



INJURY ACCIDENT REPORTING AT A PUBLIC HOSPITAL IN THE BRAZILIAN AMAZON

Notificação do acidente traumático em um hospital público da amazônia brasileira

Notificación de accidente traumático de un hospital público de la Amazonia brasileña

Lirian Raquel Bezerra de Sousa

Dr. João Lúcio Pereira Machado Emergency Hospital (*Hospital Pronto-Socorro Dr. João Lúcio Pereira Machado - SUSAM*) - Manaus (AM) - Brazil

Gutemberg Santos de Sousa

College for the Sustainable Development of the Amazon (*Faculdade para o Desenvolvimento Sustentável da Amazônia - FADESA*) - Paraupébas (PA) - Brazil

Kátia Cristina Muradas da Costa Monroe

19th Motorized Infantry Division of São Leopoldo (*19^o Batalhão de Infantaria Motorizado de São Leopoldo*) - São Leopoldo (RS) - Brazil

Maria Goreth Silva Ferreira

Pará State University (*Universidade do Estado do Pará - UEPA*) - Santarém (PA) - Brazil

ABSTRACT

Objective: To describe the clinical and epidemiological profile of injury accident patients admitted to a public hospital in the Brazilian Amazon. **Methods:** A cross-sectional study with 588 patients hospitalized during the year 2013 at the Municipal Hospital of Santarém (Pará, Brazil) in result of injury accidents. Sociodemographic and clinical data was collected. Descriptive statistics was adopted for data analysis. **Results:** Of the patients treated, 75.85% (446) were male, 51.19% (247) in the age group of 19 to 59 years, with road traffic accident as the main cause for 26.02% (153) of the victims. Closed fractures occurred in 50.85% (289) of cases, 77.09% (453) were motorcycle accidents, and the upper limbs were injured in 48.30% (284) of the cases. **Conclusion:** The profile found showed the predominance of adult men, victims of traffic accidents involving motorcycle, generating closed fracture of the upper limbs, which demands the implementation of actions and policies aimed at accident prevention.

Descriptors: Accidents; Traffic; Health Profile; Hospitalization.

RESUMO

Objetivo: Descrever o perfil clínico e epidemiológico dos pacientes internados por acidentes traumáticos em um hospital público da Amazônia brasileira. **Métodos:** Estudo transversal, com 588 pacientes internados por acidentes traumáticos no Hospital Municipal de Santarém (Pará) durante o ano de 2013. Coletaram-se dados demográficos e clínicos. Utilizou-se a estatística descritiva para análise dos dados. **Resultados:** Dos pacientes atendidos, 75,85% (n=446) era do sexo masculino, sendo 51,19% (n=247) do grupo etário de 19 a 59 anos, tendo como causa principal o acidente de trânsito para 26,02% (n=153) das vítimas. Houve ocorrência de fraturas fechadas em 50,85% (n=289) dos casos, 77,09% (n=453) acidentes com motocicletas e 48,30% (n=284) sofreu lesão nos membros superiores. **Conclusão:** O perfil encontrado mostrou a predominância de homens adultos, vítimas de acidentes de trânsito com envolvimento de motocicleta, gerando fratura fechada de membros superiores, fazendo-se necessário a implantação de ações e políticas voltadas à prevenção de acidentes.

Descritores: Acidentes de Trânsito; Perfil de Saúde; Hospitalização.

RESUMEN

Objetivo: Describir el perfil clínico y epidemiológico de pacientes ingresados por accidentes traumáticos en un hospital público de la Amazonia brasileña. **Métodos:** Estudio transversal con 588 pacientes ingresados por accidentes traumáticos en el Hospital Municipal de Santarém (Pará) durante el año 2013. Se recogieron datos clínicos y demográficos. Se utilizó la estadística descriptiva para el análisis de los datos. **Resultados:** El 75,85% (n=446) de los pacientes asistidos era del sexo masculino, siendo el 51,19% (n=247) de la franja de edad entre 19 y 59 años con el accidente de tráfico como causa principal del 26,02% (n=153) de las víctimas. Las fracturas cerradas se dieron en el 50,85% (n=289) de los casos, el 77,09% (n=453) de accidentes por motocicletas y el 48,30% (n=284) sufrió lesión de miembros superiores. **Conclusión:** El perfil encontrado mostró el predominio de hombres adultos, víctimas de accidentes de tráfico por motocicleta llevando a fractura cerrada de miembros superiores con la necesidad de la implantación de acciones y políticas de prevención de accidentes.

