MAGNITUDE OF TRACHOMA IN MEDICAL CAMPS AT DARFUR, SUDAN

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ABSTRACT

Objective: To determine the prevalence of trachoma and its potential risk factors in medical camps established by Pak Field Hospital in Darfur, Sudan.

Study Design: Cross sectional descriptive study.

Place and Duration of Study: Pak Fd Hospital (Level III) free medical camps in Nyala city, Darfur, Sudan from August 2009 to December 2009.

Patients and Methods: Out of 4326 patients reporting in medical camps, those with ocular symptoms/signs were evaluated for specific clinical signs of trachoma in accordance with WHO Trachoma Grading System. A comprehensive trachoma assessment proforma including patient demographic data, grading of trachoma signs and questionnaire about potential trachoma risk factors was completed for each eligible patient.

Results: Median age of the study population was 22 years (interquartile range 10-44 yrs). There were 43% males and 57% females with median household size 7 (interquartile range 5-8) persons. Overall prevalence of trachoma was 8.73% (378/4326) with 268 (70.9%) patients having active trachoma and 110 (29.1%) having cicatricial trachoma. The prevelance of active trachoma was much higher in younger population while cicatricial trachoma was more common in older age group.

Conclusion: Prevalence of potentially blinding trachoma in developing countries poses an arduous challenge for the healthcare authorities. Implementation of WHO recommended 'SAFE' strategy over the last decade has been successful in reducing the burden of trachoma in these countries.

Keywords: Blindness, *Chlamydia trachomatis*, Trachoma.

INTRODUCTION

Trachoma is one of the leading causes of infectious blindness in the world with approximately 40.6 million cases of active trachoma in 57 endemic countries with high prevalence in Africa, South-East Asia, some parts of Latin America, Middle East and Western Pacific[1,2]. It is a disease of poverty caused by an obligate intracellular bacterium, *Chlamydia trachomatis* which can result in blindness after recurrent episodes of keratoconjunctivitis. Trachoma is subdivided into active (early) stage and cicatricial (late) stage with active trachoma commonly affecting the children while scarring sequelae usually developing in older age group. The higher prevalence of cicatricial disease in older population reflects the cumulative nature of the damage[3,4]. The clinical features of trachoma are classified using the simplified World Health Organization (WHO) Trachoma Grading System (Table 1)[5]. Overcrowding, poor personal and community hygiene, scarcity of clean water and covered latrines, frequent community migrations and limited healthcare facilities are the potential risk factors for the trachoma[1,2,4,6].

WHO established the Alliance for Global Elimination of Trachoma (GET 2020) in 1998 with prime focus on implementation of the 'SAFE' strategy for the management of trachoma: Surgery for trichiasis, Antibiotics for active disease, Facial hygiene, Environmental improvement to reduce the transmission of the disease[4,7]. WHO recommended antibiotic treatment regimen for the active trachoma include 1% tetracycline eye ointment (twice daily for 6 weeks) or a single dose of oral azithromycin (1 gm in adults or 20 mg/kg in children)[8].

The objective of this study was to find out the prevalence of trachoma and potential risk factors in the local population of Darfur, Sudan reporting sick in medical camps.

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PATIENTS AND METHODS

A cross sectional descriptive study was conducted during free medical camps established by Pak Field Hospital 1 (Level III) in Nyala city, South Darfur, Sudan from Aug 2009 to Dec 2009. Three medical officers were detailed to identify the patients with ocular symptoms and refer them to the eye specialist for detailed examination. Patients with definite clinical signs of trachoma in accordance with WHO trachoma Grading System were eligible for inclusion in the study. All those patients were examined on slit lamp/binocular loupe by the consultant ophthalmologist and the clinical signs of trachoma were graded and endorsed on a pre-devised proforma for each patient. Clinical signs of trachoma were graded for each eye separately, but similar findings in both eyes were accounted once only. Trachoma assessment proforma was completed for each patient by inquiring and observing the demographic characteristics and potential risk factors for trachoma such as number of family members, type of house, availability of clean water and proper latrine and facial hygiene. Verbal informed consent to participate in the study was obtained from each patient/family head through local interpreters available for our assistance. All the patients with signs of active trachoma were given single dose of oral Azithromycin (20 mg/kg up to a maximum of 1 gm) along with symptomatic treatment of ocular symptoms/signs. Importance of personal and community hygiene in controlling this disease was advocated to the affected families.

Statistical analysis of the data was done using SPSS version 17.0. Descriptive statistics i.e. mean ± standard deviation for numerical values and frequencies along with percentages for categorical variables were used to describe the data.

RESULTS

Out of 4326 patients examined during the medical camps, 378 (8.73%) were diagnosed to have clinical signs of trachoma which were evaluated further. Median age of the study population was 22 years (Interquartile range IQR: 10-44 years), with 45.5% of patients being less than 20 years of age. Male to female ratio was 1:1.34. Median family size of study population was 7 (IQR: 5-8) persons per household.

Personal and community characteristics of study population are depicted in table 2. Majority patients belonged to a low socioeconomic group with lack of basic facilities such as proper house, availability of clean water and covered latrines. Poor personal hygiene reflected by unclean face was observed in 82.8% of population.

Out of 378 diagnosed cases of trachoma 268 (70.9%) had signs of active trachoma. TF and TI were observed in 81.34% and 50.37% of these patients respectively. The prevalence of active trachoma was much higher in population less than 20 years of age (Table 3). Cicatricial trachoma signs were present in 110 (29.10%) patients. TT and CO was observed in 19.1% and 14.5% of these patients respectively. Cicatricial signs were much more common in older age group (Table 4).

