Original Article

VÍTIMAS DE ACIDENTES DE TRÂNSITO ATENDIDAS POR SERVIÇO PRÉ-HOSPITALAR MÓVEL DE URGÊNCIA

VICTIMS OF TRAFFIC ACCIDENTS ATTENDED BY PREHOSPITAL MOBILE EMERGENCY CARE

VÍCTIMAS DE ACCIDENTES DE TRÁNSITO ATENDIDAS POR SERVICIO PRE-HOSPITALAR MÓVIL DE URGENCIA

Rodrigo Assis Neves Dantas[1], Lívia Maria Nunes Henriques[2], Daniele Vieira Dantas[3], Sara Porfírio de Oliveira[2], Sabrina Daiane Gurgel Sarmento[4]

RESUMO

Objetivo: descrever o perfil epidemiológico das vítimas de acidentes de trânsito socorridas por um Serviço de Atendimento Móvel de Urgência. **Método**: estudo exploratório, descritivo, de abordagem quantitativa dos dados. A coleta foi realizada de janeiro a junho de 2016 em hospital referência em atendimento de urgência e emergência. **Resultados**: foram analisadas 125 ocorrências de Acidentes de Trânsito, sendo 101 (80,8%) do sexo masculino, com faixa etária entre 18 a 73 anos. Desses, 49,6% estudaram até o Ensino Médio. A Unidade de Suporte Básico à Vida foi utilizada em 87,2% dos casos relatados e 42,4% das vítimas foram socorridas em tempo inferior a 20 minutos, 84% sofreram colisão e 50 (40%) dos acidentes ocorreram pela manhã. **Conclusão**: a caracterização deste perfil gera subsídios para elaboração de estratégias visando melhorar a qualidade da assistência prestada.
Descritores: Serviços médicos de emergência; Assistência pré-Hospitalar; Acidentes de trânsito; Perfil epidemiológico; Enfermagem em emergência.

ABSTRACT

Objective: to describe the epidemiological profile of victims of traffic acidents rescued by a Mobile Emergency Care Service. **Method:** exploratory, descriptive study, with quantitative data approach. Collection occurred from January to June 2016 at a hospital reference in urgency and emergency care. **Results:** 125 reports of Traffic Accidents were analyzed, of which 101 (80.8%) were males, aged between 18 and 73 years. Of them, 49.6% studied until High School. The Basic Life Support Unit was used in 87.2% of the reported cases and 42.4% of the victims were rescued in less than 20 minutes, 84% suffered collision and 50 (40%) accidents occurred in the morning. **Conclusion:** the characterization of this profile subsidizes the elaboration of strategies aimed at improving the quality of the provided care.
Descriptors: Emergency medical services; Pre-hospital care; Traffic accidents; Epidemiological profile; Emergency Nursing.

RESUMEN

Objetivo: describir el perfil epidemiológico de las víctimas de accidentes de tránsito socorridas por un Servicio de Atención Móvil de Urgencia. **Método:** estudio exploratorio, descriptivo, de abordaje cuantitativo de los datos. La recolección fue realizada desde enero a junio de 2016 en un hospital de referencia en atención de urgencia y emergencia. **Resultados:** se analizaron 125 casos de accidentes de tráfico, siendo 101 (80,8%) del sexo masculino, con edad entre 18 y 73 años. De ellos, 49,6% estudiaron hasta la Enseñanza Media. La Unidad de Soporte Básico a la Vida fue utilizada en el 87,2% de los casos reportados y el 42,4% de las víctimas fueron socorridas en tiempo inferior a 20 minutos, 84% sufrieron colisión y 50 (40%) accidentes ocurrieron por la mañana. **Conclusión:** la caracterización de este perfil genera subsidios para la elaboración de estrategias para mejorar la calidad de la asistencia prestada.
Descriptores: Servicios médicos de urgencia; Atención prehospitalaria; Accidentes de tránsito; Perfil epidemiológico; Enfermería de urgência.

[1]Graduado em Enfermagem. Pós-Doutorando em Enfermagem pela Universidade Federal de Sergipe. Docente na Universidade Federal do Rio Grande do Norte. [2]Graduanda em Enfermagem pela Universidade Federal do Rio Grande do Norte. [3]Graduada em Enfermagem. Pós-Doutora em Enfermagem pela Universidade Federal de Sergipe. Docente na Universidade Federal do Rio Grande do Norte. [4]Graduada em Enfermagem pela Universidade Federal do Rio Grande do Norte.

