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The urgency department at an Ophthalmological Hospital in Southern Brazil

O pronto-atendimento em um Hospital Oftalmológico no Sul do Brasil

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Abstract

Purpose: *To ascertain the main ophthalmological acute diseases and the prevalence of conjunctivitis in two seasons of the year.* ***Methods:*** *Retrospective study by reviewing medical records review of medical records for the one-week period of the first month of summer and winter of the emergency department of the Hospital de Olhos do Paraná, in summer and winter seasons. The ages, major complaints and diagnoses were organized into groups.* ***Results:*** *Of 2086 patients, conjunctivitis had 46.4% of diagnoses. Infective conjunctivitis (viral and bacterial) accounted for 57.1%, 46.7%, 57.6%, 59.3% and 54.7% of total conjunctivitis in the age groups of 0-9 years, 10-19 years, 20-39 years, 40-59 years and ≥60 years, respectively. In summer, the most prevalent type of conjunctivitis was allergic (34.7%), followed by viral (29.6%), bacterial (27.2%) and unspecified (8.5%). In the winter, the prevalence sequence was viral (35%), allergic (34.7%), bacterial (21.7%) and unspecified (8.6%). Furthermore, conjunctivitis was responsible for 78.5% of the diagnoses in the first decade of life versus 26.4% from the seventh decade. The other most prevalent diagnoses were hordeolum / chalazion (9.59%), keratitis or bacterial ulcer (6.52%) and hyposphagma (5.51%).* ***Conclusion:*** *The group of conjunctivitis had the higher prevalence among the diagnosis. The winter season had a higher prevalence of general conjunctivitis. Both seasons have more viral than bacterial cases, but viral cases were more expressive in the winter. Allergic conjunctivitis had the same prevalence in the analyzed seasons. The age group most affected by general conjunctivitis was 0 to 9 years of age.*

Keywords: *Opthalmic emergencies; Emergency Department; Eye diseases; Sazonality; Conjunctivitis/epidemiology*

Resumo

Objetivo: Traçar um perfil epidemiológico de pacientes com emergências oftalmológicas, e a prevalência de conjuntivites em duas estações do ano. **Métodos:** Estudo retrospectivo, transversal, através de revisão de prontuários de pacientes do pronto-atendimento do Hospital de Olhos do Paraná, referente ao período de uma semana do primeiro mês do verão e do inverno. As idades, queixas principais e diagnósticos foram organizados em grupos. **Resultados:** Foram revisados 2086 prontuários. O sexo masculino abrangeu 51,9%. A média da idade foi de 38±21 anos. O grupo de conjuntivites se destacou, com 46,4% do total de diagnósticos. Conjuntivites infecciosas (virais e bacterianas) somam 57,1%, 46,7%, 57,6%, 59,3% e 54,7% do total de conjuntivites nos grupos etários de 0-9 anos, 10-19 anos, 20-39 anos, 40-59 anos e ≥60 anos, respectivamente. No verão, dentre as conjuntivites, as alérgicas foram as mais prevalentes (34,7%), seguido por virais (29,6%), bacterianas (27,2%) e não especificadas (8,5%). Já no inverno, tiveram maior prevalência as virais (35%), seguido pelas alérgicas (34,7%), bacterianas (21,7%) e não especificadas (8,6%). A conjuntivite foi responsável por 78,5% dos diagnósticos na 1ª década de vida contra 26,4% a partir da 7a década. Os outros diagnósticos mais prevalentes foram hordéolo/calázio (9,59%), ceratite ou úlcera bacteriana (6,52%) e hiposfagma (5,51%). **Conclusão:** O grupo de conjuntivites, em especial as conjuntivites infecciosas, foram as doenças mais frequentes dentre todos os diagnósticos. O inverno trouxe maior prevalência de conjuntivites gerais. Em ambas as estações houveram mais casos de conjuntivites virais que bacterianas, mas as virais foram mais expressivas no inverno. A prevalência de conjuntivites alérgicas foi a mesma nas duas estações. A faixa etária mais acometida por conjuntivites gerais foi a de 0 a 9 anos de idade.

