

Study of ocular morbidity among migratory workers of sugar factory

Bangal S V*, Chitgopekar R P**, Khindria A**, Pawar H J***

Abstract

A cross-sectional study was conducted to determine the prevalence of ocular diseases among the migratory workers and their family members in a sugar factory located in a the rural area of Ahmednagar district. The study was undertaken to determine the relationship of socio-demographic factors like age, sex, literacy and socio-economic status to the prevalence of ocular diseases in this defined population. A total of 300 workers including their family members were screened by clinical examination at their workplace. Ocular morbidity was more prevalent among males (63%) than females (37%) and more in the age group of 5 to 20 years. There was a high prevalence of refractive errors (23%), cataract (11%), corneal opacities (10%), pterygium (9%), chronic dacryocystitis (4%), glaucoma (3%) and allergic conjunctivitis (12%). Posterior segment disorders were found in 8.33% of total population of the study. The study concludes that there is a need to evolve a strategy for reducing the burden of ocular diseases and improve eye health under the existing infrastructure of health care delivery for this migratory population.

Keywords : Ocular morbidity, Migratory workers.

Introduction

Occupational diseases and accidents among migrants, today represent a large proportion of all reported occupational diseases and accidents. When they occur they have an immediate adverse effect on work efficiency and productivity. Ahmednagar district has the largest number of sugar factories in Maharashtra state. Most of them are located in rural areas. Migratory workers involved in cutting of sugarcane belong to lower socioeconomic class. They are landless laborers, move with their families from neighboring districts during harvesting, for a period of four to five months. They stay in temporary huts made up of dry sugarcane leaves, near the place of their work and further move from one place to another as per the work requirement. This population is mostly illiterate

and have poor health awareness. Due to the nature of their job and extremely poor living conditions, this population is exposed to a variety of health hazards. The adult population is involved in cutting of sugarcane, loading it in bullock carts or trucks and transporting it to designated sugar factories. These workers do not use any eye protection during their work. As a result, they suffer from various ocular morbidities due to trauma, environmental factors like exposure to strong UV light and coexisting nutritional deficiencies. The present study was carried out with the aim to determine the prevalence of ocular morbidity among the sugarcane migratory workers and their families and also to determine the relationship of socio-demographic factors like age and sex to the prevalence of ocular morbidity in this defined population.

Material and Methods

A cross-sectional study was carried out for the period of four months, among 300 migratory workers of a sugar factory in a rural area of Ahmednagar district to study the prevalence of ocular diseases among this population. A team headed by an ophthalmic consultant accompanied by resident doctors, interns, MBBS

* Professor and Head, ** Resident
Department of Ophthalmology, Rural Medical College, PIMS, Loni

*** Associate Professor
Department of Biostatistics, PIMS, Loni

Address for Correspondence :

Dr.(Mrs.) S.V. Bangal
Department of Ophthalmology, Rural Medical College, PIMS, Loni
Tal. Rahata, Dist. Ahmednagar, Maharashtra (India)-413736.
Email: svb281@rediffmail.com

students and an ophthalmic assistant carried out the screening. An initial survey of the area was undertaken before planning the activities. The group leaders of the teams of the migratory workers (Mukadams) were taken into confidence and were explained about the study and its benefits. A sample size of 300 members of 46 families was selected and screened. All of them were enrolled in the study by repeated visits to their hamlets. Gross clinical ocular examination was carried out at their place of temporary residence. Each person was tested for visual acuity using Snellen's dot charts (separately for distant and near vision). Improvement of vision using pinhole was recorded as the best visual acuity. A person was labelled blind when the visual acuity was less than 3/60 in the better eye.^[1] External eye examination was carried out using torchlight and a binocular loupe. Confrontation test was performed to detect any gross diminution of field of vision. Refractive error was grossly estimated from lens power readings of the ophthalmoscope. Any lenticular opacity visible with distant direct ophthalmoscope against a red reflex was labelled as cataract. Intraocular pressure (IOP) was assessed by digital examination. Fundoscopic examination was carried out by direct ophthalmoscopy after dilatation of pupils with Tropicamide(1%), wherever indicated. Lacrimal sac disorders were diagnosed based on clinical signs and symptoms. Diagnosis of retinal diseases was based on clinical findings. Glaucoma suspects and other doubtful cases were referred to specialized centers.

