

Original Article

Influence of socioeconomic and demographic factors on fungal keratitis: A prospective study in a public Medical college hospital

DOI: dx.doi.com

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Received: 08 Aug 2022

Accepted: 13 Aug 2022

Published: 15 Aug 2022

Published by:

Sher-E-Bangla Medical College,
Barishal

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**ABSTRACT**

Background: Fungal corneal ulcer is one of the most important cause of preventable blindness, particularly in developing countries. It usually affects people from lower socioeconomic strata, agricultural background and from rural areas. So, this study regarding the aetiology and clinical evaluation of fungal corneal ulcer and its management was carried out to find out the demographic distribution and socioeconomic factors that influence fungal corneal ulcer. **Objectives:** To investigate the relationship between socioeconomic and demographic factors in fungal corneal ulcer. **Methods:** This was a cross sectional, observational study which was conducted from January 2022 to May 2022 in the department of ophthalmology, Sher-E-Bangla Medical College Hospital in Barishal. 100 cases were enrolled who met the inclusion criteria, All patients were examined before initiation of treatment, during ongoing treatment and 1 month after baseline

examination. For the purpose of recording a proforma was prepared containing patients name, age, sex, occupation, address, chief complaints, history of present as well as past ocular and systemic illness, family history, treatment history, personal and socioeconomic history. **Results:** The most important predisposing factor for developing fungal corneal ulcer was ocular trauma by vegetative material 66 (66%) followed by unknown cause 23 (23%), finger nail 03 (03%), insect 03 (03%), metallic foreign body 02 (02%), sand 02 (02%), cow's tail 01 (01%). Among 100 patients 64(64%) were agricultural worker, 15(15%) were housewife, 14 (14%) were laborer, 3(3%) were student, 2(2%) were professional and 2(2%) were unemployed. Rural population 83(83%) were found to be more affected than urban 17(17%) areas. Those with low socio-economic status 72(72%) were more affected than the higher socioeconomic status of middle class consisting of 28 (28%) cases. **Conclusions:** The burden of corneal blindness induced by corneal ulcers is more on the illiterate, rural, population and largely affects the young and male patients. Agricultural workers especially labourers and those in poor socio-economic conditions and poor hygiene are more at risk. Prevention with

(The Planet 2022; 6(1): 3-7)

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antibiotics, education and knowledge about the disease may be of help. The possibility of a fungal cause should be considered when known risk factors apply.

Key words: *Influence, socioeconomic, fungal keratitis*

INTRODUCTION

Fungal corneal ulcer is an important cause of preventable blindness, particularly in developing countries.^{1,2} So, this study regarding the aetiology and clinical evaluation of fungal corneal ulcer and its management was carried out to find out the pattern of distribution and the spectrum of organism that caused fungal corneal ulcer, which is one of the commonest manifestation of corneal ulcer that present to the ophthalmologists. This study also included the pathology and natural course taken by ulcer caused by those organisms. Method of quick diagnosis and rational approach of management of the disease is also included in this study, as fungal corneal ulcer is a quickly deteriorating condition.

METHODS

This is a cross sectional, observational study which was conducted from January 2022 to May 2022 in the department of

ophthalmology, Sher-E-Bangla Medical College Hospital in Barishal. 100 cases were enrolled who met the inclusion criteria, which were patients with the history of trauma to the eye with vegetative or organic matter, ulcers with irregular and feathery margins, ulcers with satellite lesions, presence of an endothelial plaque, fibrinoid aqueous reaction and hypopyon formation, dry looking ulcers, both male and female patients between the ages of 15 years to 75 years and patients of all occupation and socio-economic status.

RESULT

Mean age of the patients were 46.55 ± 12.59 (SD). In the age group between 46-60 years 41(41%) cases were found, 28(28%) cases were in 31-45 years age group, 19(19%) cases in 15-30 years age group and 12(12%) cases were in 61-75 years age group, with a range of 15-75 years.