Descritores: Acidentes de Tránsito; Perfil de Salud; Hospitalización.



INTRODUCTION

Brazil is going through a process of demographic and epidemiological transition due to its evolution to a developing society. This transition is marked by positive factors, such as the reduction of infant mortality and the increase in life expectancy, and by negative factors, such as the prevalence of unhealthy behaviors, which modify the epidemiological picture and cause chronic and transmissible diseases and morbidity and mortality due to external causes, such as homicide and traffic accidents, modifying the underlying causes of death^(1,2).

Thus, traumatic injuries have now been highlighted in diagnostic and hospital admissions statistics due to the increase in urban violence and the number of circulating motor vehicles, which have put them among the main injuries that affect the youngest and economically productive population. Traumatic injuries are, therefore, a serious public health problem in developed and developing countries as it produces sequelae and increases the social economic burden⁽³⁻⁵⁾.

In this context, the study of the clinical and epidemiological data of these patients is of great value for the public health, since it will enable the formulation of specific actions for the reduction of these problems. In addition, it can collaborate in reducing hospital demands, minimize the consequences and the suffering of the victims, avoid early deaths and medical care expenditure. It can also contribute to the implementation of more articulated prevention strategies, both for the general population and for specific groups and/or diseases, since it makes it possible to alert public managers and society about the local reality, increasing the chances of action.

Thus, this study aimed to describe the clinical and epidemiological profile of injury accident patients admitted to a public hospital in the Brazilian Amazon.

METHODS

This is a quantitative descriptive cross-sectional study conducted with information from patients selected through nonprobability and purposive sampling based on the total number of patients hospitalized for traumatic injuries recorded in the Integrated System for the Computerization of Hospital Environment (*Sistema Integrado de Informatização de Ambiente Hospitalar – HOSPUB*) in the year 2013.

An active search was carried out in a universe of 835 medical records. In all, 167 medical records were not found and 80 did not suit the study. Thus, the research included 588 medical records that provided the data presented.

The study included the medical records of patients admitted to the Municipal Hospital of Santarém from January 1st to December 31st, 2013 after traumatic accidents or for the treatment of injuries resulting from this type of trauma. The medical records of patients hospitalized due to problems other than orthopedic trauma or injuries resulting from this type of trauma, as well as patients who were admitted in 2012 were excluded from the study.

The information found in the database and on medical records were transcribed into a form developed by the researchers and submitted to the initial assessment with some records to verify inconsistencies and if there was a need to readjust some items. Demographic data (age and gender) and clinical data (cause, type of trauma, vehicle involved, and affected limb) were collected.

The data underwent descriptive statistical analysis based on relative and absolute frequency performed on a statistical program.

The research was analyzed and approved by the Research Ethics Committee of the Pará State University (*Universidade do Estado do Pará*), Campus XII – Tapajós, under Approval No. 675.541, according to resolution 466/2012, which establishes criteria for scientific research involving human beings.

RESULTS

Table I describes the data on the characteristics of hospitalized patients as for age group and cause and type of trauma by gender. Men predominated in all groups, except in the group of people aged 60 years and older, in which there is a discrete predominance of women – 2.55% (n=15) of women against 2.38% (n=14) of men. The highest admission frequency is in people aged 19 to 59 years, with 51.19% (n=301) of hospitalizations, followed by ages 0 to 11 years.

Regarding the cause of trauma, most of the orthopedic traumas occur due to traffic accidents, which correspond to 31.97% (n=188) of the cases, followed by fall, with 23.30% (n=137) of the cases. A total of 31.63% (n=186) of the medical records had no information on the cause of the trauma.

Table I - Distribution of hospitalizations in relation to age group, cause of trauma and type of trauma by gender. Santarém, Pará, 2013.