Descritores: Emergências oftalmológicas; Departamento de Emergência; Oftalmopatias; Sazonalidade; Conjuntivite/epidemiologia

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Introduction

The general population is exposed to biological, physical, social and environmental factors that can lead to the need for emergency eye care.[1,2] The behavior of patients who deal with acute eye diseases varies from self-medication - based on information provided by the internet, friends or drugstores - to medical care with general practitioners or ophthalmologists.[3]

Eye emergencies range from visual discomforts, such as burning, pruritus, watery eyes and ocular hyperemia, to sudden vision loss.[1,2] Some symptoms and diagnoses tend to present incidence patterns linked to the seasons.[4-6] A thorough clinical examination, correct diagnosis and efficient treatment are mandatory to minimize the chances of more severe complications, as in any medical emergency.[3]

The most prevalent eye diseases in the emergency eye care are described in the literature,[4,7] however, there is relative lack of medical and social data in Brazil. Such data can support the planning and strategies of community health actions.[2,3] Low-risk cases can be treated in primary or secondary care units, which would reduce the high flow of patients in eye emergency care by improving hospital quality and patient satisfaction.[3,8-10]

The current study outlined the epidemiological profile of emergency eye care patients in an ophthalmological hospital in Southern Brazil in order to draw the epidemiological profile of patients with ophthalmological emergencies and to determine the clinical presentation of conjunctivitis in summer and winter.

Methods

Retrospective cross-sectional study focused on reviewing medical records of patients in the private emergency sector of Paraná Eye Hospital for seven days between early July 2017 and January 2018. The first medical appointments in the sector and informed periods were included in the study. Medical records with incomplete information or with information difficult to interpret were excluded from the experiment. Excel (Microsoft Inc.©, EUA) software was used to store and assess data, means and standard deviation were used for statistical assessment.

Patients' complaints were divided into the following groups: indicative of ocular surface disease, indicative of foreign body, eyelids and attachments, burning, sharp and acute decline in vision, eye trauma, and indicative of acute glaucoma, among others.

Diagnoses were individually described and divided into large groups: conjunctiva and sclera, cornea and crystalline lens, eyelid and attachments, orbit and lacrimal pathways, uveitis, glaucoma, retina and neuritis, among others.

Patients were divided into the following age groups: 0 to 9 years, 10 to 19 years, 20 to 39 years, 40 to 59 years, and 60 years and older.

Service hours were divided based on work shifts: from 08:00 am to 07:00 pm, from 07:00 pm to 10:00 pm, from 10:00 pm to 08:00 am.

The project was approved by Mackenzie Evangelical College Paraná, Curitiba/Paraná State/Brazil, under CAAE n.: 02199218.0.0000.0103.

Results

The current study reviewed 2,086 medical records from patients assisted in the ophthalmology emergency care: 865 patients in winter and 1221 in summer.

Patient's medical-appointment distribution volume by sex was similar among shifts (Table 1). Men comprised 51.9% of the total of patients. General mean age was 38±21.3 years. The most rush period was from 08:00 am to 07:00 pm, which accounted for 81.78% of the total of appointments.

The most common complaints reported by the patients were related to ocular surface disease (70.9%). The most common diagnoses were conjunctiva and sclera (55.4%), cornea and crystalline lens (19.3%), eyelid and attachments (17.9%). Table 2 shows a more thorough approach and points out the most prevalent diagnosis: conjunctivitis (46.45%), hordeolum/chalazion (9.59%), bacterial keratitis/ulcer (6.52%), hyposphagma (5.51%) and ocular foreign body (5.17%). Only 12.30% of patients (257 cases) presented symptoms related to ocular trauma: 108 cases of ocular foreign body; 82, of blunt trauma; 51, of corneal abrasion; 14, of burnings and 2 cases of perforating trauma.

The conjunctivitis group comprised 46.4% of diagnosis, it was the most prevalent one. Infectious conjunctivitis (viral and bacterial) accounted for 57.1%, 46.7%, 57.6%, 59.3% and 54.7% of total conjunctivitis in the age groups 0-9 years, 10-19 years, 20-39 years, 40-59 years, and ≥60 years, respectively (Figure 1). In general, 34.7% of conjunctivitis cases were allergic; 32%, viral; 24.7%, bacterial, and 8.6% were not specified.

