Short communication
Injury Profile in an Emergency Department at a Referral Hospital in Kigali, Rwanda

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Abstract

Injuries constitute a major public health problem, killing more than 5 million people worldwide each year and causing more cases of disability. Countries need baseline information on injury pattern to develop intervention strategies. A quantitative, retrospective, descriptive study was conducted at a referral hospital in Kigali Rwanda. The aim was to identify the causes of injuries, to determine the frequencies and distribution of injuries according to cause, gender, age, location, and categories of injuries, and to assess the probability of injury survival. Out of 101 subjects, 31.7% were female while 68.3% were male. A number of injuries were identified among young males in the age group 16-30 years in the urban area. The major cause of injury was road traffic accidents (RTA).

Introduction

There has been a substantial shift in the causes of death in both developed and developing nations. Deaths from infectious diseases have decreased, whereas deaths from injury have increased to the point that it is one of the leading causes of death in many developing countries. [1] The World Health Organisation (WHO) estimated that injuries constitute 16% of the global burden of diseases and other health problems. [2] This translates into 5.8 million injury-related deaths worldwide. Injuries further account for between 10 - 30 percent of all hospital admissions and render at least 78 million people disabled each year. [3]

In Rwanda the burden of injury is not well known, although in 2008, the report of the Rwanda Ministry of Heath revealed that 7 % of admissions to the surgical wards were due to injury and 4 % of the total deaths were a direct consequence of injury. [4] Some findings from the research done in another referral hospital in Kigali, illustrated that RTA were the major cause of injuries whereby the category of young males was the most affected. [5]

Countries need the data on injury pattern to develop intervention strategies including prevention, treatment and rehabilitation. [6] However, a limited body of knowledge about the injury profile in Rwanda could be an impediment in developing such intervention. The findings from this study on injury profile could be helpful to health professionals and administrative authorities in their effort to raise community awareness and planning for intervention strategies about injuries. They could also stimulate researchers to further investigate the quality of injury care and further explore the cases of injury at different levels of health-care delivery in the country.

Methods

A quantitative, retrospective, descriptive survey was conducted with the purpose of characterizing the injury profile in patients admitted at one referral hospital in Kigali, starting from the 1st January 2010 up to 13th December 2010. The study population were the files of the patients admitted in the emergency department with physical injury as the main complaint, over a one-year period. Injury victim was defined as the patient sustaining injuries caused by road traffic accidents, fire-arm, stab injury, falls, drowning and burns. The records review constituted 664 injury victims' files. A total of 634 files were included and only 30 files were excluded because they lacked some relevant information. The sample of 131 files was calculated with the following formula:

$$n = \frac{z^2.p.q}{d^2}$$

where n = the sample size, z = the standard normal deviation (1.96), p = the expected proportion (0.1), q = 1-p, and d = required precision (0.05).

A systematic random sampling method was utilised to select the files used in the study. The data was analysed

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using the Statistical Package for Social Science (SPSS, 16.0 versions). With regard to the Trauma Injury Severity Score (TRISS) calculation, TRISS calculator developed by British Trauma was used. [7]

Results, Analysis and Discussion

The purpose of this study was to determine the injury profile using a referral hospital in Kigali and the results are shown in Table 1. It was evident that most injury victims (68.8%) were males, with young adults constituting the majority, while only 31.7% were females. The higher number of young adults could be explained by the fact that these people constitute the most working group of any society [8] whereby involvement in the daily socio-economic activities may account for their increased exposure to injury.

Table 1 Distribution of the victims according to the cause of injury and gender

	Cause						
Gender	**RTA**	**Firearm**	**Stab injury**	**Falls**	**Burns**	**Others**	**Total**
Female	10(9.9%)	4(4.0%)	3(3.0%)	12(11.9%)	3(3.0%)	0(.0%)	32
Male	30(29.7%)	3(3.0%)	7(6.9%)	24(23.8%)	4(4.0%)	1(1.0%)	69
Total	40	7	10	36	7	1	101

Likewise, the findings from this study that males were the more involved in accidents than females agree with findings from other studies. [5, 8] The preponderance of males in accidents could be attributed to the fact that males tend to be more involved in occupations with wide ranging travel needs and other high risk activities. [6] The top cause of injury was RTA representing 39.6%, followed by falls at 35.6%, and firearm related injuries at 6.9%.

All types of injuries predominantly occurred in Kigali city and 99.0% injuries were unintentional versus 0.99% intentional. The findings showed that 96.0% injury victims survived to time of discharge whereas 3.96% died. The mortality rate in this study appears higher than that reported in other studies. [7, 8] The literature has documented that early intervention by promptly providing effective pre-hospital care minimizes the consequences of serious injury, including long-term morbidity or mortality. [1, 3] According to the Injury Severity Score (ISS), an established medical score to assess trauma severity [9], the vast majority of the injury victims constituted minor injuries (ISS=1-15) and only a low number represented critical injuries (ISS=41-75). When considering the TRISS and injury mechanism, 91.7% of those who had a less than 50% probability of survival were victims of penetrating injuries whereas 8.3% were blunt injuries victims. When looking at the probability of survival, the majority of the survived (88.1%) had a TRISS of 50% and above whereas only 7.9 %, of the survived had a TRISS of less than 50%.

In conclusion**,** a standardized pre-hospital care providing system would enhance good patients' outcomes and therefore increase the probability of survival. This would be possible by early transportation of the injured patients to the health facility and good clinical care.

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