

Active trachoma among children of District Dera Ghazi Khan, Punjab, Pakistan: A cross sectional study

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Abstract

Objectives: This study was conducted to determine the prevalence of trachoma among children of age one month to 15 years.

Methods: Community based cross sectional study was conducted in district Dera Ghazi Khan from January to December 2014. The simple random sampling technique was employed. The total study participants were nine thousand seven hundred and sixteen (n=9716). The age of participants was one month to 15 years and all were residents of district, Dera Ghazi Khan. Data were collected by face to face interview and examination of subjects. Data were analyzed by using SPSS version 20.0.

Results: From a total 9716 children screened for trachoma, 57.2% were males and 42.8% were females. A total 181 cases of trachoma were detected, out of which 95 were male and 91 female children. The overall prevalence of active trachoma was 1.91%. Female children showed high prevalence of active trachoma (2.18%). Two peak prevalence of disease were noted during winter season.

Conclusion: Active trachoma is a public health problem among children. High prevalence is reported among female subjects. Community awareness programmes are needed for health education especially about facial hygiene.

Keywords: Active trachoma, Prevalence, Punjab, Blindness. (JPMA 68: 1300; 2018)

Introduction

Trachoma is caused by Chlamydia Trachomatis and is a communicable disease. The mode of spread of trachoma is by fingers, files and fomites. The discharge of infected person and dry dusty, dirty environment are major risk factors. Trachoma mainly affects children and mothers.¹ Trachoma still remains the principle cause of preventable blindness globally. It is considered a disease of socio-economically deprived children.² After improved hygiene and sanitation, the disease has been eliminated from all developed countries of the world.³

WHO reported that trachoma causes blindness among 1.3 million people per year. Trachoma is still endemic among more than fifty countries of the world.⁴ Mostly children have active infection, with high incidence at age of 4-6 years and subsequently leading to scarring and blindness in adults.⁵ In the Continent Africa, 33 countries out of 56 are endemic with 68.5% cases of active trachoma. The highest prevalence of active trachoma is reported from Sahel area of West Africa and Savannah area of central Africa.⁶ Among children of 1-9 years, the highest prevalence (83%) was reported in South Sudan.⁷

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Ethiopia is one of high prevalence country of Continent Africa, which is contributing 49% of global burden of active trachoma and 40.14% among children of 1-9 years of age.⁸ Vision 2020 initiative is under progress since 2002, which is a 20 year strategic plan to eliminate trachoma.⁹ In endemic trachoma regions, active (inflammatory) trachoma has 60-90% prevalence among preschool children. With increasing age, frequency and duration of infection becomes less frequent Trachoma trichiasis symptoms are constant eye pain, light intolerance, corneal scarring, irreversible opacities and blindness. Women are 2-3 times affected by blindness than men due to trachoma. The risk factors influencing spread of disease are, poor hygiene, crowded households, inadequate sanitation facilities and water shortage.¹⁰

Trachoma is also prevalent in developing countries like Pakistan. About 0.81 million people have active trachoma.¹¹ The high prevalence of trachoma was reported in Upper Sindh (96.6%) and high prevalence among female children (48.97%) and active trichiasis was 6.7% among adults female.¹² WHO has recommended, The SAFE strategy, where S surgery for trichiasis, A antibiotic to reduce the reservoir of trachoma infection, F-facial cleanliness to limit transmission and E-environmental improvements to prevent recurrence of infection. While key component of this strategy is mass drug administration (MDA) with azithromycin.¹³

The aim of this study was to determine the prevalence of trachoma among children of age one month to 15 years, hygienic status of the community and to provide health education to the study participants. The current population size of Dera Ghazi Khan District is 1,643,118 and 70% of them are living in rural areas. The district Dera Ghazi Khan is divided into four administrative units, KotChotta, Tounsa, Dera Ghazi Khan, and Tribal area.

Materials and Methods

A cross-sectional community base study was conducted in district Dera Ghazi Khan of Punjab, Pakistan from January 2014 to December 2014. Dera Ghazi Khan is an under developed district adjacent to Balochistan and Khyber Pakhtoonkhwa. The simple random sampling technique was used. The study population was children of age 1 month to 15 years living in district Dera Ghazi Khan. Children who were seriously ill and having eye injury and age less than 1 month were excluded.

