

Epidemiologic profile of ophthalmic emergencies in a Tertiary University Hospital

Epidemiologia das urgências e emergências oftalmológicas em um Hospital Universitário Terciário

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ABSTRACT

The study aimed to analyze and study the prevalence and circumstances of ophthalmic emergencies and urgencies in the Emergency Room of the Hospital de Clínicas de Uberlândia and the Central Ambulatory (Amélio Marques) of the Federal University of Uberlândia (HCU-UFU) from August 2016 to August 2017. This is a necessary study since ophthalmic emergencies are important causes of morbidities in society⁽¹⁾. In addition, this study will help to develop prevention policies and to make greater training of professionals based on knowledge of the main causes of eye emergencies. The proposed methodology included the collection of data from the medical record, with the information of sex, age and occupation/profession being collected. This is an observational, descriptive, transversal, exploratory epidemiological study. The study showed that males were the most affected and the most incident age group was between 19 and 45 years old. Eye trauma due to a foreign body is the most common cause of demand for ophthalmologic emergency care with a close relationship with work activities (mechanics and ironmongers). In this way, the data will be an important resource to assist in understanding the epidemiological profile of the ophthalmology emergency room in order to optimize its administration and to encourage the adoption of public prevention policies within the scope of occupational health.

Keywords: Emergencies; Eye foreign bodies; Eye injuries; Epidemiology; Emergency medical services; Emergency Service, Hospital; Accidents, occupational; Eye diseases/diagnosis; Occupational health; Hospitals, university

RESUMO

O estudo buscou analisar e estudar a prevalência e as circunstâncias de urgências e emergências oftalmológicas no Pronto Socorro do Hospital de Clínicas de Uberlândia da Universidade Federal de Uberlândia (HCU-UFU) e no Ambulatório Amélio Marques no período de agosto de 2016 a agosto de 2017. Faz-se necessário tal estudo, pois emergências oftalmológicas são importantes causas de morbidades na sociedade⁽¹⁾. Ademais, através dele políticas de prevenção poderão ser feitas, além de maior capacitação de profissionais a partir do conhecimento das principais causas de atendimento. A metodologia proposta incluiu a coleta de dados do prontuário, sendo colhidas as informações sexo, idade e ocupação/profissão. Trata-se de um estudo epidemiológico exploratório observacional predominantemente descritivo do tipo transversal. O trabalho evidenciou que o sexo masculino foi o mais acometido e a faixa etária mais incidente foi entre 19 e 45 anos. Das causas de procura pelo pronto-atendimento oftalmológico, o trauma ocular por corpo estranho é a mais comum havendo uma estreita relação com as atividades laborais (mecânicos e ferragistas). Dessa forma, os dados serão um recurso importante para o auxiliar na compreensão do perfil epidemiológico do pronto-atendimento oftalmológico visando otimizar a administração do mesmo e para estimular a adoção de políticas públicas de prevenção no âmbito da saúde do trabalhador.

Descritores: Emergências; Corpos estranhos no olho; Traumatismos oculares; Epidemiologia; Serviços médicos de emergência; Serviço hospitalar de emergência; Acidentes de trabalho; Oftalmopatias/diagnóstico; Saúde do trabalhador; Hospitais universitários

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INTRODUCTION

Ophthalmologic emergencies are one of the causes of morbidities in society;⁽¹⁾ eye injuries account for a significant fraction of cases recorded in Ophthalmology services because they can lead to substantial functional ocular alterations and even to blindness, which result in significant personal, social and economic losses.⁽²⁾ According to the WHO, every year, there are approximately 55 million eye injuries causing life routine restrictions for at least one day, of which, 750,000 require hospitalization.⁽³⁾ Such numbers show the relevance of the current project, whose aim was to develop a better understanding and assessment of eye injuries, mainly in the public health system. Despite the existence of hundreds of Ophthalmologic emergency services in the country, there are only few epidemiologic investigations available in the literature about eye injuries in Brazil.