Conjunctivitis accounted for 44.3% of cases in summer and for 49.5% in winter. Allergic conjunctivitis was more prevalent (34.7%) in summer, and it was followed by viral (29.6%), bacterial (27.2%) and unspecified cases (8.5%). Therefore, the infectious group accounted for 56.8% of all conjunctivitis cases. In the winter, Viral conjunctivitis (35%) recorded the highest prevalence in winter, and it was followed by allergic (34.7%), bacterial (21.7%) and unspecified cases (8.6%) – it added up to 56.7% of infectious conjunctivitis cases.

Only 85 patients (4%) used contact lenses (CL), most of them (92.9%) complained about ocular surface and 42.35%, had infectious corneal ulcers. Of the 136 patients with keratitis or infectious ulcer, 40 (29.41%) used CL.

The most prevalent diseases were divided by age groups

Table 1
Distribution of patients based on sex, age and work shift

	Men				Women				Total			
Work shift	**n**	**%**	**Mean age**	**SD**	**n**	**%**	**Mean age**	**SD**	**n**	**%**	**Mean age**	**SD**
08:00am-07:00pm	884	42,4	37	±21	820	39,3	40	±22	1706	81,8	38	±21
07:00pm-10:00pm	133	6,4	31	±19	124	6,0	37	±22	257	12,3	34	±20
10:00pm-08:00am	66	3,1	35	±17	59	2,8	37	±19	123	5,9	36	±18
Total	1083	51,9	36	±20	1003	48,1	39	±21	2086	100	38	±21

Table 2
Main complaints and diagnoses, divided into groups by sex

	General		Men		Women	
Main complaint	**n**	**%**	**n**	**%**	**n**	**%**
Ocular surface	1479	70.9	746	68.88	733	73.08
Eyelids and tear pathways	238	11.4	111	10.25	127	12.66
Ocular foreign body	183	8.77	122	11.26	61	6.08
Ocular trauma	45	2.15	30	2.77	15	1.49
Loss of visual acuity	39	1.86	22	2.03	17	1.69
Burning	20	0.95	13	1.20	7	0.70
Others	82	3.93	39	3.60	43	4.29
Total	2086	100	1083	100	1003	100
Diagnosis divided into larger groups	**n**	**%**	**n**	**%**	**n**	**%**
Conjunctiva/sclera	1157	55,46	590	54,48	567	56,53
Cornea/crystalline lens	402	19,27	238	21,98	164	16,35
Eyelids / Lacrimal pathways / Orbit	373	17,88	176	16,25	197	19,64
Retina/Neuritis	35	1,67	17	1,57	18	1,79
Uveitis	20	0,95	8	0,74	12	1,19
Others	99	4,74	54	4,98	45	4,48
Total	2086	100	1083	100	1003	100
Diagnosis divided into smaller groups	**n**	**%**	**n**	**%**	**n**	**%**
Conjunctivitis	969	46,45	482	44,50	487	48,55
Hordeolum/chalazion	200	9,59	96	8,86	104	10,37
Keratitis or bacterial ulcer	136	6,52	74	6,83	62	6,18
Hyposphagma	115	5,51	63	5,82	52	5,18
Ocular foreign body	108	5,17	84	7,75	24	2,39
Regular ophthalmological exam	88	4,22	49	4,52	39	3,88
Blepharitis	85	4,07	40	3,69	45	4,48
Dry eye	73	3,50	33	3,05	40	3,99
Corneal abrasion	51	2,44	28	2,58	23	2,29
Trichiasis	29	1,39	18	1,66	11	1,09
Uveitis	18	0,86	8	0,74	10	1,00
Burning	14	0,67	9	0,83	5	0,50
Vitreous hemorrhage	8	0,38	2	0,18	6	0,60
Retinal detachment	4	0,19	2	0,18	2	0,20
Others	188	9,01	95	100	93	9,27
Total	2086	100	1083	100	1003	100