INTRODUCTION

Accidents are considered a public health problem of great magnitude and transcendence, due to their high rate of morbidity and mortality[1]. In 2015, according to the WHO, approximately 1.3 million people died in the world, victims of this type of accident, and up to 50 million have suffered some kind of injury[1]. In Brazil, more than 35 thousand people die per year, 120 thousand need hospitalization in the public sector due to Traffic Accidents (TA)[2].

The Institute of Applied Economic Research (IPEA - *Instituto de Pesquisa Econômica Aplicada*) and the National Association of Public Transport (ANTP - *Associação Nacinal de Transportes Públicos*) indicate various negative impacts to the population's health resulting from traffic accidents. They are: loss of years of life free of disability, reduced life expectancy of adolescents and young people, in addition to the high social, judicial and economic costs generated in the welfare and health system[3].

In the face of this great demand, in 2003, the Mobile Emergency Care Service (SAMU - *Serviço de Atendimento Móvel de Urgência*) was created, established by the National Policy for emergency care, through Decree 1863/GM[4]. SAMU is a pre-hospital service, whose goal is an early and effective care in transport to an emergency service and has the ability to meet 75% of the Brazilian population, located in almost three thousand municipalities[5].

Traffic accidents occur in great expansion due to the disorderly growth of vehicles and outdated urbanism projects. In the 20th century, with the industrial development, production and use of automotive vehicles significantly increased. Added to this, outdated urbanism projects, thus corroborating the increase in accidents, which have their first service carried out by SAMU[6].

This study is justified by the need to deepen the knowledge about the main traffic accidents and their victims, seeking to provide greater reflection and discussion among health professionals and users about the theme, strengthening the public health policies advocated by the UHS. In addition, the present study aims to describe the epidemiological profile of victims of traffic accidents rescued by a Mobile Emergency Care Service.

METHOD

This is an exploratory, descriptive study, with quantitative data approach, conducted in the Emergency Room Clovis Sarinho (PSCS - *Pronto Socorro Clóvis Sarinho*), reference in urgency and emergency care in the state of Rio Grande do Norte (RN), which is part of the Hospital Complex Monsenhor Walfredo Gurgel (HMWG), located in Natal/RN.

The present study has a convenience sample of 125 victims of traffic accidents, attended by the Mobile Emergency Care Service 192 in the state of Rio Grande do Norte (SAMU 192 RN), after being stabilized and transported to the PSCS.

To be included in this study, the following criteria were required: age greater than or equal to 18 years, being aware and oriented or accompanied by a legal guardian in case of unconsciousness. Victims of traumas unrelated to traffic accidents were excluded.

Data collection occurred in the period from January to June 2016, through the application of a structured instrument composed by the following questions: sociodemographic characteristics (gender, age and education), response time, type of vehicle used for transporting the victim: Basic Support Unit (BSU) or Advanced Support Unit (ASU), type of accident (collision, fall, rollover or running over) and damaged body area, in addition to day of the week and shift when the TA occurred.

After being met by SAMU 192 RN and stabilized in the PSCS, the victim and/or legal guardian were instructed regarding the research purpose and, in case of acceptance, they signed the Informed Consent Form (ICF), which had all the information with usual language and in a clear manner. Then, data regarding the research were collected.

The collected data were then organized in the program Statistical Package for Social Sciences (SPSS), version 22.0, for the construction of tables and descriptive analysis.

Following Resolution 466, of 12 December 2012, of the National Health Council, which states the guidelines for researches involving human beings, the present study meets all its ethical aspects[7]. This study was submitted to the analysis of the research ethics committee of the University Hospital Onofre Lopes (HUOL), also located in Natal/RN and obtained a favorable opinion, under protocol 437/2010.

RESULTS AND DISCUSSION

According to the data obtained in the study, the sociodemographic characterization was performed with 125 victims of traffic accidents, being 80.8% men, 63.2% aged between 18-35 years and education of 49.6% in high school as shown in Table 1.

Table 1 - Characterization data of the victims attended by SAMU 192 regarding gender, age group and education. Natal, RN, Brazil, 2017.

