are complaints (30%) about the service provided, the long-time wait for healthcare has not jeopardized patients' satisfaction regarding this issue, which was considered as good or very good (89% of cases). Therefore, we can conclude that although they are aware of the delay, a good doctor-patient relationship could be established in the emergency sector of this hospital, not related to the waiting time for healthcare.

The most common injury was fractures in any body segment (48%), followed by sprains (25%) and contusions (17%). The most frequent diagnosis was ankle sprain (21%0, followed by distal radius fractures (7%). Those data express the severity of patients receiving healthcare in a reference service, where approximately half of the cases of musculoskeletal injuries show severe injuries (fractures) and only 17% show simpler injuries (contusions). In a study conducted by Carvalho Junior[15], a prevalence of fractures (49.77%) was found, associated to a lower incidence of contusions, sprains and dislocations, being radius fractures the most prevalent in that study. By analyzing 4,954 cases, Dellatorre[8] also evidenced a great importance of distal radius fractures, as well as Contreras, in Chile[10].

DIAGNOSIS	PERCENTAGE
ANKLE SPRAIN	21%
DISTAL RADIUS FRACTURE	7%
FOOT CONTUSION	6%
ELBOW DISLOCATION	5%
FOREARM BONES FRACTURE	5%
OPEN FRACTURE	5%

Table 2 - Distribution of patients regarding the most frequent diagnosis. fortaleza, 2002/2003

History of Previous Pathologies	Percentage
Previous hospitalization	30%
Systemic hypertension	5%
Dyspepsia	5%
No history of previous pathologies	60%

Table 3 - *Distribution of patients regarding history of previous pathologies. fortaleza, 2002/2003.*

The poor previous pathologies history of the majority of patients corroborates the previous healthy condition of this population, which is mostly affected by trauma. Only patients above 40 years old presented a significant PPH.

CONCLUSIONS

After the analysis of this study, we are able to form the profile of musculoskeletal injured patients receiving healthcare in public institutions in Fortaleza: Males (60.7%), "mulattos" (55%), young adults (ranging 15 to 30 years old) (55%), from Fortaleza (74%), with familiar income below two minimum wages (60%) and relatively healthy.

The standby time for the patients to receive healthcare is an important parameter to be improved in emergency services. However, the relative delay in providing healthcare didn't seem to negatively influence doctor-patient relationship, as evaluated by patients' satisfaction regarding healthcare.

Patients receiving healthcare in trauma reference hospitals constitute an important social problem, and, in most of the cases, present severe injuries, which demonstrate the need and importance of investments in this area.

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