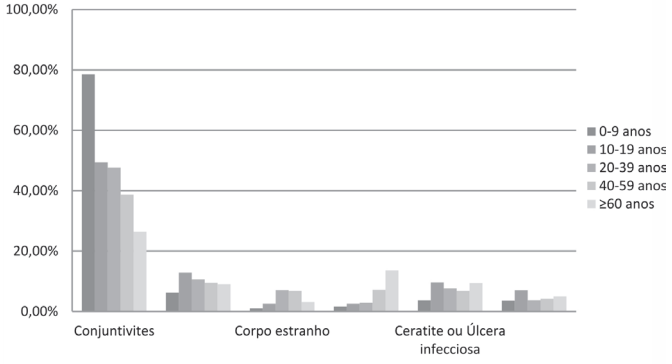

Figure 1: Distribution of conjunctivitis subgroups based on the total amount of conjunctivitis cases in each age group

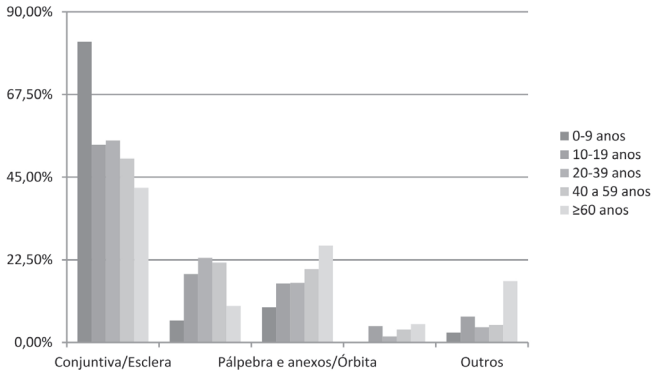

Figure 2: Prevalence of diagnoses divided into greater groups based on age group

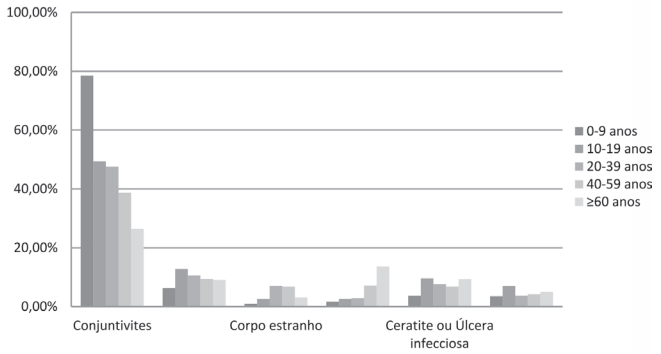

Figure 3: Prevalence of main diagnoses in each age group

(Figure 2) based on prevalence by diagnosis group (Figure 3).

Discussion

Some studies address eye trauma as the main reason for emergency eye care.[9,11] The most common eye emergency in the current study was conjunctivitis and eye trauma recorded low prevalence (12.30%). Such results is explained by the fact that there are tertiary hospitals in Curitiba (Paraná State/Brazil) reference for general-trauma, although the study was carried out in an ophthalmologic hospital.

There was no prevalence by sex in the current study and this finding is in opposition to results found by Sen et al. [4] and Almeida et al. [9], who recorded the prevalence of male patients. According to Hussein et al.[12], men are more susceptible to risk factors such as dangerous professions, car accidents and sports, according to Hussein et al.[12]

More patients sought emergency eye care in the first week of January (1,121 patients) than in the first week of July (865 patients), maybe because January holds the vacation season. Most patients (80%) sought the service during the day shift (from 08:00 am to 07:00 pm), assumingly because it regards the business hours. [13] Moreover, most patients complained of traumas and foreign bodies caused by occupational activities at day shifts. Estimates show that approximately 2.4 million ocular traumas are recorded every year, of which 1 million result from accidents at work. The demand for medical care due to trauma records higher incidence at day shifts, when there is greater economic and work activity, as well as greater circulation of people in the community, which increases the frequency of accidents. Approximately 10% of work-related accidents in Brazil involves eyes.[14]

According to Leonor et al.[15], the age group at mean age 38±21.3, which includes the economically active population, would be more exposed to risk factors.[15]

The prevalence hordeolum/chalazion-related complaints reached 9.59% in the current study, similar to outcomes found by Carvalho et al.[3] and Kara-Junior et al. [8] in a tertiary hospital, in São Paulo.