Characterization of the Victims	n	%
Gender		
Male	101	80.8
Female	24	19.2
Age group		
18 - 35 years	79	63.2
36 - 67 years	41	32.8
67 - 73 yeas	5	4.0
Education		
Not literate	5	4.0
Elementary School (I and II)	49	39.8
High School	62	49.6
College	8	6.4
Uninformed	1	0.8
Total	**125**	**100.0**

Source: Research.

Studies carried out in Piauí[2] highlight the prevalence of males, around 71.8%, with an average age from 24 to 29 years, in which the types of support directed to the care of victims of traffic accidents were predominantly the Basic Support Unit (BSU) with 90% of the occurrences and 10% answered by Advanced Support Unit (ASU), corroborating the findings of the present study, in which, among the requested occurrences, 87.2% used the BSU for transportation and care of the victim, and only 7.2% used the ASU. In relation to the waiting time for the rescuing the victim, 42.4% of patients were rescued from five to 20 minutes and only 1.6% had to wait more than three hours.

These data confirm the evidence shown in literatures and allow following up the growth in women's participation, yet not so significant, in traffic accidents, related to the evolution of the work process and their achievements, such as a greater percentage of women seeking the services of driving school, learning to drive and buying their own car, even if more prudent than men.

The World Health Organization (WHO) points out that, in 2030, there will be 2.4 million people killed by AT. The data also show that, in countries with low or medium incomes, where there is no investment geared to safety on public roads, the numbers may be even more astonishing, for example, in Brazil[8].

The predominance of male victims related to the contempt of risks while driving the vehicle, evidencing the male personality of self-affirmation better than women do. Furthermore, women are more thoughtful and put themselves less in risk, avoiding imprudent actions[9].

Not all victims end in death, but traffic violence represents a degree of large end, if compared to other mortality factors of the population. In this way, knowing this reality is of fundamental importance to warn public managers regarding the elaboration of public policies aimed at reducing the rates of fatal accidents. The professionals of health services must play an essential role regarding this situation, being health education an important tool for care implementation[3].

Another relevant point of the research is the victims' age. Most of them were from 18 through 35 years olds, a worrisome fact, because they are predominantly young and with education. This age range has the highest concentration of victims, suggesting that young men are more at risk in transit, requiring he assessment of other factors such as the use of alcohol and drugs[10].

Regarding education, those with secondary education or more had a little higher prevalences, showing a greater purchasing power for the use of private vehicles[11].

There is a contradiction when it comes to education. In general, the higher the level of knowledge, there should be greater attention regarding issues related to traffic. However, this does not seem to be a determining factor in the minimization of grievances. The school is fundamental, not only as an educational institution, but also to promote adaptation of young people to discipline and to respect laws and regulations for the common good[12].

Table 2 - Characterization of the service to the victims attended by SAMU 192 RN regarding type of vehicle of transportation used and time of response. Natal, RN, Brazil, 2017.

Service Characterization	n	%
Vehicle of transportation		
ASU	9	7.2
BSU	109	87.2
Uninformed	7	5.6
Time of response		
5 - 20 min	53	42.4
21 - 45 min	37	29.6
46 - 360 min	25	20.0
More than 360 min	2	1.6
Uninformed	8	6.4
TOTAL	**125**	**100.0**

Source: Research.

With respect to the type of accident suffered by the interviewed victims, Table 3 shows that most accidents resulted from collisions (car x car, car x truck, car x train, car x moto, moto x bus, moto x truck), totaling 84%, followed by 1.6% victims of rollover, 2.4% falls from motorcycles and 12% of respondents were victims of running over.

The most used transportation was de BSU. According to decree GM/MS 356, 8 April 2013, the total record of all occurrences answered by the team of basic life support should represent 80% of the total number of calls received by the regulation center of urgencies, sending mobile unit, and 30% should be assisted by advanced life support[13]. Thus, this study follows the trend recommended by the Ministry of Health.

With respect to SAMU RN 192 service, most occurrences were attended a timely manner, about five to 20 minutes of waiting for the patient. There are three peaks of death: the first peak shows the mortality in seconds or minutes after trauma; the second tends to be present in the first or second hour after trauma and is known as the golden hour; in the third peak, death occurs in days or weeks after the trauma[14]. The faster the care is performed, the greater the chance of survival of the victim.