Ethical clearance was obtained from Institutional Review Committee of Ghazi Khan Medical College, Dera Ghazi Khan. The informed verbal consent was taken from subjects and their parents and confidentiality of information given by subjects was maintained. Tetracycline ointment was given to subjects suffering from active trachoma. Subject suffering from trichiasis were referred to a tertiary care hospital for further investigation and treatment.

Data was collected by face to face interview and examination of subjects. A total of four health professionals were deputed for data collection. Two were assigned data collection form family head by interviewing, subjects were examined by two health professionals specially trained for eye care. The group of four was deputed, two persons interviewed parents and two persons examined the children for detection of active trachoma. One person examined one child and the other examined the other child. The purpose of a four member team was better time management. Every day data collection was checked for completeness by Principal Investigator and necessary feedback was offered to data collection team. A Data collections tools was a questionnaire regarding family bio data, income and hygienic practices of subjects. The 2nd

data collection tools was clinical examination peroforma designed by the research team. The General Physical examination was conducted first and followed by Eye examination for detection of trachoma. There was 50 population units in urban and by lottery method 10 population units were selected for screening. There was 150 population units in rural and by lottery method 15 were selected for screening. Every selected unit was informed by announcement on loud speaker of the mosque a day before surveillance.

The sample size was calculated by STATCALC program of EPI INFO version 1.1. The sample size of the study was 9716. The prevalence of active trachoma was a dependent variable. The independent variables are age, sex, educational status of parents, frequency of washing face, using soap for washing, facial cleanliness and environment factors like water source, latrine, waste disposal sites etc. The data was analyzed by using SPSS version 20.0. The prevalence was determined by arithmetic percentage. The subjects having symptoms and signs i.e. itching of eye, eyelid swelling, eye pain, eye discharge, trichiasis, and photophobia was labelled as case of active trachoma.

Results

The total children participated in this study were nine thousand seven hundred and sixteen (N=9716). Male children were five thousand, five hundred and fifty five (n=5555), while four thousand one hundred and sixty one female children participated in this study (n=4161). Ninety five male children suffering from trachoma were found (n=95) and ninety one female (n=91) were found suffering from active trachoma (Table-1).

Maximum trachoma cases were reported in month of January (n=24), February (n=24) which showed winter season has relation with trachoma prevalence. During the whole year the high prevalence of trachoma was also reported in month of October and (n=28) November, (n=28), when during rainy season.

The population of district Dera Ghazi Khan was 1.643 million in 2014. Among 9716 total children studied, active trachoma was identified in 186(1.91%), among 5555 male

Table-1: Frequency of trachoma among children.

Period		Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
No. of Children	M	1037	489	17	664	753	26	7	21	476	789	641	635	5555
	F	326	852	15	653	178	18	12	19	333	536	784	435	4161
Trachoma	M	14	8	1	8	11	5	4	1	10	14	11	8	95
	F	9	16	4	12	3	3	1	1	5	14	17	6	91

Table-2: Age wise disease distribution of active trachoma cases.

Age group	Male (n=95)	Female (n=91)
	1.71%	2.2%
1 month - 1 year	n=75	n=82
1 year - 5 year	n=15	n=7
5 year- 15 year	n=05	n=02

Table-3: Hygienic status of subjects.

Area	Grade of Hygiene		
	Very Good	Good	Poor
Rural	10%	40%	50%
Urban	70%	20%	10%

children studied active trachoma was detected in 95(1.71%). Among 4161 female children studied, active trachoma was identified in 91(2.2%).

The trachoma prevalence was high among infants (1-5 year) and more prevalent among female children 82 vs 75. High prevalence was shown among male children of age group 1-5 year and 5-15 years and mostly children of those groups belong to rural areas, poor socioeconomic status and poor hygienic condition (Table-2).

