

# Evaluation of ophthalmic emergencies in a public reference hospital in Pernambuco

## *Avaliação das urgências oftalmológicas em um hospital público de referência em Pernambuco*

Hirlana Gomes Almeida<sup>1,2</sup>, Viviane Bandeira Fernandes<sup>2</sup>, Ana Carolina Vieira Peixoto e Lucena<sup>2</sup>, Newton Kara-Junior<sup>1</sup>

### ABSTRACT

**Purpose:** To evaluate ophthalmological emergencies in a public reference hospital in Pernambuco. **Methods:** Cross-sectional retrospective study with 26.358 patients attended in the ophthalmic emergency Altino Ventura Foundation, in the period January to June 2013. Data were collected using protocols based on electronic registration forms of ophthalmological emergency. **Results:** It was observed that 52.5% of patients were male, 42.5% were aged 21-40 years; 90.8% were from the region metropolitan area of Recife; 55% classified as less severe. The main diagnoses were conjunctivitis (35.17%) and ocular trauma (19.25%). **Conclusion:** The prevalence of male patients, aged 21-40 years, from the metropolitan area of Recife, classified as low complexity, attended in January, on Monday, with the diagnosis of conjunctivitis, followed by ocular trauma.

**Keywords:** Emergencies; Conjunctivitis; Eye abnormalities; Eye injuries; Hospital, public; Emergency medical services

### RESUMO

**Objetivo:** Avaliar as urgências oftalmológicas em um hospital público de referência de Pernambuco. **Métodos:** Estudo transversal e retrospectivo, com 26.358 pacientes atendidos na emergência oftalmológica da Fundação Altino Ventura, no período janeiro a junho de 2013. Os dados foram coletados por meio de protocolos baseados nas fichas de cadastro eletrônicas da emergência oftalmológica. **Resultados:** Observou-se que 52,5% dos indivíduos eram do gênero masculino e 42,5% encontravam-se na faixa etária de 21 a 40 anos; 90,8% eram provenientes da região Metropolitana do Recife e 55% dos casos foram classificados como de baixa gravidade. Os diagnósticos mais frequentes foram conjuntivite (35,17%) e trauma ocular (19,25%). **Conclusão:** Houve prevalência de pacientes do gênero masculino, na faixa etária de 21 a 40 anos, proveniente da região Metropolitana do Recife, classificado como baixa gravidade, atendidos no mês de janeiro, na segunda-feira, com o diagnóstico de conjuntivite, seguida por trauma ocular.

**Descritores:** Emergências; Conjuntivite; Anormalidades do olho; Traumatismos oculares; Hospitais públicos; Serviços médicos de emergência

<sup>1</sup>Faculdade de Medicina da Universidade de São Paulo, São Paulo, SP, Brazil.

<sup>2</sup>Fundação Altino Ventura, Recife, PE, Brazil.

The authors declare no conflicts of interests.

Received for publication 20/02/2014 - Accepted for publication 14/04/2014

## INTRODUCTION

Ophthalmological emergencies, although usually not associated with to risk of death, can cause irreversible decrease in the visual acuity and poor quality of life if not treated properly<sup>(1,2)</sup>.

In the United States of America, the ophthalmologic emergencies account for about 3% of admissions in the emergency room<sup>(3)</sup>, and in the General Hospital of the University of São Paulo 13.6% of admissions in the general emergency services<sup>(4)</sup>. This high demand requires attention of the professionals involved, and structural and material resources able to meet adequately this people<sup>(5)</sup>.

The screening process involves the classification and prioritization of patients at different levels of emergency care<sup>(6,7)</sup>. The Altino Ventura Foundation located in Recife offers specialist in ophthalmology 24 hours every day, and represents the largest ophthalmic emergency public service in the State of Pernambuco, which has more than 9 million people<sup>(8)</sup>, as well as the northeast of Brazil.

The aim of this study is to assess the characteristics of the ophthalmologic emergencies at AVF, in order to guide the policies for access to diagnosis and treatment of ocular emergencies in Pernambuco.

## METHODS

We conducted a cross-sectional and retrospective study, with a total of 34,870 patients attended in ophthalmic emergency of Altino Ventura Foundation (AVF) in the period from January to June 2013. Of these, 8,512 patients were excluded for presenting complaints not characteristic of eye emergency or incomplete data in the medical report, with a total of 26,358 cases studied.

All medical records were reviewed after project approval by the Ethics Committee of the Altino Ventura Foundation under number 15782413.3.0000.5532 and authorization of the responsible for the archives of the Institution. The data were collected by means of the electronic record of the emergence of the FAV ophthalmologic emergency in the period from June to August 2013.

The variables studied were: gender, age, city of origin, severity and ocular diagnosis. The severity of the cases was classified as high, medium, and low.

The data obtained were treated by methods of descriptive statistics; the categorical variables were expressed as absolute frequencies. For the construction of charts and tables we used the software Microsoft Excel® 2010.