The elapsed time for the beginning of the first aid, the stabilization in the location of the scene and the arrival of the patient to the hospital are decisive factors, allowing a greater chance of survival. Thus, we realize the importance of the existence of a well-qualified Prehospital Care Team (PHC), prepared for the emergency care to victims of trauma on tracks and public places. The professional should be able to perform a thorough assessment of the severity of the trauma, endeavoring to reduce the most the complications[14].

Table 3 - Characterization of the service to the victims attended by SAMU 192 RN regarding the type of traffic accident. Natal, RN, Brazil, 2017.

Characterization of the Type of Accident	n	%
Collision	105	84
Running over	15	12
Fall from motorcycle	3	2.4
Rollover	2	1.6
Total	**125**	**100**

Source: Research.

As presented, most TA resulted from collisions, however, a concerning data is the percentage of running overs. Although collisions are the most frequent accidents, we observed that accidents involving pedestrians tend to be more serious. Studies show that running overs, although in smaller quantities, are responsible for the largest number of deaths resulting from trauma[15]. Pedestrians, for suffering direct impact in case of running overs, they are the victims more likely to be hospitalized and die after having suffered an accident, configuring it in the most vulnerable group in relation to drivers and passengers[12] .

This classification is essential so that we can analyze each victim according to their quality of user of public roads, identifying them as a driver or passenger, motorcyclist or pedestrian hit by any of these vehicles[14].

Table 4 - Characterization of the service to the victims attended by SAMU 192 RN regading day of the week when the traffic accident occured. Natal, RN, Brazil, 2017.

Temporal Characterization	n	%
Days of the week		
Sunday	25	16.6
Monday	20	16.6
Tuesday	20	2.0
Wednesday	19	8.0
Thursday	15	10.4
Friday	13	20.0
Saturday	10	15.2
Ignored	3	2.4
Total	**125**	**100.0**

Source: Research.

The TA were also characterized regarding shift and day of the week when they occurred. Twenty-five (20.0%) occurred mainly at the beginning of the weekend, i.e., Fridays and Saturdays, and most of them occurred in the morning shift. Table 4 shows the data related to the days of the week when the services were carried out.

Furthermore, most accidents occurred on weekends, especially on Fridays and Sundays. The night shift, although not representing the majority, draws attention. In Londrina, Paraná, in the period from January to June 1996, the time with the highest average of victims/day differed according to the days of the week. The period with the largest number of victims was from 20 to 21 hours[15].

The concentration of deaths in the night period suggests that this occurrence is due to tiredness, which is higher at the end of the day, allied to these facts. We can also mention that, at night and in the morning, people tend to disrespect traffic lights, drive at excessive speed, in addition to difficulty of immediate care for victims of traffic accidents, among other factors[12].

The data presented with high values for the variable "morning" and "evening" occurred because the collection was performed, in its majority, in the morning and afternoon shift, when most patients, victims of TA in the night

period, had already been attended, stabilized and forwarded to other sectors of the hospital, characterizing a false positive to variables. Moreover, there is also the particularity that most interviewees did not inform the period when the TA occurred.

Many factors may relate to the data found, use of alcohol, impaired sleep, excessive speed, once the traffic of vehicles tends to decrease at weekends. The results confirm the importance of using these assessment indices as essential tools to provide an individualized care, geared to the patient's needs.

Our country, especially the Northeast region, lacks studies that reflect the severity of the trauma and injuries resulting from these events. There is much talk about them, but little is known about the correct way to perform screening and assessment of patients and, thus, minimize the consequences resulting from trauma[14].

Trauma is one of the most important causes of morbidity and disability in the long term in the young adult population worldwide. It constitutes the main public health problem in many countries, regardless of socioeconomic development. In Brazil, there are few public centers of reference in this type of patient[16-19].