Table 1: Age distribution of study subjects (100)

Age group (Years)	Number	Percentage
15-30	19	19%
31-45	28	28%
46-60	41	41%
61-75	12	12%

Table 2: Sex distribution of study subjects

Sex group	Number	Percentage
Male	68	68%
Female	32	32%
Total	100	100%

Table 3: Distribution of predisposing factors for corneal ulcer among study subjects

Predisposing factors	Number	Percentage
Vegetative trauma	66	66%

Finger nail	03	03%
Insect	03	03%
Metallic foreign body	02	02%
Sand	02	02%
Cow's tail	01	01%
Unknown	23	23%

Figure 1: Bar diagram showing presenting symptom among study subject:

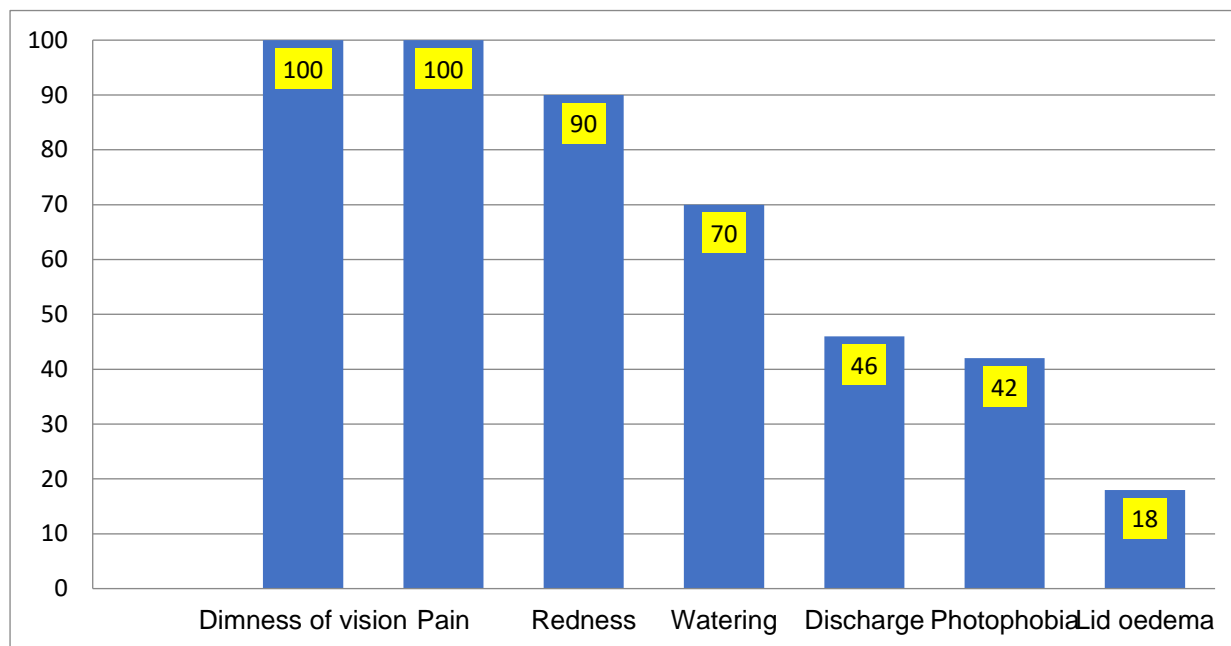


Table –4 Distribution of occupation among study subjects

Occupation	Number of cases	Percentage
agriculture	64	64%
laborer	14	14%
housewife	15	15%
student	03	03%
professional	02%	02%
unemployed	02	02%
total	100	100%

Table -5 Distribution of residence of study subjects

Residence	Number of patients	Percentage
Rural	83	83%
Urban	17	17%
Total	100	100%

Table -6: Distribution of Socio-economic status of study subjects

Socio-economic status	number	Percentage
Lower class	72	72%

Middle class	28	28%
Total	100	100%

Table 7: Complication among the study subjects

Complications	Total Number	Percentage
Perforation	05	05%
Synechiae	60	60%
Glaucoma	20	20%
Endophthalmitis	03	03%
Corneal opacity	100	100%
Descemetocele	08	08%
Complicated cataract	07	07%
Anterior staphyloma	02	02%
Phthisis bulbi	02	02%
Panophthalmitis	03	03%

DISCUSSION

The world health organisation currently estimates, there are 161 million persons world wide with visual impairment, which includes 37 million blind i.e. visual acuity $<3/60$ in the better eye. Fungal corneal ulcer is an important cause of preventable blindness, particularly in developing countries. So, this study regarding the aetiology and clinical evaluation of fungal corneal ulcer and its management was carried out. Method of quick diagnosis and rational approach of management of the disease is also included in this study as fungal corneal ulcer is a quickly deteriorating condition.