Characteristics	Men		Women		Total	
	N	%	n	%	n	%
Age group						
0 to 11 years	107	18.20	57	9.70	164	27.89
12 to 18 years	78	13.27	16	2.72	94	15.99
19 to 59 years	247	42.00	54	9.18	301	51.19
≤ 60 years	14	2.38	15	2.55	29	4.93
Cause of trauma						
Traffic	153	26.02	35	5.95	188	31.97
Falls	93	15.82	44	7.48	137	23.30
Work	33	5.61	5	0.85	38	6.46
Aggression	24	4.08	4	0.68	28	4.76
Other	10	1.70	1	0.17	11	1.87
Not informed	133	22.62	53	9.01	186	31.63
Type of trauma						
Closed fracture	222	37.76	77	13.10	299	50.85
Exposed fracture	136	23.13	31	5.27	167	28.40
Polytrauma	16	2.72	3	0.51	19	3.23
Amputation	38	6.46	12	2.04	50	8.50
Other	15	2.55	5	0.85	20	3.40
Not informed	19	3.23	14	2.38	33	5.61

The most incident trauma was the closed fracture, with 50.85% (n=299) of the cases, followed by the exposed fracture, with 28.40% (n=167) of the cases. There was no information on the type of trauma in 5.61% (n=33) of the medical records.

Figure 1 shows the hospitalization frequency by type of trauma according to age group. It can be observed that the exposed fracture is predominant at ages 19 to 59 years, with 21.26% (n=125) of the cases. On the other hand, the closed fracture predominates at ages 0 to 11 years, with 21.77% (n=128) of the cases, followed by ages at 19 to 59 years, with 18% (n=106) of the cases, and other minor percentages in the other groups. Amputation is more frequent at ages 19 to 59 years, with 5.61% (n=33) of the cases; polytrauma and other types of trauma were also mostly found at ages 19 to 59 years, 2.72% (n=16) and 2.55% (n=15), respectively. The medical records had no information of the type of trauma in 5.61% (n=33) of the cases, with little significant differences between the groups.

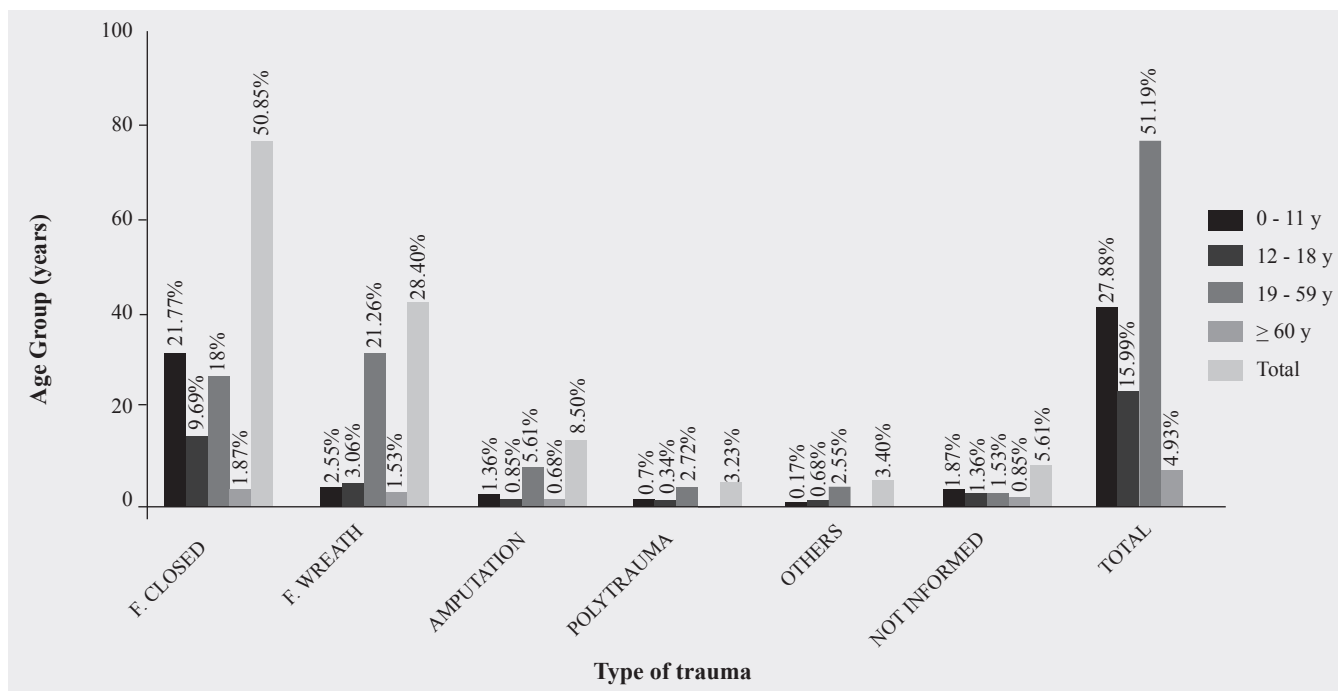


Figure 1 - Frequency of hospitalization by type of trauma according to age group. Santarém, Pará, 2013.