Patients with refractive errors were referred to the hospital for proper refraction (with/without cycloplegia) and were prescribed appropriate lenses. Children with vitamin A deficiency were treated with appropriate doses of Vitamin-A solution.

Table 1 : Age and Sex distribution of factory workers

Age Group in Years	Male	Female	Total
Less than 5	35	30	65
5-20	34	30	64
20-40	35	20	55
40-60	30	34	64
>60	36	16	52
Total Number	170	130	300

Value of Chi-square = 0.167, d.f=4, p>0.05, not significant.

Applying Chi-square test to age-wise distribution of population under study is suggestive that the distribution is not significant

Table 2: Sex-wise distribution of migratory workers

Sex	Male	Female	Total
No.	170	130	300
Percentage	57%	43%	100%

Table No.3: Age-wise distribution of ocular morbidity.

Age Group in Years	Ocular Morbidity in Percentage
Less than 5	3 %
5- 20	17 %
21-40	14 %
41-60	9 %
More than 60	12 %

Table No.4 : Sex-wise distribution of ocular morbidity .

Sex	Ocular Morbidity in Percentage
Male	63 %
Female	37 %

Value of Z = 4.63, highly significant, p < 0.01. Applying 'Z' test to the sex-wise distribution of ocular morbidity is suggestive of the proportion to be highly significant

Table 5 : Distribution of anterior segment ocular disorders

Sr.	Condition	Total	Percentage
1.	Refractive errors	70	23%
2.	Allergic conjunctivitis	36	12%
3.	Pingecula/Pterygium	28	9%
4.	Corneal opacities	30	10%
5.	Cataract	32	11%
6.	Lacrimal sac disorders	12	4%
7.	Hypovitaminosis-A	6	3%

Table No.6: Distribution of posterior segment ocular disorders

Condition	Total No
Choroidal degeneration	8
Optic Atrophy	2
Glaucomatous Changes	6
ARMD	9

Discussion

Seasonal migration is an inherent part of the livelihood strategy of the poor in rural areas. It is an ongoing phenomenon since many centuries. The migrant population of sugar factories remain away from the preventive and curative health services provided by the government. Their accessibility has always been a challenging task due to their work pattern and odd work hours. Their poverty, ignorance and addictions make them more vulnerable to a variety of diseases. Due to their casual attitude, they avoid using protective eye glasses, as a result, eyes get exposed to trauma, insects, pesticides, allergens, ultra violet rays and pathogens. In the present study, the incidence of corneal opacities as a sequel to corneal ulcer was found to be high. As majority of ocular morbid conditions were avoidable, use of protective eye wear was advised to prevent accidental injury due to vegetative(sugarcane leaf) trauma thereby preventing serious ocular morbidity.^[2] Health education regarding importance of ocular hygiene and primary eye care was imparted to the migratory population as it plays a very important role in prevention of ocular morbidity. The importance of immediate ophthalmic consultation following ocular trauma was explained to them. The high prevalence of cataract in the present study was in concordance with others studies from India.^[4] This indicates the neglect towards elderly members of the family for various reasons.

Conclusion

Keeping in mind the causes and effects of the ocular morbidity, government agencies, factory owners and the civil society bodies must address this issue and help this neglected migratory population to keep their ocular health in good condition. Regular health check ups, de-addiction programs, health education, subsidized medical care would go a long way in keeping these workers healthy and productive.

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References

1. Environment and health. In: Park's Textbook of Preventive and Social Medicine, 19th edition, Jabalpur, Banarasidas Bhanot publishers, 2007: 482-555.
2. Hunter's Diseases of Occupations, Occupations and its infections diseases-J. Heptonstall, C. Cockcroft, 9th edition, page . 489-490.
3. Sharma JD, Prasad BG, Bagchi SC. Prevalence of trachoma and other common eye diseases - a survey in a group of villages. J Ind Med Assoc 1963; 40:206-208.
4. Raizada IN, Mathur A, Narang SK. A study of prevalence and risk factors of senile cataract in rural areas of Western U.P. Ind J Ophthalmology 1984 ; 32:339-42.
5. World Health Organization, Global prevalence of vitamin A deficiency in populations at risk 1995-2005, WHO global database on vitamin A deficiency.