Figure 1 - Characterization of the victims attended by SAMU 192 RN regarding the affected body part. Natal, RN, Brazil, 2017.
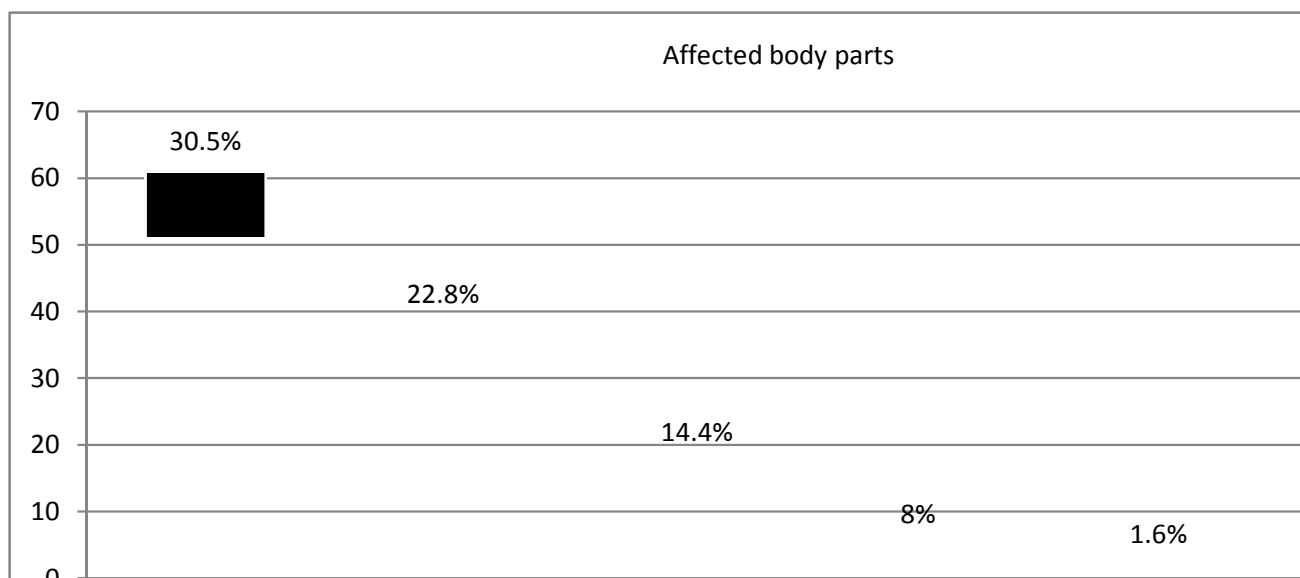
Source: Research.

The obtained data allowed evaluating the severity of the accident from the extent of the injuries suffered by victims, showing that 61 (48.8%) interviewees had their upper and/or lower limbs (ULS/II) affected and/or pelvic waist, followed by 38 (30.4%) that suffered multiple trauma, i.e., several regions were affected.

When analyzing the data, a large part of the users had the regions of ULS/II and/or pelvic waist affected and the second largest part were polytraumatized patients. Regardless of the origin of the trauma, a person can present serious injuries, requiring appropriate intervention to prevent death and consequences arising from this event. This done, the care for victims must begin in pre-hospital care. The initial management of these patients presents some peculiarities that require from the entire health team specific action[14].

The reality seen in this study also configures from significant data, which reinforces the need for a greater attention of public managers with a view to disseminating preventive measures capable of minimizing the alarming number of occurrences. Traffic education, stimulated mainly by health professionals, becomes crucial to change this prognosis.

CONCLUSION

There is a predominance of male patients aged 28 to 35 years of age and average education in high school. The most commonly used care units are the Basic Support Units (BSU), and response time from five to 20 minutes, where the characterization of the type of accident

concentrated in collisions, representing 84%, followed by running over, fall from motorcycle and rollover. The temporal characterization stresses out weekends and areas such as lower limbs and pelvic waist as the most affected.

The findings allowed characterizing the epidemiological profile of victims of traffic accidents rescued by the Mobile Emergency Care Service (SAMU - *Serviço de Atendimento Móvel de Urgência*), allowing further reflections on prevention of accidents, awareness of young people characterized in this study, as well as knowledge of the care team for the victim of TA.

Studies such as this one refute the importance of preventive policies more active that reflect on the reduction of the indices of accidents and, consequently, public spending with rehabilitation. It is essential to know the reality where the patient is inserted and identify weaknesses and potentialities for performing health education process significantly and understandable in the communication.

Even so, it demonstrates the need for further studies in the area where they can bring new questions aiming at a shorter response time, reducing the number of deaths and constant need for updating information and management with the patient, carried out by the team.

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Mailing address:
Rodrigo Assis Neves Dantas
Petra Kelly Street - nº 61
ZIP CODE: 59152-330 - Parnamirim/RN - Brazil
E-mail: rodrigoenf@yahoo.com.br