Original Article

Transport accidents among children and adolescents at the emergency service of a teaching hospital in the southern zone of the city of São Paulo

Carlos Gorios*, Renata Maia de Souza, Viviane Gerolla, Bruno Maso, Cintia Leci Rodrigues, Jane de Eston Armond

Universidade de Santo Amaro, São Paulo, SP, Brazil

ARTICLE INFO

Article history:
Received 1 May 2013
Accepted 10 October 2013
Available online 14 May 2014

Keywords:
Accident prevention
Traffic accidents
Accidents

ABSTRACT

Objective: to describe the victim profile and circumstances of transport accidents involving children and adolescents who were attended at a teaching hospital in the southern zone of the city of São Paulo.

Methods: this was an individual observational case series study among patients up to the age of 19 years who were attended at a hospital in the southern zone of the city of São Paulo, state of São Paulo, Brazil, due to traffic accidents. The files notifying suspected or confirmed cases of violence and accidents (SIVVA files) covering January to December 2012 were analyzed.

Results: among the 149 cases notified, 64.4% related to males and 35.6% to females. The transport accidents were predominantly among males, irrespective of age. The main injury diagnoses were superficial head trauma (24.8%) followed by multiple non-specified trauma (36.4%), in both sexes.

Conclusion: transport accidents among children and adolescents occurred more often among males. The main transport accidents among the children and adolescents attended as emergency cases were caused by motor vehicles and motorcycles. Among the accident victims, the largest proportion was attended because of being run over.

© 2014 Sociedade Brasileira de Ortopedia e Traumatologia. Published by Elsevier Editora Ltda. All rights reserved.

Acidentes de transporte de crianças e adolescentes em serviço de emergência de hospital de ensino, Zona Sul da cidade de São Paulo

RESUMO

Objetivo: descrever o perfil das vítimas e as circunstâncias dos acidentes de transporte ocorridos com crianças e adolescentes atendidos em hospital-escola na Zona Sul da cidade de São Paulo.
Introduction

In Brazil, accidents form the so-called external causes of morbidity and mortality and are the main problem in this regard among children over the age of one year and among adolescents. Accidents are becoming an increasingly important public health problem and therefore greater depth of study on their characteristics, magnitude and impact on people’s lives is required.\(^1,2\)

It has to be recognized that hospital morbidity and mortality data present limitations in characterizing the epidemiological profile of accidents and acts of violence. Accidents that do not end in death or hospitalization are not picked up.\(^3\)

From birth until the end of adolescence, the injury mechanisms relating to traffic accidents may vary greatly, either through the gradual increase in the body’s resistance, or because of the many types of impact that children may be subjected to at different ages. Being run over is not a risk during the first year of life, just as falling off a motorcycle is not typical at school age.\(^4\)

The term “accidents” is little used internationally in the literature, because of the mistaken interpretation that these are something that is random or unpredictable, and therefore unavoidable or impossible to prevent. Terms like “crash” and “injury” have been used in the English language since they seem not to transmit this connotation. In Brazil, the concept of transport accidents is used as an unintentional but avoidable or impossible to prevent. Terms like “crash” and vehicle occupants and 3.7% were unknown. In the same year, in the southern zone of the city of São Paulo, where our teaching hospital is located, 149 cases of transport accidents involving children and adolescents were notified: 55.8% among pedestrians and 44.2% among motor vehicle occupants. Among cases of being run over in the city of São Paulo, 55.9% were caused by motor vehicles. In our teaching hospital, among the cases of being run over that were attended, 51.2% were due to motor vehicles.

With regard to accidents, according to the characterization of the victim, 46.1% were drivers; while according to the type of vehicle, 43.6% were motorcyclists and 48.2% were on bicycles.

It was not possible to assess the use of helmets and seat belts, or the location of the victim (front or rear seats) in motor
vehicles because of poor filling out of the notification forms. This has resulted in a limitation of this study.

It is known that the majority of emergencies attended in hospitals, especially those resulting from accidental causes, could have been avoided if certain preventive measures had been used. Within this context, studying the causes and circumstances of these adverse events among the children and adolescent population becomes essential for developing strategies for health promotion and for prevention of these events.

The aim of this study was to describe the profile of victims and the circumstances of transport accidents with victims aged up to 19 years who were attended at a teaching hospital in the southern zone of the city of São Paulo.

Method

This was an individualized descriptive observational study in which cases involving transport accident victims aged up to 19 years were surveyed. These individuals were attended at a hospital in the southern zone of the city of São Paulo, state of São Paulo, Brazil.

The notification forms for suspected or confirmed cases of violence or accidents (SIVVA) relating from January to December 2012 were analyzed at the Medical Attendance and Statistics Service (SAME) of this hospital. The analysis focused on notifications of patients who had been transport accident victims, coded as V01–V99 in the International Classification of Diseases (ICD-10).

In this study, 149 records were analyzed. The inclusion criteria used were the age group and notification of the accidents attended. Subjects who did not meet these criteria were excluded from the study.

The variables selected for the study were: age, sex, origin and diagnoses presented by the patients.