Conjunctivitis diagnoses were made through anamnesis and clinical examination, without the need for additional tests. General conjunctivitis was more prevalent in winter (49.5% in winter vs 44.3% in summer). The subgroup of infectious conjunctivitis was the most prevalent in both seasons, it accounted for 56.8% of the total number of conjunctivitis cases in the summer and for 56.7% of it in the winter. This rate can be even higher, since there is a subgroup of unspecified conjunctivitis that accounted for 8.6% of the total of conjunctivitis diagnoses. Such findings are similar to those recorded by other authors, such as Edwards et al., [16] who showed that conjunctivitis and blepharitis were the most common diagnoses in summer.

The most frequently found diagnosis in the current study was conjunctivitis, similar to that in studies conducted by Carvalho[3] and Kara-Junior et al.[8] The conjunctivitis group, mainly infectious conjunctivitis, was the most frequent disease among all diagnoses, it recorded the same expression both in summer and in winter, however, viral conjunctivitis was more expressive in winter (35% in winter vs 29.6% in summer). According to Figueredo et al.[2], such a prevalence can be explained by the increase in indoor activities at this time of year, which increases transmissibility. Bacterial conjunctivitis was more prevalent in summer (27.2% in the summer versus 21.7% in the winter), whereas allergic conjunctivitis had the same prevalence (34.7%) in both seasons - it is important having in mind that data were collected for one week in summer and in winter. According to Epstein et al.[6] are among the factors assumingly leading to such an increase in conjunctivitis manifestation in summer .

It was possible noticing some differences among age groups in the current study. Conjunctivitis accounted for 78.5% of diagnoses in the first age group (0-9 years) and for 26.4% of them in the last age group (60 years and older). Sen et al.[4] reported that allergic and infectious conjunctivitis were most commonly diagnoses in individuals aged 15 years or younger. Such results are different from the findings by Soares et al.,[17] who found that individuals in the age group 20-29 years accounted for 34.9% of patients treated for conjunctivitis. Netto et al.,[18] found that 15-29 years was the most prevalent age group in the assessed population, it comprised 35.3% of patients in the assessed hospital. Lower hand hygiene and immunity (low spectrum of antibodies) can explain the higher prevalence of conjunctivitis in childhood. Hyposphagma accounted for 13.6% of diagnoses in the elderly population; it only reached 1.65% in children 9 years old, or younger. The greater vascular fragility in the elderly population associated with the most prevalent diseases in adults and elderlies, such as high blood pressure and diabetes, can explain the higher prevalence of hyposphagma in this population. However, the current study did not investigate systemic diseases associated with these diagnoses.

Hordeolum and chalazion stood out in the second age group (10-19 years), which accounted for 10.6% of diagnoses in this population. There was slightly higher prevalence of hordeolum/chalazion in this age group, this umber was similar to results recorded by Nemet.[19] and Netto.[20] Foreign body reported the same prevalence (6.8%) in age groups 20-40 years and 40-60 years. This finding was expected, since most of these foreign bodies result from accidents at work, which are mostly caused by negligence in using personal protective equipment (PPE).

Emergency eye care must be prepared and have proper protocols in order to reduce the chances of contagion inside the outpatient clinic or at hospital environment. These protocols must include training physicians, auxiliaries and employees, and providing behavioral education to patient with potential contagiousness.

Emergency services that are not specialized in ophthalmology that also provide these services must establish protocols to restrict contagion when they hear complaints about ocular surface given the high prevalence of infectious diseases found in the current research. Further studies encompassing more Brazilian regions are required in order to establish a more accurate statistical

comparison, since Brazil has a wide range of climatic conditions

The outspread of information about ocular pathologies in urgency and emergency services is necessary to develop better management and planning strategies for the prevention, protection and treatment of the susceptible population.

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