EPIDEMIOLOGICAL PROFILE AND INJURY MECHANISMS IN POSTOPERATIVE PATIENTS WITH LOWER LIMB TRAUMA

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ABSTRACT
Trauma is one of the leading causes of mortality and disability among young adults, resulting in high medical costs and productivity loss, making it essential to understand its economic and psychological impact to develop effective health policies. This study aimed to investigate the epidemiological profile of patients in the postoperative period following lower limb trauma, such as fractures and ligament ruptures, emphasizing the main mechanisms and types of injuries. This is a cross-sectional study with a quantitative and epidemiological approach, focusing on the profile of lower limb traumas in an orthopedic unit in the central-northern region of Goiás. Data collection was conducted through a sociodemographic questionnaire and included 92 volunteers with a mean age of 39.18 years (±11.28), of whom 68.5% were male and 31.5% were female. Results indicate that 69.6% of cases were fractures, predominantly due to falls and motorcycle accidents, and 29.3% were ligament ruptures, mainly associated with sports. Although the prevalence of injuries was higher in men, statistical analysis showed no significant differences between sexes. These findings highlight the need for preventive strategies for falls, accidents, and sports injuries to improve clinical outcomes and reduce costs associated with orthopedic treatment.

Keywords: Traffic accident; Lower limbs; Epidemiological profile; Postoperative.

INTRODUCTION

Trauma is one of the main causes of mortality and disability among young adults, generating serious economic and social consequences due to high medical

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costs and reduced productivity (OMOKE; EKUMANKAMA, 2020; GERAERDS et al., 2019).

Therefore, understanding the economic and psychological impact of orthopedic trauma is essential for the development of effective health policies (O'HARA et al., 2020). Studies indicate that self-reported feelings of disability after trauma are associated with worse outcomes (KUGELMAM et al., 2021).

Traffic accidents were the second leading cause of emergency medical service (SAMU) attendance in 2019 and the third in 2020, mainly among young people (SANTOS et al., 2016). Falls are also significant, with increased demand for medical care (CASTRO; FAUSTINO; RIBEIRO, 2020). In traffic accidents, injuries can result in chronic pain, psychological suffering, and decreased quality of life, compromising work capacity (PAPIC et al., 2022).

Therefore, this study aimed to evaluate the epidemiological profile of volunteer patients in the postoperative period following lower limb trauma, highlighting the main mechanisms and types of injuries.

METHODOLOGY

This cross-sectional field study used a quantitative and epidemiological approach to investigate lower limb trauma, aiming to analyze the most common causes and types of injuries, such as fractures, partial ligament injuries, and total ligament ruptures. The research was conducted in a reference orthopedic unit located in the central-northern region of Goiás, after approval by the Research Ethics Committee (opinion No. 6970562).

Volunteers of both sexes, aged 18 to 60 years, in the postoperative period following lower limb trauma, who formally consented through signing the Free and Informed Consent Form (FICF), were included, considering their availability and recovery time from anesthesia.

Data collection was performed using an epidemiological profile questionnaire, prepared by the authors, which aimed to detail the mechanisms and the most frequent types of injuries.

Statistical analysis was conducted using descriptive methods (absolute and relative frequencies) and the Chi-square test, involving 92 participants with a mean age of 39.18 years (±11.28). Among the volunteers, 63 (68.5%) were male and 29 (31.5%) were female.

RESULTS

A total of 92 patients participated in the study, among whom 64 (69.6%) were cases of fractures (Table 1), predominantly caused by falls, which represented 31.3% of cases, followed by motorcycle accidents with 20.3% of cases (Table 2). Regarding partial injuries, only one case was reported, resulting from a fall. Additionally, 27 (29.3%) cases of ligament ruptures were recorded, with most of these cases associated with sports-related injuries.

When analyzing the distribution of injuries by sex, fractures affected 22 (34.4%) women and 42 (65.5%) men. For partial injuries, the only case recorded was a woman. Regarding ligament ruptures, 6 (22.2%) occurred in women and 21 (77.8%) in men. However, statistical analysis using the Chi-square test revealed no significant association between injury types and sex ($p=0.174$).

The analysis of data collected in this study provides a detailed view of the epidemiological profile of patients in the postoperative period of lower limb trauma, highlighting important aspects related to the predominant mechanisms and types of injuries. Although partial injuries are rare and associated with falls, ligament ruptures, mainly linked to sports, are a significant factor in the demand for orthopedic care. The sex-based analysis showed a higher prevalence of injuries in men but without statistically significant differences. These data highlight the importance of preventive strategies for falls, accidents, and sports injuries, aiming to improve outcomes and reduce costs associated with orthopedic treatment.

Tabela 1: Resultados dos tipos de lesão dos participantes da pesquisa.

	Frequência (%)
Fratura	64 (69,6%)
Lesão parcial	1 (1,1%)
Ruptura de ligamento	27 (29,3%)
TOTAL	92 (100%)

Fonte: Elaborado pelos autores (2024).

Tabela 2: Resultados dos mecanismos de lesão dos participantes da pesquisa.

	Automobilístico	**Animal**	**Motociclístico**	**Esportivo**	**Queda**	**Outros**
Fratura	10 (15, 6%)	4 (6,3%)	13 (20,3%)	10 (15,6%)	20 (31,3%)	7 (10,9%)
Lesão parcial	0 (0,0%)	0 (0,0%)	0 (0,0%)	0 (0,0%)	1 (100%)	0 (0,0%)
Ruptura de ligamento	2 (7,4%)	4 (14,8%)	2 (7,4%)	12 (44,4%)	6 (22,2%)	1 (3,7%)

Fonte: Elaborado pelos autores (2024).

CONCLUSION

This study reveals that fractures and ligament ruptures are common in lower limb traumas, with fractures associated with falls and motorcycle accidents, and ruptures linked to sports activities. Although injuries are more frequent in men, the difference is not statistically significant. The results highlight the need for preventive

strategies targeting falls, accidents, and sports-related injuries, aiming to improve clinical outcomes and reduce treatment costs.

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