Oftentimes, non-ophthalmologist physicians provide the first medical care, and their unpreparedness can hinder ocular prognosis.⁽⁴⁾ Data of the current research will help better understanding the profile of patients assisted in ophthalmological emergency services and guiding the population towards prevention.

The aim of the current research was to assess ophthalmologic emergency and urgency cases in order to find likely association between them and the labor conditions in Uberlândia Clinical Hospital (HC-UFU) and in Amélio Marques Outpatient Center (HC-UFU Outpatient sector). These institutions are the hospital complex of reference in this specialty and provide high complexity care to the population of 86 cities in the macro and micro regions of Northern Triangle (Minas Gerais State/Brazil); moreover, they are the only access to SUS ophthalmologic emergency and urgency for patients in this region.⁽⁵⁾

METHODS

The sample consists of patients who suffered eye injuries and were treated in Uberlândia Federal Univesity, Amélio Marques Outpatient Center and in Uberlândia Clinical Hospital from August 2016 to August 2017. The Department of Statistics and Medical Archive Service of HC-UFU gathered all medical records from patients assisted in ophthalmologic emergency (6.483) and randomly selected 363 among them, for further assessment.

Based on Miot (2011), sample size calculation encompassed the following parameters: sample size (6.483), prevalence (50%), standard significance level ($\alpha = 0.05$), high test power ($z = 1.96$). Minimum sample size was 363 participants.

In order to have a better representation of the assessed phenomenon and to minimize information loss, a simple random sample (within the calculated sample size) was set to extract the following information: sex, birthdate and profession - patients' identity was kept in secrecy. Postoperative complications due to surgical outcome were excluded from the study.

RESULTS

There were 6.483 urgency and emergency ophthalmologic cases recorded in HC - UFU between August 2016 and August 2017 - 1.303 were assisted in the Emergency Room of HC-UFU and 5.180, in Amélio Marques Outpatient Center.

Men accounted for 58% of patients, whereas women to 42% of them (Figure 1). Women were 34% and men 66% of patients assisted in the Emergency Room. As for Amélio Marques

Outpatient Center, women accounted for 45% of the cases and men for 55% of them (Figure 2)

Patients were divided into 11 different age groups (9-year timeline, per group) and it resulted in 7.42% of patients in the age group 0 to 9 years; 4.28%, from 10 to 18 years; 13.71% from 19 to 27 years; 17.42% from 28 to 36 years; 15.42% from 37 to 45 years; 12.85% from 46 to 54 years; 14.57% from 55 to 63 years; 9.14% from 64 to 72 years; 4% from 73 to 81 years; 0.57% from 82 to 90 years; and 0.57% from 91 to 99 years (Graph 3). Median and mode values were 40 years old.

Patients reported wide array of professional careers in the medical records; Table 1 shows the recurrent ones, in descending order: retiree (16.16%); student (15.15%); homemaker (9.1%); general services (8.41%); construction worker (8.1%); salesperson (7.74%), housekeeper (3.7%); administrator (3.03%); cooker/confectioner (2.69%) and nurse (2.35%). Professions recording frequency rate higher than, or equal to, 1.68% of the total were included in Table 1.

Assessing the ophthalmologic diseases recorded in the Emergency Room allowed identifying the two most common af-

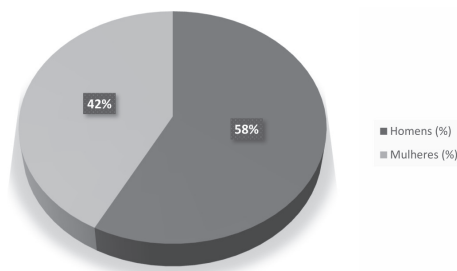


Figure 1: Rate of Ophthalmologic urgency and emergency cases by sex

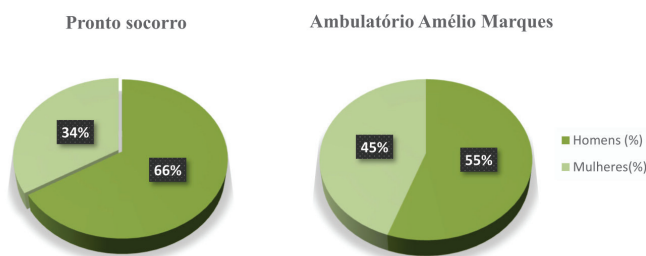


Figure 2: Rate of Ophthalmologic urgency and emergency cases by sex assisted in the Emergency Room and in the Outpatient Center