This study conformed to Resolution 196/96 of the National Research Ethics Committee (CONEP) and the National Health Council (CNS) of the Ministry of Health. Moreover, with regard to research ethics issues, the study was submitted to the research ethics committee of Grajaú General Hospital and was approved in accordance with decision report no. 122/2010 of November 17, 2010, with exemption from the need for a free and informed consent statement because the study consisted of surveying information in the SIVVA.

Results

Among the 149 cases notified, 64.4% were male patients and 35.6% were female patients. Transport accidents predominated among males, independent of age (Fig. 1).

With regard to ethnicity, 32.2% of the victims were whites, 63.8% were of mixed skin color and 4% were black.

According to information on the type of vehicle involved, 42.8% were cars, 40.1% motorcycles, 13.6% bicycles, 2.7% buses and 1.4% were unknown vehicles. Thus, cars and motorcycles were involved most often. Car accidents predominated in the age group from 15 to 19 years (32.3%), as did motorcycle accidents (59.3%) (Fig. 2).

The times at which the accidents occurred were mostly in the afternoons (13:00 to 18:00 h; 38.7%) and in the evening (19:00 to 24:00 h; 26.1%).

The main transport accidents among the children and adolescents attended as emergency cases were caused by cars and motorcycles. Among the victims of accidents due to cars, 55.8% were pedestrians and 44.2% were occupants. Among the accidents due to motorcycles, 52.5% related to pedestrians who were run over.

Among the children and adolescents attended at the emergency service, 65.3% were released from hospital, 32.2% were kept under observation and 1.7% were transferred to another service.

The main injuries diagnosed were superficial head trauma (24.8%), followed by unspecified multiple trauma (36.4%), in both sexes (Fig. 3).

The places where the victims lived were: 53.7% in Grajaú and 25.6% in Cidade Dutra, i.e. within the hospital's coverage area; 9.9% in Parelheiros, i.e. within the hospital's area of influence; 0.8% in Capão Redondo; 0.8% in Cachoeirinha; and 9.1% in unknown places.

Fig. 1 – Notified transport accident cases among children and adolescents (up to 19 years of age), according to sex, who were attended at a teaching hospital in the southern zone of the city of São Paulo, in 2012.

Fig. 2 – Notified transport accident cases among children and adolescents (up to 19 years of age), according to type of vehicle involved, who were attended at a teaching hospital in the southern zone of the city of São Paulo, in 2012.
Studies by Caixeta et al. and Almeida et al. presented results that children or adolescents affected males more frequently. In the group of patients with injuries due to external causes, numbers of deaths in traffic. This is the primary cause of death particularly among the young male population.11

Traffic accidents are an important public health problem because of their great impact on morbidity and mortality, particularly among the young male population.11

In the present study, transport accidents with victims who were children or adolescents affected males more frequently. Studies by Caixeta et al. and Almeida et al. presented results relating to predominance of males among the young victims of transport accidents, which corroborate other studies.

In this study, the main victims were pedestrians and the main injury diagnosis was superficial head trauma.

A study conducted by Anjos et al. in São Paulo in 2007 found that in 60% of the deaths due to traffic accidents, the victim was a pedestrian. The percentage rose to 75% when only the deaths among children under the age of 15 years were taken into consideration.

Another interesting point demonstrated in this study is that motorcyclists were the group that most frequently had accidents, and that pedestrians were in second position. This shows and proves the vulnerability that these groups have on public roads. On a daily basis, they are exposed to higher risks, as proclaimed by mass-circulation newspapers. The motorcyclists interviewed already had records in their medical files at Hospital das Clínicas of several occurrences of health problems, thereby giving rise to high-cost treatments with the implication of significant expenditure for the public healthcare services.

The major motorcycle manufacturing companies and the vehicle insurance companies do not bear the costs that these patients produce in hospitals. The companies keep on making it easier to buy motorcycles, through low cost and various installment plans. They should invest more in these motorcyclists’ safety and in education regarding traffic, given that in the accidents due to motorcycles seen in this study, 71% of the victims were pedestrians.
Occurrences of pedestrians being run over by cars and motorcycles, especially in younger age groups, reveals that there is a need to stimulate drivers and motorcyclists to be more attentive to traffic and to the movements of nearby children, given that children often are unable to gauge the time that a vehicle takes to travel a certain distance. Moreover, there is a fundamental need to expand appropriate leisure areas, so that having children playing and running in the streets can be avoided.\textsuperscript{13}

In relation to children who are pedestrian victims of transport accidents, the head trauma and multiple trauma suffered show their total exposure and lack of protection. Thus, it can be affirmed that the only measure for reducing these injuries would really be to avoid occurrences of this type of accidents.\textsuperscript{13,16,17}

Conclusions

Transport accidents involving children and adolescents occurred more often among males.

The main transport accidents among children and adolescents who were attended as emergency cases were caused by cars and motorcycles. Among the accident victims, the largest proportion was attended due to being run over.

The main injuries diagnosed were superficial head trauma, followed by unspecified multiple trauma, in both sexes.

Conflicts of interest

The authors declare no conflicts of interest.

REFERENCES