DISCUSSION

Trachoma is a major public health problem with about 10% of world population living in endemic areas causing a worldwide loss of productivity of approximately 5.3 billion US dollars per year[7,9]. Twenty one percent of the world cases of blinding trachoma occur in the Organization of the Islamic Conference (OIC) countries with highest prevalence in Sudan (about 4 million cases)[10]. Sudan, Ethiopia, India, Nigeria and Guinea shares the 48.5% of the global burden of active trachoma with prevalence of active trachoma in children often being more than 50% and that of trichiasis up to 5% in adult population of Sudan and Ethiopia[1,4].

The overall prevalence of active trachoma in this study was 8.73% with prevalence of TF and TI being 81.34% and 50.37% respectively. High prevalence of active trachoma between 63.3-88.3% in younger population from various regions of Sudan has been reported[11,13]. Studies

from Pakistan, Tanzania, Egypt, and Ethiopia have reported prevalence of 2.4%, 20.4%, 36.5% and 40.11% of active trachoma been reported in surveys from various parts of Sudan[11,13]. Studies from Pakistan, Egypt, Ethiopia, and Kenya and have quoted an

Table 1: The simplified WHO system for the assessment of trachoma

Grade	Description
Trachomatous inflammation — Follicular(TF)	The presence of five or more follicles (>0.5 mm) in the upper central tarsal conjunctiva
Trachomatous inflammation — Intense (TI)	Pronounced inflammatory thickening of the upper tarsal conjunctiva that obscures more than 50% of the deep normal vessels
Trachomatous scarring (TS)	Upper tarsal conjunctival linear, band shaped or star shaped scarring
Trachomatous trichiasis (TT)	At least one misdirected lash rubs on the eyeball
Corneal opacity (CO)	Easily visible corneal opacity over the pupil

Table 2: Personal and Community Characteristics (n = 378)

	Number of Patients	Percent (95% CI)
• Bricked house present	44	11.64% (8.41-14.87)
• Proper latrine available	29	7.7% (4.99-10.35)
• Clean water	115	30.4% (25.78-35.06)
• Clean face	65	17.2% (13.4-21)

Table 3: Prevalence of Active Trachoma

Clinical sign	TF	(n=218)	TI	(n=135)
	n (%)*	95 % C.I	n (%) *	95 % C.I
Age < 20 yrs (n = 154)	133 (61%)	54.53 – 67.47	99 (73.3%)	65.87 – 80.79
Age > 20 yrs (n = 114)	85 (39%)	32.53 – 45.47	36 (26.7%)	19.2 – 34.12

* multiple clinical signs occurred simultaneously in few patients
TF = Trachomatous inflammation —Follicular
TI = Trachomatous inflammation —Intense

Table 4: Prevalence of Cicatricial Trachoma

Clinical sign	TS	(n=91)	TT	(n=21)	CO	(n=16)
	n	(%) *	n	(%) *	n	(%) *
Age < 20 yrs (n = 18)	16	(17.58%)	6	(28.57%)	2	(12.5%)
Age > 20 yrs (n = 92)	75	(82.42%)	15	(71.43%)	14	(87.5%)

* multiple clinical signs occurred simultaneously in few patients, TS = Trachomatous scarring
TT = Trachomatous trichiasis CO = Corneal opacity

respectively[7,14,16]. Junejo et al found an overall trachoma prevalence of 12.81% in Thar desert of Sindh with 82.71% patients of active trachoma[17].

Blinding sequelae usually develop due to Cicatricial stage of trachoma which is much more common in older age group. Prevalence of TT and CO in this study was 19.1% and 14.5% respectively. Prevalence of TT between 9.6% - 8.4% and CO between 7.3% - 6.4% has overall prevalence of 3.4%, 6.5%, 3.1%, and 4.92%, and respectively of TT, mostly in older age group[2,15,16,18].

Poor socioeconomic conditions, lack of clean water and covered latrines and inadequate facial and hand hygiene are directly linked with the morbidity related to trachoma. In this study clean water and proper pit latrines were not available for 69.57% and 92.32% of trachoma patients respectively. Lack of these

facilities directly correlating with prevalence and severity of active trachoma has been highlighted by Nogandi et al. and King et al. in their surveys[12,13]. Similarly unclean face was observed in 82.8% of our patients, whereas, 52.3% and 88.6% of children having unclean faces had been reported in other studies from Sudan[12,13].

WHO alliance for the global elimination of trachoma (GET 2020) has identified Sudan as one of the priority countries for the implementation of SAFE strategy[11]. Current estimates of approximately 40 million active trachoma cases worldwide are much lower than the estimates of 146 million cases in 1995 and 84 million cases in 2003 reflecting a step in the right direction to get rid of this potentially blinding but curable disease[4,19].

One of the limitations of this study was that sampling methodology as true representative sample of the study community was not accessible. Moreover, follow up of the patients to monitor the response of treatment was not possible. However, efforts were made to identify the magnitude of problem in the medical camps and guide the affected population regarding treatment and prevention of this potentially blinding but curable disease.

CONCLUSION

Developing countries like Sudan fall in the endemic zone of trachoma with poor socioeconomic conditions, lack of basic life amenities and limited healthcare facilities being the potential risk factors. There is a need to conduct national survey to establish the burden of the disease throughout the country. Moreover, awareness about the disease and the SAFE integrated approach recommended by WHO need to be promoted globally to eradicate the potentially blinding trachoma.

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