Figure 2 shows the distribution of hospitalizations according to the cause of the trauma by age group, showing that the traffic accidents affect mainly adults at ages 19 to 59 years, which corresponded to 22.80% (n=134) of the cases. Falls affect children aged 0-11 years, with 13.45% (n=79) of the cases. At work, orthopedic trauma and aggression affect mainly adults aged 19 to 58 years, with 5.61% (n=33) and 3.40% (n=20) of the cases, respectively. Other types of accidents affect mainly ages 0 to 11 years, with 1.36% (n=8) of the cases. Lack of information predominated in medical records of ages 19 to 59 years, with 14.63% (n=86) of the cases, followed by ages 0 to 11 years, with 9.69% (n=57) of the cases.

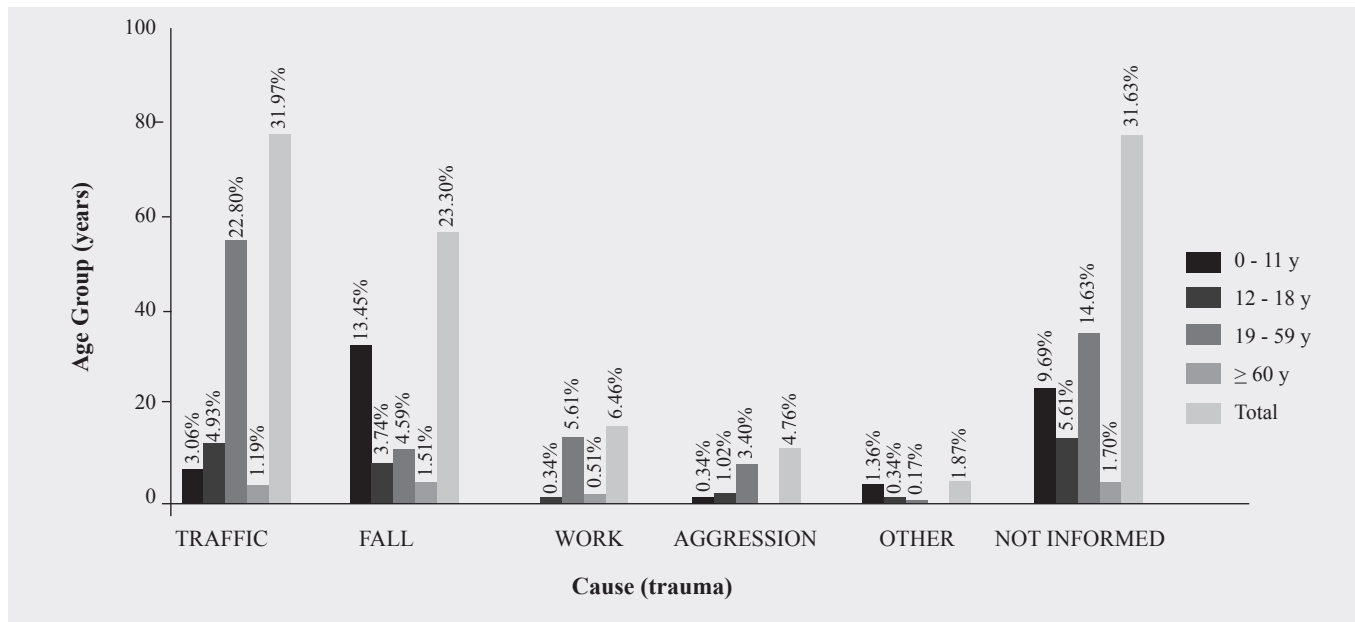


Figure 2 - Distribution of hospitalizations according to cause of trauma by age group. Santarém, Pará, 2013.

Figure 3 shows that 77.09% (n=453) of the traffic accidents had the motorcycle as the main vehicle involved. Other vehicles, such as bicycles, cars and horse-drawn vehicles, had a much lower frequency of involvement. Information on the vehicle was missing in 15.64% (n=92) of the medical records.