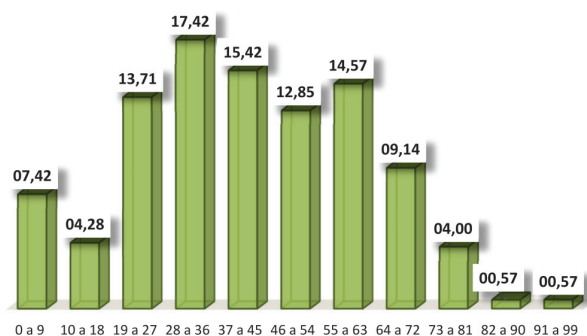


Figure 3: Rate of Ophthalmologic urgency and emergency cases by age group

fections: injuries caused by foreign bodies (25.51%) and conjunctivitis (13.52%) (Table 2). Conditions recording frequency higher than, or equal to 1.78% of the total, were included in Table 2.

Table 3 shows the statistical assessment of urgency and emergency ophthalmic cases by professional occupation, based on the collected data and on the professional occupations previously shown in Table 1. Subconjunctival hemorrhage was (17.39%) the most common affection among retired patients; conjunctivitis (24.44%), among students; keratitis (14.81%), among homemakers; foreign body injury (32%), among general services professionals; foreign body injury (41.67%), among construction workers; conjunctivitis (34.78%), among salesperson; keratitis (18.18%), among housekeepers; hordeolum and refraction consultation had the same incidence (22.22% each), among administrators conjunctivitis; conjunctivitis (37.5%), among cooks/confectioners; conjunctivitis and cornea transplant had

the same incidence (28.57%), among nurses keratitis; keratitis (33.33%), among drivers; retinal detachment (33.33%), among teachers; conjunctivitis, vitreous hemorrhage, adherent leukoma, corneal transplant rejection and diabetic retinopathy had the same incidence (20%) among hairdressers; foreign body injury (80%), among iron and hardware dealers; and foreign body injury (80%), among mechanics.

DISCUSSION

The prevalence of male patients (58%) in the current research is similar to results in other epidemiologic researches carried out in Brazil^(6,7) and abroad, such as in the United States.^(8,9) Such an outcome is likely related to the fact that men are more exposed to eye injuries since they perform more high-risk activities than women.^(10,11)

Table 1
Rate of the most common occupations

Occupation	Percentage (%)
Retiree	16,16
Student	15,15
Homemaker	9,1
General Services	8,41
Construction worker	8,1
Salesperson	7,74
Housekeeper	3,7
Administrator	3,03
Cooker/confectioner	2,69
Nurse	2,35
Driver	2,02
Teacher	2,02
Hairdresser	1,68
Iron and hardware dealer	1,68
Mechanic	1,68

Table 2
Rate of recurrent urgency and emergency cases

Affection	Percentage (%)
Foreign body injury	25,51
Conjunctivitis	13,52
Subconjunctival hemorrhage	6,37
Keratitis	6,12
Corneal injury	4,84
Blepharitis, chalazion and hordeolum	4,08
Uveitis	3,31
Glaucoma	3,06
Other eyeball disorders	2,8
Cataract	2
Keratoconus	2
Retinal detachment	1,78
Pterygium	1,78
Burn	1,78
Cornea transplant rejection	1,78

Table 3
Rate of urgency and emergency ophthalmic cases by professional occupation