Table-I and Fig.1 regarding the age distribution shows that the mean age of the patients was 46.55 ± 12.59 (SD) years, patients of all age groups were affected but the highest number (41%) of fungal corneal ulcer occurred in the age group of 46-60 years, 28% in the age group 31-45 years, 19% were in the age group of 15-30 years and 12% in the 61-75 years age group. People in this age group are adult and also they are the earning members of their family. They live an active outdoor life, hence their eyes have increased risk of exposure to ocular trauma and infection, as

the ocular trauma is the most common predisposing factor for developing fungal corneal ulcer. Bharathi et al shows 66.85% patients were between the ages of 21 to 50 years, 18.45% patients were more than 50 years old, 14.7% patients were less than 21 years old.³ Usha Arora et al shows 56.67% patients were in the age group of 20-49 years.⁴ Similar findings are in agreement with reports by other authors.^{5,6,7}

Table 2 shows number of males (68%) suffering from fungal corneal ulcer were more than the females (32%). This may be attributed to the fact that males lead an active life outside the house and are more vulnerable to ocular trauma female patients tend to be ignored by the family members or report late for consultation and this finding also correlates with finding observed by other authors.^[5,6,7] Bharathi et al shows that 65.02% patients were male and 34.98% patients female.³ Usha Arora et al shows the incidence of 76.66% of fungal corneal ulcers in males and 23.34% in females.⁴

Table 3 shows, the most important predisposing factor for developing fungal corneal ulcer was ocular trauma by vegetative material 66 (66%), followed by unknown cause 23 (23%), finger nail 03

(03%),insect 03 (03%),metallic foreign body 02 (02%),sand 02 (02%),cow's tail 01 (01%).This finding correlates with the finding observed by others.^{5,8,9} Bharathi et al shows that injury by vegetative matter was present in 61.28% cases.³

Figure-1 shows all patients gave the history of more or less identical complaints of defective vision, pain, redness, photophobia, discharge and watering. Defective vision (100%) and pain (100%) was the most common symptoms. Redness was present in almost all patient (90%).Watering was complained by 70% cases that was due to reflex secretion of tear following corneal irritation of nerve endings and also irritation of iris by toxins. Table-4 shows the distribution of occupation of the study subjects. Among 100 patients 64(64%) were agricultural worker,15(15%) were housewife, 14 (14%) were laborer,3(3%) were student,2(2%) were professional and 2(2%) were unemployed.¹⁰

Table-5 shows the distribution of residence of the study subjects. Among 100 cases 83(83%) were from rural areas and rest 17(17%) from urban areas.

Table-6 shows the distribution of socio-economic status of the study subjects. Among 100 cases 72(72%) were from lower class and 28 (28%) from middle class. In addition, it was found that farmers, rural residents and illiterates were at a higher risk of poorer outcomes.¹¹

Table 7 shows that the commonest complication was corneal opacity which was present in all cases (100%). Secondary glaucoma occurred in 20(20%) cases. Glaucoma was due to hypopyon, which blocked the outflow channel and also the posterior synechiae and iris bombe which caused peripheral anterior synechiae accelerated glaucoma formation. Another common complication was posterior synechia which occurred in 60(60%) cases. Descemetocele formed in 8 (8%) cases in this study. This patients were managed

either by conjunctival hood or tarsorrhaphy. Despite all measures perforation occurred in 5(5%) cases leading to panophthalmitis (3 cases), phthisis bulbi occurred in 2 cases, anterior staphyloma occurred in 2 cases and complicated cataract developed in 7(7%) cases.

CONCLUSION

The burden of corneal blindness induced by corneal ulcers lies on the illiterate ,rural, population and largely affects the young and male patients. Agricultural workers especially labourers and those in poor socio-economic conditions and poor hygiene are more at risk. Prevention with antibiotics and education about the disease may be of help. The possibility of a fungal cause should be considered when known risk factors apply.

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