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The prevalence of characteristic corneal ulcer patients in sanglah general hospital, in indonesia

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Abstract

Purpose: The purpose of the study was to perceive epidemiology, predisposing and varied risk factors, age, gender, profession, ulcus location, lateralization, visus category, medication. It also determines the relationship between each factor with infection and non-infection in Sanglah General Hospital, Bali.

Methods: This is a cross-sectional study with method was used with 44 patients conferred in the Ophthalmology Department. The purposive sampling technique was also used in this study by considering exclusion and inclusion criteria. Then, the data were analyzed and assessed for medication and surgery for treatment between January 2017 and October 2018 using SPSS 25 version.

Results: The mean age at diagnosis was 49.16±2.58 years, where samples of corneal ulcer infection made up 56.8%, and most of the cases occurred within the age group 30 - 60 years. Meanwhile, the infection mostly occurred in males, at a proportion of 77.3%, and based on the profession, 43.2% of the corneal ulcer were farmers. The most predisposing factor for infectious corneal ulcers was trauma, at 36.4%, as 39 patients had a central ulcus, where 47.7% were infectious, and 36.4% were non-infectious. However, not all the study variables were statistically significant (p > 0.05) with the patient's corneal.

Conclusion: The findings of this study showed that corneal ulcer is common and mostly affects male. Furthermore, the epidemiological trends from developing countries with a predominance of infectious corneal ulcers were additional or less common. Therefore, more analysis with larger and specific sample sizes is required to be developed for resultant analytical research.

Introduction

A corneal ulcer could be a vital explanation for impairment and monocular visual defect within the developing world. According to the World Health Organization (WHO) reports, corneal ulceration poses a major public health problem and, in conjunction with ocular trauma, is estimated to result in 1.5–2 million new cases of corneal blindness annually [1]. The risk factors for corneal ulceration include ocular surface unwellness, systemic immunosuppression, contact lens wear, trauma, chronic use of topical medication, and recent corneal surgery [2]. Consequently, the study aims to identify the epidemiology, predisposing factors, various risk factors, and the infection or non-infection inflicting corneal ulcers in General Sanglah Hospital, Bali, Indonesia, as well as determine the most effective treatment and specific lateralization.

Methods

This cross-sectional study was conducted with variables enclosing the type of ulcer, age at diagnosis, sex, profession, predisposing factors, lateralization, ulcer location, and included purposive patients with infectious and non-infectious corneal ulcers that visited General Sanglah Hospital. They were assessed for treatment with drugs, medication, and surgery

between January 2017 and October 2018. This study used secondary data from the medical database of Sanglah Hospital and was approved by the Institutional Review Board at the Udayana University of Medical Faculty with registration number 1021/UN14.2.2/PD/KEP/2018. Meanwhile, those with a previous history of corneal diseases or incomplete secondary data, alongside patients that were pregnant, breastfeeding, or had severe dry eye and allergy, were conjointly excluded. Furthermore, all patients had a complete ocular examination, including corrected distance visual acuity, manifest refraction, and slit lamp and fundus evaluations performed by two highly experienced ophthalmologists. All data were entered into the SPSS 25 version for windows (IBM SPSS Statistics, SPSS Inc., USA). "Prevalence" was outlined as a characteristic of people in proportion to the population, while "characteristic" was described as a common appearance typical or seen in people with the disease. The description of qualitative variables and the estimation of corneal ulcer prevalence were pictured as absolute percentages and values. However, for the continuous quantitative variable, age, the distribution of values was assessed using the Shapiro-Wilk test, and the frequency of distribution of independent variables in

the patient characteristic was analyzed. The verification of the differences between the p-values of both groups was calculated using Mann-Whitney U tests. Conversely, the statistical significance was defined for a p-value of 0.05 or less, while the calculated association measured the odds ratio with 95% confidence intervals.

Results

The study involved 44 patients with a mean age of 49.16±2.58 among which 77.3% were males. Most samples of corneal ulcer infection made up 56.8% of cases, where 43.2% were farmers. Meanwhile, 79.5% were on drug medication for the treatment, and 20.5% had been on surgery at some point. The prevalence of lateralization was 61.4% and 38.6% for ocular dextra and ocular sinistra, respectively. In addition, 39 patients had a central ulcus, with a prevalence of 88.6%, among which 14 were infectious, at 31.8%, had a category 4 (<1/60) for visus, while 24.9% were non-infectious. Table 01 summarizes the baseline characteristics of the study subjects.

There were no statistically significant relationship regarding the distribution of the following variables, age (p=0.177), gender (p=0.620), profession (p=0.554), predisposing factor (p=0.860), lateralization (p=0.300), ulcus location (p=0.411), visus category (p=0.670), and medication (p=0.504) (see Table 01). Table 02 shows the magnitude of the relationship between the different variables analyzed and the presence of medication. Furthermore, after adjustment of confounding factors, the analysis showed no higher probability of suffering corneal ulcus between gender [OR 1.073 (95%CI 0.179-6.018)], type of corneal ulcer [OR 0.504 (0.128-2.762)], and between lateralization [OR 1.354 (95%CI 0.307-5.964). Also, medication had no statistically significant relationship with the above variable (p> 0.05).