## RESULTS

In relation to the sociodemographic factors, there was a prevalence of males (52.5%) aged between 21 and 40 years (42.5%) and from the metropolitan region of Recife (90.8%).

When the severity of cases seen in the emergency room was assessed, most cases were classified as low gravity (55%), followed by medium (42.6%) and high (2.4%).

The diagnosis found among patients seen at the ophthalmologic emergency at FAV is described in table 1.

Table 1

**Diagnosis of patients seen in the ophthalmic emergency at the Altino Ventura Foundation in the period from January to June 2013**

Diagnosis	N	%
Conjunctivitis	9270	35.17
Eye trauma	5073	19.25
Blepharitis	2046	7.76
Hordeolum and chalazion	1969	7.47
Other disorders of the conjunctiva	1285	4.88
Exam without ophthalmologic changes	957	3.63
Keratitis	896	3.40
Iridocyclitis	761	2.89
Disorders of the retina, choroid and vitreous humor	661	2.51
Glaucoma	567	2.15
Other disorders of the cornea	363	2.00
Post-surgical disorders	357	1.35
Disorders of sclera and episclera	300	1.14
Other disorders of eyelids	298	1.13
Orbital disorders	204	0.77
Herpes simplex and zooster	185	0.70
Crystalline disorders	173	0.66
Disorders of the eye muscles and refraction	156	0.59
Disorders of the optic nerve and visual pathways	132	0.50
Lacrimal pathways disorders	115	0.44
Tumors	81	0.31
Dry eye	61	0.23
Endophthalmitis	27	0.10
Malformations of development and anomalies	5	0.02
<b>TOTAL</b>	<b>26.358</b>	<b>100.0</b>

## DISCUSSION

Ophthalmological emergencies represent an imminent danger of eye damage<sup>(2,9)</sup>, are important causes of attendances in the emergency room, and account for 3-7% of the total medical emergencies in a general hospital<sup>(10)</sup>. Studies show that there is a significant improvement on the visual prognosis of patients who underwent early surgical or clinical intervention<sup>(11)</sup>.

As well as the current study that demonstrated the prevalence of male gender in 52.5%, a study conducted by Kara-Jain et al. with 100 patients treated in the Ophthalmologic Emergency Service of the Clinical Hospital of the State University of Campinas<sup>(2)</sup> and other researches<sup>(12,13)</sup> found the same pattern, probably justified by the reality of men being more exposed to risk factors such as: dangerous professions, traffic and sports.

In this analysis, the most prevalent age group was from 21 to 40 years, being similar to the data found in the literature<sup>(10,14-16)</sup>, which can be explained by the fact that this age group represent a large proportion of the economically active population being more susceptible to various risk situations in their professional activities<sup>(15)</sup>.

It was observed that most patients were from the metropolitan region of Recife, which is justified by the central location of FAV's emergence in the city of Recife, which runs twenty-four hours a day, seven days a week, facilitating the access to the service for diagnosis, treatment and follow-up of ocular emergencies.

The finding that 9.2% of patients lived far from the hospital is worrisome because the patient often requires not only the first appointment, but also some returns for review and follow up of response to treatment, often hampered by the long displacement from the city of residence to access the ophthalmological emergency<sup>(12,17)</sup>.

The study showed that more than half of the cases attended were classified as low severity emergencies. Improper use of emergency services results in overcrowding, inadequate use of resources, decreased effectiveness of quality of care, increased costs and patient dissatisfaction<sup>(18,19)</sup>. This fact is highlighted in studies<sup>(2,4)</sup> in which most patients admitted in the ophthalmologic emergencies could be diagnosed and treated at health care units at primary and secondary levels.

The most frequent diagnosis was conjunctivitis, followed by eye trauma (Table I), which agrees with other studies published in the literature<sup>(1,4,10,20)</sup>.

Ocular trauma itself represents an emergency, because it can develop with poor prognosis, causing serious complications and consequences to the patient, among which irreversible loss of vision<sup>(21)</sup>. Therefore, it is essential the implementation of health promotion programs and educational campaigns on the use of protective equipment and risk of accidents, including in the workplace, in order to reduce the incidence of ocular trauma<sup>(15,21,22)</sup>.

Studies like the present one are important to seek improvement in the primary and secondary health care, so that qualified general practitioners are capable of treating ophthalmic disorders of less complexity, avoiding unnecessary referrals to reference services. The objective was also further dissemination of information about eye diseases in emergency services, in order to develop better management and planning strategies to prevent, protect and treat the susceptible population.