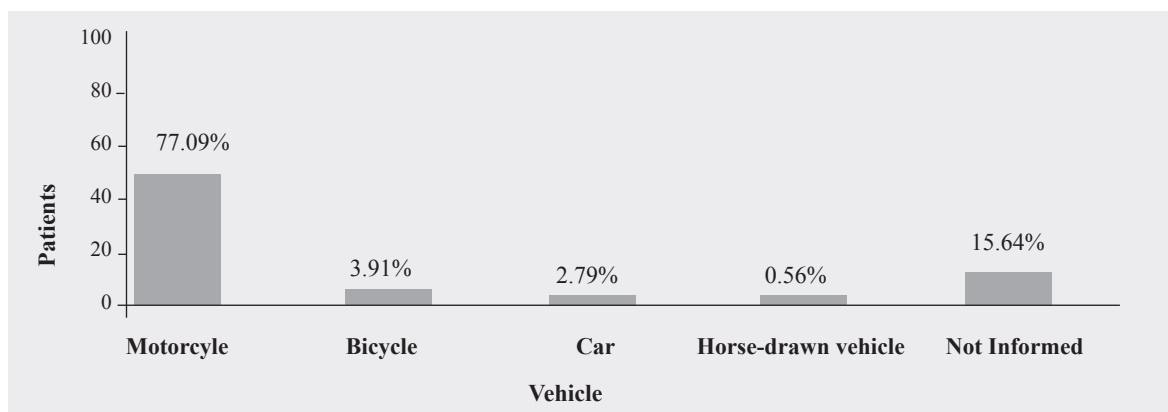


Figure 3 - Frequency of accidents according to vehicle involved. Santarém, Pará, 2013.

Figure 4 shows the frequency of the parts of the body affected by orthopedic trauma. It is observed that the upper limbs correspond to 48.30% (n=284) of the procedures performed, followed by the lower limbs, with 39.46% (n=232) of the procedures, and other body parts such as hip, tendons, fingers and joints. A total of 12.24% (n=72) of the records presented indefinite locations.

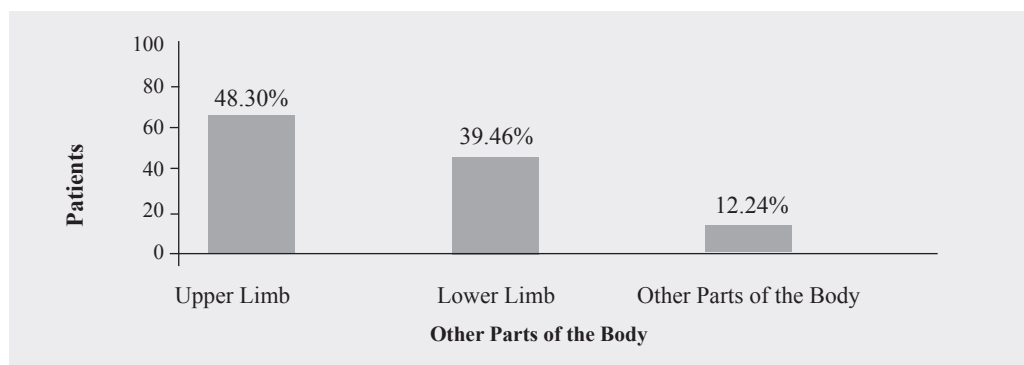


Figure 4 - Frequency of body parts affected. Santarém, PA, 2013.

DISCUSSION

The present study allowed the knowledge of important data about the victims of traumatic accidents. When hospitalization was assessed in relation to age group, cause and type of trauma by gender, a marked predominance of men was observed, with 75.85% of the victims. This pattern is repeated in the Brazilian profile and can be identified in similar studies^(3,6-8) carried out in different parts of the country. This may be related to the greater frequency of men driving motor vehicles and behaviors that make them take greater risks, such as traffic law violation and greater vulnerability to urban violence^(3,6-8).

It is possible to observe a predominance of men in social events in which they demonstrate a greater exposure. In general, men are more aggressive than women, they take more risks and are culturally and historically more involved in the labor market, making them more vulnerable to some type of accident^(3,6-8).

When age group was assessed, the present study indicated that there is greater involvement of ages 19 to 59 years. Similar results have been identified in other studies. Thus, it is observed that young adults of productive age are the main victims^(3,9-11).