The hygienic status of urban children was very good in 70% and good among 20% cases. While hygienic status of rural children was very poor among 50% cases which was due to poor hygienic habits. Very good grade of hygiene was allocated to children with face washing > 3 times a day, Good for face washing for 1-2 time / day. Poor hygienic status was given to children having no regular face washing even once daily (Table-3).

Discussion

Trachoma is a neglected public health issue, which continues to blind the people. It is an exclusive disease of poor people, living in developing countries. Most children are infected and peak prevalence of trachoma is reported at age of 2-7 years.¹⁴ The findings of this study showed overall prevalence of 1.91% (range, 1.71-2.18%). It was considered a public health problem in district Dera Ghazi Khan. The project of prevention of blindness is working in district Dera Ghazi Khan for last ten years.

Qureshi et al, (2010) reported high prevalence (96.6%) of trachoma in Upper Sindh. Mainly female children (33.2%) under age of 10 years were suffering from trachoma, while male children had less prevalence (15.75%) than female children.¹² Our study findings are in accordance with Qureshi et al., regarding female

preponderance of trachoma and lower prevalence of the active trachoma in our study area (33.2% vs 2.19%) was probably due to better social awareness of cleanliness in Punjab.

Durrani et al (2015) conducted door to door trachoma survey in North Waziristan Agency, Tehsil, Mir Ali a most neglected area of Khyber Pakhtoonkhwa (K.P.K), reported high prevalence (25%) of trachoma among children of age 0-9 years.¹⁵ While our study show low prevalence of trachoma than Durrani et al., and high prevalence of trachoma among females (32.4%) as compared to males (22.8%). Our study findings are in accordance with Durrani et al, (2015) regarding gender wise burden of disease. High prevalence of trachoma in their study was due to lack of social awareness of cleanliness and adequate supply of water for washing.

Khanaduja et al, (2009) reported a low prevalence of (4%) after rapid assessment of trachoma among children living in rural northern India. The rural northern area of India was previously hyperendemic for active Trachoma. While our study findings of low prevalence (1.91%) of active trachoma are in accordance with Khanduja et al.¹⁶

King et al, (2013) reported prevalence of active Trachoma from four African countries, 19.1% in Ethiopia, 6.2% in Niger, 4.6% in Mali and 4.2% in Nigeria among children — aged 1-15 years. King et al, conducted community base trachoma survey for four year period (2008-2011). While our study is also community base, cross sectional study for one year period. Our findings regarding trachoma prevalence among children of 1-15 years are in accordance with King et al (2013).¹⁷

Alemayehu et al, (2015) reported high prevalence of active Trachoma (15.6%) among rural and urban children of Dera Woreda, North West Ethiopia. Trachoma had high prevalence among rural children (18.61%) than urban children (9.31%) having age 1-9 years of Dera Wordeda.¹⁸ Alemayehu et al, (2015) conducted a Community based cross sectional study for three months period from March to April. While our study duration was twelve month and high prevalence was reported during winter season. This study showed that trachoma prevalence has seasonal variation.

Ketema et al (2012) reported high prevalence (24.1%) of active Trachoma among children of age 1-9 years in Baso Liben district of East Gojjam Ethiopia. Ketema et als study was community based, cross sectional study and of three months duration form February to April.¹⁹ While our study duration was twelve months from January to December. Our study area had low prevalence of trachoma as

compared to Ketema et al. The sample size of our study was larger than that of Ketema et al (9719 vs 792). So Improvement in facial hygiene, health education, mass antibiotic distribution and awareness regarding trachoma transmission and prevention need to be strengthened among the public.

The affected individuals and communities put adverse effects on economy of poor and developing countries. The economic cost of trachoma in terms of loss of productivity is estimated between 2.9-5.3 Billions US \$ annually. SAFE strategy recommended by WHO should be implemented in endemic countries of the world.¹⁰ Parent dependent age, poor socioeconomic status, adequate water supply, washing habits, and illiteracy among parents are major contributing factors for active trachoma.

Conclusion

Trachoma prevalence was 1.91% among children of age one month to 15 years in district Dera Ghazi Khan, Punjab, Pakistan.

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Conflict of Interest: None.

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