## REFERENCES

- Ivankovic VI, Minaeff TT. [Characterization ophthalmological emergencies in Hospital José Joaquín Aguirre]. *Rev Hosp Clín Univ Chile*. 2009;20(2):97-102. Spanish.
- Kara-Júnior N, Zanatto MC, Vilaça VT, Nagamati LT, Kara-José N. [Medical and social aspects of ophthalmological emergency care]. *Arq Bras Oftalmol*. 2001;64(1):39-43. Portuguese.
- Babineau, MR, Sanchez LD. Ophthalmologic procedures in the emergency department. *Emerg Med Clin N Am*. 2008;26:17-34.
- Carvalho Rde S, José NK. Ophthalmology emergency room at the University of São Paulo General Hospital: a tertiary hospital providing primary and secondary level care. *Clinics (São Paulo)*. 2007;62(3):301-8
- Universidade de São Paulo. Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo. CoBi nº004/2004 [Internet]. São Paulo; c1997 [citado 2013 Set 26]. Disponível em: [http://www.hc.f.m.usp.br/images/pdf/dc/parecer/parecer\\_04\\_2004.pdf](http://www.hc.f.m.usp.br/images/pdf/dc/parecer/parecer_04_2004.pdf)
- Beveridge R, Clarke B, Janes L, Savage N, Thompson J, Dodd G, et al. Canadian emergency department triage and acuity scale implementation guidelines. *CJEM*. 1999;1(3 Suppl):S1-S24.
- Gómez JJ, Puiguriguer J, Ferrando JB, et al. 1r Curs de formació en tria d'urgències. Bases conceptuals del Programa d'Ajuda al Triage (PAT). Model Andorrà de Tria. Escaldes-Engordany, Desembre 2002-Abril 2003.
- Wikipédia. A enciclopédia livre. 2013. [Internet]. [citado 2014 Abr 14]. Disponível em: [http://pt.wikipedia.org/wiki/Anexo:Lista\\_de\\_estados\\_do\\_Brasil\\_por\\_popula%C3%A7%C3%A3o](http://pt.wikipedia.org/wiki/Anexo:Lista_de_estados_do_Brasil_por_popula%C3%A7%C3%A3o)
- Espíndola RF, Teixeira FC, Yamakami IM, Silva HR, Freitas JA. [Lack of basic ophthalmic information about ocular emergencies among non-ophthalmologists]. *Arq Bras Oftalmol*. 2006;69(1):11-5. Portuguese.
- Layaun SE, Schor P, Rodrigues ML. [Demanding profile of an ophthalmological service in an emergency unit]. *Rev Bras Oftalmol*. 1992;51(3):171-3. Portuguese.
- May DR, Kuhn FP, Morris RE, Witherspoon CD, Danis RP, Matthews GP, et al. The epidemiology of serious eye injuries from the United States Eye Injury Registry. *Graefes Arch Clin Exp Ophthalmol*. 2000;238(2):153-7.
- Vieira GM. [One month in an eye emergency clinic in Brasília]. *Arq Bras Oftalmol*. 2007;70(5):797-802. Portuguese.
- Carvalho R de S, Kara-José N, Kara-Junior N. Post-visit at ophthalmology emergency service: frequency and perception of the doctors on duty and users. *Arq Bras Oftalmol*. 2010;73(5):423-7.
- Araújo AA, Almeida DV, Araújo VM, Góes MR. [Ophthalmologic emergency: ocular foreign bodies still are the principal cause]. *Arq Bras Oftalmol*. 2002;65(2):223-7. Portuguese.
- Leonor AC, Dalfré JT, Moreira PB, Gaiotto Júnior AO. [Ophthalmological's emergencies of a day hospital]. *Rev Bras Oftalmol*. 2009;68(4):197-200. Portuguese.
- Campos Jr JC. [Profile of ophthalmological attendance of emergency]. *Rev Bras Oftalmol*. 2004;63(2):89-91. Portuguese.
- Wuerz RC, Travers D, Gilboy N, Eitel DR, Rosenau A, Yazhari R. Implementation and refinement of the emergency severity index. *Acad Emerg Med*. 2001;8(2):170-6.
- Doobinin KA, Heidt-Davis PE, Gross TK, Isaacman DJ. Nonurgent pediatric emergency department visits: Care-seeking behavior and parental knowledge of insurance. *Pediatr Emerg Care*. 2003;19(1):10-4.
- Jones NP, Hayward JM, Khaw PT, Claoué CM, Elkington AR. Function of an ophthalmic "accident and emergency" department: results of a six month survey. *Br Med J (Clin Res Ed)*. 1986;292(6514):188-90.
- Mardones Saavedra C, Salinas Chau A. [Epidemiological analysis of the ophthalmologist consults in the emergency department of Hospital de Taltal]. *Arch Chil Oftal*. 2011;66(1):15-9. Spanish.
- Santos JS. Da fundação e Hospital das Clínicas à criação da unidade de emergência e sua transformação em Modelo Nacional de Atenção às Urgências. *Medicina (Ribeirão Preto)*. 2002;35(3):403-18.
- Shah A, Blackhall K, Ker K, Patel D. Educational interventions for the prevention of eye injuries. *Cochrane Database Syst Rev*. 2009;(4):CD006527. Review.

### Corresponding author:

Hirlana Gomes Almeida

Rua dos Médicos, 30 - apto. 903 - ZIP Code: 50070-290 - Recife, PE, Brazil

Phone.: 55 (81) 3049-1907

E-mail: hirlanaa@hotmail.com