When comparing the cause of the trauma and patient gender, it was observed in the present study that men outnumber women in all the causes of trauma identified, with traffic accidents being the main cause. Similar results were found in a study conducted in the Guilan province, Northern Iran⁽⁵⁾.

This reality can be explained by the greater exposure of men and young people in traffic, where they assume socially and culturally determined behaviors^(5,9). In addition, the greater risks taken while driving and cultural factors may also be involved^(11,12).

When assessing the frequency of the type of trauma, it was noted that the closed fracture is the most incident trauma in the analyzed sample. The comparison of the type of trauma and patient gender shows that men still predominate in all the types of traumatic accidents, a result already expected due to the greater involvement of the men in the sample. Similar characteristics were identified in a study of motorcycle accidents in Sergipe, where the closed fracture is among the most common⁽⁷⁾.

The comparison of type of trauma by age group showed that the closed fracture was more common at ages 0 to 11 years. The exposed fracture, as well as the other types of trauma, affected more the ages of 19 to 59 years. The assessment of the clinical and demographic characteristics of the children's injuries shows that the most common causes of trauma in this group are falls, which usually occur in a home environment and affects less complex parts of the body when compared to other types of accidents⁽¹³⁾.

The fact that people aged 19-59 years are more affected by the exposed fractures may be explained by the fact that they are more economically active and hence exposed to more risks of trauma. In addition, the motorcycle is the vehicle most commonly involved in traffic accident, the leading cause of traumatic accidents. Thus, these victims suffer both the impact of the accident and the impact on the ground, often followed by sliding, which implies the possibility of more serious injuries⁽³⁾.

The incidence of amputations due to trauma in the present study should be highlighted. Although the number of amputations is much smaller when compared to fractures, it corroborates the findings of a study⁽¹⁴⁾ that emphasizes that amputation has a great socioeconomic impact since it affects a young men in the most productive period of life. Polytrauma also appeared in the present study at a lower incidence. Polytrauma is associated with the cause of the trauma and the intensity of the mechanical energy that affects the body⁽¹⁴⁾.

With regard to the cause of the trauma by age group in the present study, there was a higher frequency of traffic accidents at ages 19 to 59 years. The second leading cause of trauma was the fall, with 23.30% (137) of the cases. Falls were more prevalent at ages 0 to 11 years, with 13.45% (79) of the cases.

The relevance of the fall in the occurrence of trauma differs only in the number of occurrences. In a study of external causes in Brazil, falls are a major cause of morbidity in hospital admissions for both genders. The study also highlights the importance

of this cause of trauma among older people and the need for prevention⁽¹⁵⁾. Falls stand out as the third most common cause of some type of trauma^(3,10,11).

Analyses of traumas in childhood have shown that falls are one of the main causes of trauma, which is also observed in the present study⁽¹⁶⁻¹⁸⁾. Children aged 1 to 3 years, who are undergoing motor, cognitive and psychosocial maturation, are learning to know their limits and adapting to the environment. In children over 4 years of age, leisure and sports activities^(16,18) stand out as causes of trauma. After 5 years of age, the increase in weight, height, strength and aggressiveness may lead to the occurrence and severity of traumas⁽¹⁹⁾.

In this context, falls in childhood are considered normal events in the daily life of children. However, in addition to being closely related to childhood, they reflect a failure in the family's protective capacity and ignorance of risk factors, which can lead to severe sequelae and future problems, indicating the need for preventive intervention^(20,21).

Still on the cause of the trauma, work accident appears as third leading cause of traumas in the present study, with greater incidence in men and at ages 19 to 59 years. These results are expected because they are an economically active population and are exposed to this type of accident because they perform tasks that are more dangerous and that require greater physical strength⁽²²⁾.

It should be noted that aggression appears in the present study as the fourth leading cause of trauma, a finding that is different from those of other studies in which it appears as the first leading cause of trauma^(10,20,23). This cause victimized children and adolescents, but it affected mostly the adult population, with no incidence in older people in the period studied. This fact was observed in another study in which there was prevalence of violence in older age groups, which are more vulnerable to violence due to marginality, exposure to drugs⁽¹²⁾ and great socioeconomic inequality⁽²⁰⁾.

As for the predominance of traffic accidents, the results of the present study are in line with other findings, especially with regard to auto accidents in several regions of the country^(3,10,14). The number of traffic accidents has been increasing substantially in the last decades due to the increase in the number of vehicles⁽¹¹⁾. The increase in the number of vehicles in circulation also increases the chances of accidents. Thus, traffic accidents are becoming more frequent all over the world and they tend to continue to grow fast⁽²⁴⁾.