Table 01: Characteristic socio-demographic and clinical features of corneal ulcer

Variable	Infectious	Non-Infectious	Total	P
	N = 25	N = 19	N = 44	
Age groups (years)				0.177
<30	4 (9.1)	4 (9.1)	18 (8.2)	
30-60	16 (36.4)	7 (15.9)	23 (52.3)	
>60	5 (11.4)	8 (18.2)	13 (29.5)	
Gender				0.620
Female	5 (11.4)	5 (11.4)	10 (22.7)	
Male	20 (45.5)	14 (31.8)	34 (77.3)	
Profession				0.554
Farmer	10 (22.7)	9 (20.5)	19 (43.2)	
Entrepreneur	9 (20.5)	4 (9.1)	13 (29.5)	
Jobless	6 (13.6)	6 (13.6)	12 (27.3)	
Predisposing Factor				0.860
Ocular Abnormality	1 (2.3)	1 (2.3)	2 (4.5)	
Systemic Factor	3 (6.8)	4 (9.1)	7 (15.9)	
History of Surgery	2 (4.5)	2 (4.5)	4 (9.1)	
Traumatic Injury	16 (36.4)	9 (20.5)	25 (56.8)	
No apparent predisposing factors	3 (6.8)	3 (6.8)	6 (13.6)	
Lateralization				0.300
Ocular Dextra	17 (38.6)	10 (22.7)	27 (61.4)	
Ocular Sinistra	8 (18.2)	9 (20.5)	17 (38.6)	
Ulcus Location				0.411
Central	21 (47.7)	18 (40.9)	39 (88.6)	
Perifer	2 (4.5)	0 (0)	2 (4.5)	
Paracentral	2 (4.5)	1 (2.3)	3 (6.8)	
Visus Category				0.670
Category 1 (6/60 - 6/18)	3 (6.8)	1 (2.3)	4 (9.1)	
Category 2 (3/60 - 6/60)	4 (9.1)	1 (2.3)	5 (11.4)	
Category 3 (1/60 - 3/60)	2 (4.5)	2 (4.5)	4 (9.1)	
Category 4 (< 1/60)	14 (31.8)	14 (31.8)	28 (63.6)	
No Light Perception	2 (4.5)	1 (2.3)	3 (6.8)	
Medication				0.504
Drugs	19 (43.2)	16 (36.4)	35 (79.5)	
Non-Drugs	6 (13.6)	3 (6.8)	9 (20.5)	

Table 02: The relationship between demographic characteristics and corneal ulcer medication

Variable	Medication		OR	95%	P
	Drugs	Non-Drugs			
Gender					
Female	8 (18.2)	2 (4.5)	1.073	0.179-6.018	0.968
Male	27 (61.4)	7 (15.9)			
Type of Corneal Ulcer					
Infectious	19 (43.2)	6 (13.6)	0.594	0.128-2.762	0.504
Non-Infectious	16 (36.4)	3 (6.8)			
Lateralization					
Ocular Dextra	22 (50.0)	5 (11.4)	1.354	0.307-5.964	0.688
Ocular Sinistra	13 (29.5)	4 (9.1)			

Discussion

The study showed that females had a lower incidence of corneal ulcers, at 22.7% than males. This confirmed several studies conducted in South Sharqiya by Keshav et al. [3] and Gangetic West Bengal by Basak et al [4]. It also corresponded with the Madurai study by Srinivasan et al [5], alongside by Feilmeier et al. [6], where the male to female ratio was 1.6 to 1, and the males once more predominated. The result may be due to extra publicity of the male populace in agriculture and outdoor interests, which exposes them, particularly farmers, to destructive occasions like mild UV. It also includes trauma in agriculturists and entrepreneurs, as well as exposure to sharp gadgets from the construction, and so on, leading to corneal ulceration.

Consequently, this study suggests that during the decision on population, males are more liable to suffer from corneal ulcers, and adults, especially the elderly within the age group of 30-60 years are at high risk. This is similar to the age demographic of different research of a corneal ulcer, as shown in Table 1, and The North-West Rajasthan, which concluded the same [7]. However, persons aged 30-60 years have many predisposing elements like records of surgical procedure and damage, which predisposes this group to corneal ulceration than the opposite age groups. A marked comparison became visible with the study of Laspina et al. [8], which stated corneal ulcers mostly affected persons between 30-59 years. This finding is similar to this study, where persons between 30-60 years accounted for 52.3% of the cases. However, no statistical importance (p > 0.05) was established between the age of the affected person and the corneal ulcer.

Also, traumatic injury is the predisposing factor that best explains corneal ulcers [4,9]. There was no statistically significant (p > 0.05) between corneal ulcer and predisposing factor, although approximately 56.8% of traumatic injury became dominant in this study. The use of contact lenses has become one of the major causes of corneal ulcers in developing countries and in places where they are easily accessible, especially within the juvenile [10-12]. In Indonesia, there is no single case review regarding the use of contact lenses as they are not extensively applied due to the shortage of monetary burden on an affected person as opposed to glasses or spectacles.

Furthermore, about 63.6% of the visual category recorded on presentation had visual acuity of less than 1/60. The poor VC might be due to the ulcer itself or predisposing factors such as, systemic factors, records of surgery, or traumatic injury. Also, 6.8% had no perception of light at presentation, which was different from a statement by Keshav et al. [3] though its importance has not been discovered. However, the visual category was not statistically significant (p > 0.05) in patients with a corneal ulcer.

In this study, ocular dextra was the most common lateralization at approximately 61.4%, with central being the most ulcus location in central, which is similar with Srinivasan et al.[13] and North India by Titiyal et al [14]. Furthermore, no study has referred to drug and non-drug medication and no statistical significance (p > 0.05) was seen among the lateralization, ulcus location, and medication with a corneal ulcers.

Conclusion

The results of this study have shown that corneal ulcer is frequent and mainly affects men. In addition, epidemiological trends were additional and less common in developed countries with a predominance of infectious corner ulcers

Conflict of Interest
Nil

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