Occupation	Affection	Percentage (%)
Retiree	Subconjunctival hemorrhage	17,39
Student	Conjunctivitis	24,44
Homemker	Keratitis	14,81
General Services	Foreign body injury	32,00
Construction worker	Foreign body injury	41,67
Salesperson	Conjunctivitis	34,78
Housekeeper	Keratitis	18,18
Administrator	Conjunctivitis /Hordeolum /Refraction	22,22
Cookers/confectioners	Conjunctivitis	37,50
Nurse	Keratitis /Conjunctivitis /Tranplanted Cornea	28,57
Driver	Keratitis (H16)	33,33
Teacher	Retinal detachment/	33,33
Hairdresser	Conjunctivitis /Vitreous hemorrhage/Adherent leukoma/	
	Cornea transplant rejection/Diabetic retinopathy	20,00
Iron and hardware dealer	Foreign body injury	80,00
Mechanic	Foreign body injury	80,00

The age groups encompassing professionally active patients prevail in the total sample, as shown in Graph 3; this finding corroborates with information available in the literature.⁽¹⁰⁾ The current research showed that almost 50% of patients are in the age group 19 to 45 years; thus, it confirms the prevalence of young adults among the assisted patients.^(6,12,14) However, a study performed in the USA, from 1992 to 2001, has shown reduced number of eye injuries in patients in this same age group during the experimental period; researchers have associated this outcome with more sedentary lifestyles.⁽⁸⁾ It is also possible noticing intersection between results if one takes into consideration that most of the economically active population comprise men, despite the increasing insertion of women in the labor market.⁽¹⁰⁾

Most patients in the current research belonged to the economically active population; therefore, it is important identifying patients' profession, since this parameter accounts for explaining 50% of the recorded eye injuries - ⁽⁸⁾ these injuries can affect workers' income and psychological state.^(8,11) Table 1 shows the rate of professions reported by patients, themselves. Unemployed patients (retirees, students and homemakers) accounted for 40.41% of assessed patients; thus, more than 59% of patients were employed. Some risk professions stand out in the group of employed patients because professionals in these areas, such as general services, construction workers, housekeepers, mechanics and iron and hardware dealers, are more often exposed to harmful substances and objects. Temporary jobs were reported by 23.57% of overall patients and by 39.56% of the employed ones. The aforementioned professions are more prone to eye injuries, probably because these occupations require less training and formal education, as well as are subjected to little labor-safety surveillance.⁽¹⁴⁾

Table 3 shows the injury type that prevails in each professional profile; its information allowed observing different urgency and emergency case types. According to Table 2, the presence of ocular foreign bodies is the most frequent etiology type, which mainly prevail in the following professions: mechanic, and iron and hardware dealers (steelworkers). Foreign body injury accounts for 80% of injuries in both professions, the highest rate was recorded when they were compared other injuries (Table 3). Such an outcome confirms data in previous studies, which have shown that foreign body injuries are more frequent in professions such steelwork and mechanic.⁽¹⁵⁾ It is important acknowledging that the most common injury type in the current study was labor accidents in risk professions, which accounted for 41.67% of injuries cases in construction workers and for 32% in patients who performed general services. The correct use of personal protective equipment (PPE) and workstation inspections to ensure workers' safety can easily prevent this accident types from happen.

CONCLUSION

The current study reported the epidemiologic features of ophthalmologic urgency and emergency cases recorded at HC-UFU and at Amélio Marques Outpatient Center. Men are more vulnerable to eye accidents than women. The most affected age group encompassed patients aged between 19 and 45 years; this finding showed the prevalence of injuries in the economically active population. Foreign body injury was the most common affection; it was possible noticing the link between this affection and labor activities - it can be associated with possible work accidents. The proper use of protective equipment at work and

instructing workers about the risks of accidents can avoid such accidents from happening.

Data collected in the current research have scientific relevance for the medical field because they can help elaborating ophthalmological services more adequate to institutions' real needs, as well as optimizing the provided services. In addition, data and outcomes in the present research have great applicability to occupational and public health services since they allow basing and formulating socio-educational actions focused on eye injury prevention and better management, mainly the most frequent ones.

Finally, it is important highlighting the limitations of this study: possible inadequate filling of some medical records and limitations characteristic of the cross-sectional observational design, such as susceptibility to prevalence bias and the fact that it is not prospective.

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