The most common type of traffic accident is motorcycle accident. In the present study, 77.09% of the traffic accidents had the motorcycle as the main vehicle involved, which corresponded to 23.47% of the total number of accidents in the sample. Other studies highlight the motorcycle as the main vehicle involved in this type of accident^(3,7,8,24). The results of the present study do not differ from those found in a study carried out in a public hospital in Bahia, which shows traffic accidents as the main cause of trauma, especially motorcycle accidents⁽³⁾. These results were also identified in another study, which characterized the traffic accidents and the severity of traumas in an emergency hospital in Natal, Rio Grande do Norte, Brazil⁽²⁵⁾.

The results of studies on the profile of victims of multiple traumas are in line with the results of the present study. The number of circulating motorcycles is high because it is a low-cost means of transportation. However, they do not have an adequate protection system and can have serious consequences for the motorcyclist. Motorcyclists are more vulnerable to various types of external interference and present risky behaviors when riding their motorcycles, which poses danger to other drivers and pedestrians⁽⁸⁾. The lack of a protection structure in the vehicle leads to a greater exposure to serious injuries, increasing the need for hospitalization⁽³⁾.

Regarding the main body parts affected in the present study, there was a higher incidence of injuries in the upper limbs, with 48.30% of the cases, followed by injuries in the lower limbs, with 39.46% of the cases, and in other parts of the body, with 12.24% (72) of the cases. Similar results were found in a study on the physiotherapeutic care in an orthopedic and traumatology outpatient clinic in Avaré, São Paulo⁽²⁶⁾. However, different distributions have been identified, such as a higher incidence in the lower limbs, especially in victims of motorcycle accidents^(3,9,11).

This difference is possibly due to the different objectives of the other studies. For instance, they investigated only: motorcycle accidents with a lower incidence of children⁽³⁾, polytrauma patients aged over 18 years⁽⁹⁾, or patients admitted to an orthopedic trauma ward with a minimum age of 13 years⁽¹¹⁾. In the present study, all age groups were included, and it was possible to verify the presence of a significant number of children, mainly affected by falls. The most affected body part in falls are the upper limbs⁽²⁷⁾. This fact may justify the data in general, in which the number of cases where the upper limbs became the most affected part of the body was increased, with a different profile when compared to the other studies.

Studies such as the present one reveal important data that can foster the discussion of protective measures for the population and for more effective preventive actions that should be carried out with the most exposed individuals. In this instance, health promotion and accident prevention actions are needed to interrupt the chain of events prior to their occurrence and/or minimize the subsequent deleterious effects on the health and quality of life of the victims. In addition, they can serve as a basis for improving the institutional planning of the service evaluated – and of others – and for improving the care based on the indicators considered in this critical analysis.

Although the present study presented a significant sample, it is important to highlight the underreporting of data essential for health evaluation. This fact may lead to research bias and impairments in the analysis of important institutional indicators. The importance of accurate and adequate records should be highlighted, since they are documents handled by different

professionals of the health team and portray the care provided, being an important source of data collection for research⁽²⁸⁾. Records are essential elements of the care process, since they enable permanent communication, represent a right of the victims, can provide data for research, and are essential in directing health actions and useful in audits, judicial processes, planning of actions, among others⁽²⁹⁾.

Other limitations of the present study were its retrospective design and the use of medical charts, which may lead to information bias in view of the large number of underreporting of important data.

The importance of developing new actions and preventive and care practices should be highlighted given the constant increase in the number of accidents as a risk factor for orthopedic trauma⁽³⁰⁾. It is believed that these actions directly impact on the improvement of the quality of life, due to an adequate situational health planning⁽³¹⁾.

CONCLUSION

The profile found showed a predominance of adult men, victims of traffic accidents with motorcycle involvement, and closed fracture of upper limbs, making it necessary to implement actions and policies aimed at accident prevention.

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Mailing address:

Lirian Raquel Bezerra de Sousa
Comissão de Controle de Infecção Hospitalar Dr. João Lúcio Pereira Machado
Alameda Cosme Ferreira, 3937
CEP: 69083-001 - Manaus - AM - Brasil
E-mail: lirianraquel@hotmail.com