

ORIGINAL ARTICLE

FREQUENCY OF XEROPHTHALMIA AMONG CHILDREN
IN DERA GHAZI KHAN

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Background: Dry eye is one of the leading eye diseases all over the world. Small number of cases reported represents tip of the iceberg. Different systemic diseases affect eyes. They are having bilateral presentations. The study objective was to see the frequency of dry eye disease in children of Dera Ghazi Khan. **Methods:** The study was carried out in the Department of Physiology in collaboration with 'Aid to Leprosy Patients' (ALP) Dera Ghazi Khan. The study design was cross-sectional, case detection study, and simple convenient sampling was used. Data analysis was carried out by using SPSS-18. Frequency of xerophthalmia was calculated. **Results:** The point prevalence of dry eye disease was 0.63% (n=35) among male children. Female children had 0.3% (n=13) point prevalence of the disease. Most of the cases were reported during the months of April and December. **Conclusion:** Xerophthalmia, though not very common, is comparatively more prevalent among male than female children of Dera Ghazi Khan.

Keywords: Dry eye disease, Xerophthalmia, Dera Ghazi Khan, Frequency

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INTRODUCTION

Dry eye is a multi-factorial disease, when a child presents with red irritated eye, and tend to have healthy tear film. The incidence of dry eye disease among children is reported 1-2% annually.¹ Ocular discomfort and visual problems may lead to learning difficulty among school children. Dry eye problem is exacerbated by reading and use of computer. Untreated disease can increase risk of corneal defects, ocular infection, ulceration and permanent damage leading to blindness. Small number of reported cases of dry eye among children represents tip of an iceberg.²

Now-a-days, xerophthalmia is one of the leading eye disease all over the world encountered on first examination. Either decreased tear production or increased tear evaporation are due to systemic diseases like type 2 diabetes and juvenile arthritis, misuse of contact lens, continuous use of eye drops, photorefractive operations, and atmospheric disruption by pollution.³ Systemic diseases in childhood like juvenile arthritis, type 1 diabetes, primary and secondary Sjögren syndrome, hypothyroidisms, connective tissue disorders are major contributor to xerophthalmia among children.⁴

Meibomian gland has a very important role in dry eye disease. Any disturbance in gland function leads to tear film instability causing inflammation and evaporation.⁵ Ocular rosacea directly affect the meibomian gland function. Ocular rosacea is major confounding disease in children because skin signs are more prominent in children and usually these signs are largely absent in pre-pubertal children.⁶ Only 33% of cases among children present with skin signs.⁶

Children with Down Syndrome have common eye infections, watering of eyes and blockage of tear

drainage. Usually they suffer from mild type of dry eye syndrome, which can be treated by simple measures.⁷ Active smoking is well known risk factor for dry eye among adults. Among children passive smoking is a significant risk factor too.⁸ Mostly systemic diseases of eye are bilateral but may jeopardize. During childhood, earlier presentation of dry eye syndrome may be a potential sign of a systemic disease which may lead to delayed diagnosis and treatment of the patient.⁹ Dry eye disease may affect visual acuity as refractive properties and corneal transparency are regulated by tear film.¹⁰

Dry eye disease can be diagnosed by direct questioning, e.g., lack of tear when crying; during ocular irritation simple diagnostic tests, vital dyes and Schirmer test. Any delay in diagnosis lead to visual loss due to corneal or epithelial defect and infectious ulcer.¹¹ Prompt diagnosis is needed to take actions, which will lead to normal visual development.

This study aimed to see the frequency of xerophthalmia among children in District Dera Ghazi Khan.

SUBJECTS AND METHODS

This was a cross-sectional, case detection study. The data were collected from District Dera Ghazi Khan during Jan-Dec 2014. Simple convenient sampling technique was used. Informed consent was obtained from subjects and/or their parents. Children aged 1 month to 16 years were included in the study.

Detailed history of the disease was recorded. Ocular history was taken, including sandy sensation, irritation, discomfort, eye itching, and discharge. Medical examination was done to assess nyctalopia, and dry eye as sign of vitamin A deficiency¹². Past history of recurrent conjunctivitis, respiratory allergy or infections was also taken. Patients having other condition affecting

the eye, e.g., injury, conjunctivitis, or trachoma were excluded. Hospitalised and/or severely ill patients were also excluded.

RESULTS

The total study participants were 9,716, males were 5,555, and females were 4,161. Out of 9,716 subjects 48 were suffering from xerophthalmia. The frequency of xerophthalmia was 0.49% among children of District Dera Ghazi Khan.

Among male subjects, 35 had xerophthalmia, and frequency of disease was 0.63%. Among female children only 13 (0.31%) had xerophthalmia. Male children had higher prevalence of dry eyes compared to female children (Table-1).

During Dec–Feb, 16 cases of dry eye disease were reported; during Mar–May maximum (20) cases were reported; and during months of Jun–Nov only 12 cases of dry eye were reported. Maximum number of cases of dry eye were detected during month of April (n=14) and December (n=9). Results show highest number of cases during spring season, while very low number of cases during summer season. Frequency of xerophthalmia was highest during spring season than any other seasons (Table-2).

Table-1: Gender distribution of xerophthalmia

Sex	Total Participants	Xerophthalmia	%
M	5555	35	0.63
F	4161	13	0.31
Total	9716	48	0.49

Table-2: Seasonal frequency of xerophthalmia among children in DG Khan

Month of the Year:	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Children Examined	M	1037	489	17	664	753	26	7	21	476	789	641	635
	F	326	852	15	653	178	18	12	19	333	536	784	435
Xerophthelma	M	2	3	0	12	4	-	-	-	4	2	1	7
	F	1	1	1	2	1	-	-	-	-	2	3	2

DISCUSSION

Medical care providers should focus on dry eye disease as its prevalence is rising day by day. Early detection leads to timely management and prevent complications. Environmental pollution and excessive use of computers are leading causes of rising prevalence of disease. Now-a-days computers are man's 'best friend' but most probably users have less blinking which in turn leads to rapid tear evaporation.¹³

Doctors, by prescribing drugs, which affect on tear film consistency, contributing to high disease prevalence. Continuous use of eye drops, misuse of contact lenses, laser refractive and cataract surgery also leads to dry eye disease.¹⁴ The prevalence of dry eye among general population is 5%, while only 0.4–0.5% cases are treated with therapeutic agents.¹⁵ In our study the frequency of dry eye though was less than reported from other parts of the world, but was relatively higher among male than female children. Our findings are in agreement with Alves *et al*¹⁶.

Some workers have reported that active smoking is a major risk factor for eye dryness among adults, and passive smoking is a risk factor among young children, with male preponderance.^{17–18}

CONCLUSION

Xerophthalmia, though not very common, is comparatively more prevalent among male than female children of Dera Ghazi Khan.

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