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Research Article

CAUSES OF BLINDNESS AND VISUAL IMPAIRMENT AMONG STUDENTS IN INTEGRATED SCHOOL FOR THE BLIND IN BIKANER

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ABSTRACT

Objective: The study was undertaken to find out the causes of blindness and visual impairment among students in integrated schools for the blind in Bikaner city of Rajasthan.

Methods: A observational study was conducted in the only blind school of Bikaner city. The understudies in the visually impaired school visited were remembered for the review and informed assents from guardians were gotten. Pertinent visual history and essential visual assessments were completed on the understudies of the visually impaired school.

Results: A total of 81 students were examined in school of the blind in Bikaner. The main causes of severe visual impairment and blindness in the better eye of students were microphthalmos (25.92%), corneal scar (20.98%), phthisis bulbi (16.04%), retinal dystrophy (8.64%), optic nerve atrophy (8.64%), buphthalmos/glaucoma (6.17%), amblyopia (3.7%), staphyloma (3.7%), cataract (1.23%), anophthalmos (1.23%), aphakia (1.23%), coloboma (1.23%), retinal detachment (1.23%), etc. Of these, 11 (13.58%) students had preventable causes of blindness.

Conclusion: It was observed that inherited infections, corneal scar, glaucoma, and waterfall were the conspicuous reasons for visual impairment among the understudies of visually impaired school. Practically, 13.58% of the students had preventable causes, demonstrating the need of genetical directing and centered intercession.

Keywords: Blind school, Ocular morbidity, Prevention of blindness.

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INTRODUCTION

Visual impedance has a critical financial effect around the world. The WHO has characterized blindness as visual acuity worse than 3/60 in the better eye with best correction [1]. Youth visual deficiency is one of the significant reason for the visual impairment. In India, 30% of visually impaired lose their visual perception before the age of 20 years and a considerable lot of them are under five [2], so early recognition and treatment are significant in counteraction of visual deficiency. According to a 2001 study, the pervasiveness of experience growing up visual deficiency in India is 0.8/1000 [3], with close to half of the causes being preventable or treatable.

Commonness of visual deficiency in kids is low; however, it is on need in light of the fact that extreme visual misfortune in youngsters can influence their turn of events, portability, training, and work open doors moreover influences the personal satisfaction of kids and influence families [4]. It is hard to get solid information on reasons for adolescence visual impairment since there were many predisposition in numerous techniques. Data on the significant reasons for visual deficiency in youngsters are expected to plan compelling counteraction of visual deficiency programs. Hence, the present review was directed to recognize the reasons for visual deficiency and visual debilitation among understudies in coordinated schools for the visually impaired in Bikaner. Hence, this study was undertaken to find out the causes of blindness and visual impairment among students in integrated schools for the blind in Bikaner city of Rajasthan.

Aim

The aim of the study was to identify the causes of blindness and visual impairment among students in integrated schools for the blind.

METHODS

Study setting

This was a community-based study.

Study setting design

This was a cross-sectional study.

Inclusion and exclusion criteria

Age 0–16 years and students older than 16 years but who became blind before that age was also included in the study. Age above 16 years and not willing to participate was excluded from the study.

Study strategy

A cross-sectional review was completed in the main visually impaired school in Bikaner. Subsequent to getting permission from the Institutional Ethics Committee, a concise history including period of beginning of visual misfortune for the study subject, comparative circumstances in the family, relationship, and past eye a medical procedure performed was gotten either from the understudy, asset educators, or guardians, as accessible. Age 0–16 years and understudies more established than 16 years however who became visually impaired before that age was additionally included in the study. Mature over 16 years and not ready to take an interest was rejected. The presence of extra incapacity was recorded from study subject clinical records.

Visual sharpness for distance was tried with a Low Vision Asset Center (LVRC) logarithm of the base point of goal (Log-MAR) test graph. A low vision pack containing telescopes, magnifiers and display magnifying instruments of various powers was utilized for low vision evaluation. A pre-tested proforma was utilized for information assortment.

Ethical approval

The review started subsequent to acquiring ethical approval from the Institutional Review Board of the medical school.

Data analysis

The gathered information was placed in Microsoft Succeed. Coding of the variables was finished. SPSS version 22 was utilized for

investigation. Translation of the gathered information was finished by utilizing suitable factual strategies such as percentage and proportions.

RESULTS

A sum of 81 students satisfied the inclusion and exclusion criteria were included for our review. Maximum 45.67% were in 11–15 year age group, 56.79% were male (Table 1).

Out of 81 students, maximum 51 (62.96%) had blindness with <3/60-PL, followed by 19 (23.45%) were absolute blind with no PL whereas 8 (9.87%) had sever visual and 3(3.72%) had visual impairment (Table 2).

The anatomical reasons for visual deficiency in our review greatest 18 (22.22%) cases were of cornea followed by 17 (20.99%) were of retina, 15 (18.52%) of focal point, and 13 (16.05%) of entire globe though least 4 (4.94%) were of uvea and darkness each followed by 7 (8.64%) of optic nerve. Three cases had different reasons of visual impairment (Fig. 1).

The primary drivers of severe visual impairment and blindness in the better eye of understudies were microphthalmos (25.92%), corneal scar (20.98%), phthisis bulbi (16.04%), retinal dystrophy (8.64%), optic nerve decay (8.64%), buphthalmos/glaucoma (6.17%), amblyopia (3.7%), staphyloma (3.7%), waterfall (1.23%), anophthalmos (1.23%), aphakia (1.23%), coloboma (1.23%), retinal separation (1.23%), and so on. Of these, 11 (13.58%) understudies had preventable reasons for visual deficiency (Table 3).

DISCUSSION

This study mirrors the weight of the youth visual impairment in North-west Rajasthan. There are provincial varieties in the information gathered from the nation over because of inconsistent appropriation of health-care administrations.

In our review, greatest 45.67% were in 11–15 year age gathering and male/female proportion is practically equivalent. While Agarwal *et al*. in their review viewed, as Male/Female proportion was 3.4:1 [5].

In our review, most extreme 51 (62.96%) had visual deficiency with <3/60-PL, trailed by 19 (23.45%) were outright visually impaired with no PL while 8 (9.87%) had cutoff clear line of sight and 3(3.72%) had visual disability. Comparatively Agarwal *et al*. seen as 54 (58%) youngsters were visually impaired in their study [5]. In addition, Panda *et al*. in their investigation discovered that greatest 248 youngsters (82.9%) were visually impaired, though 11.3% had visual impairment [6].

In our review, the physical reasons for visual impairment, greatest 18 (22.22%) cases were of cornea followed by 17 (20.99%) were of retina, 15 (18.52%) of focal point and 13 (16.05%) of entire globe while least 4 (4.94%) were of uvea and obscurity each followed by 7 (8.64%) of optic nerve. Three cases had different reasons of visual deficiency. While the most well-known physical destinations of SVI/BL were the entire globe (40.3%) and the cornea (26.4%) in study done by Agarwal *et al*. [5]. In addition, Panda *et al*. observed that entire globe inconsistency was the most widely recognized reason for visual deficiency followed by retina (26.6%) [6]. In addition, Bhattacharjee *et al*. in their investigation discovered that most normal reason was entire globe (43.2%), trailed by cornea (17.20%) [7]. Although Prakash *et al*. eight observed that most normal reason was optic nerve 75 (24.8%) cases.

In our review, the primary drivers of serious visual weakness and visual deficiency in the better eye of understudies were microphthalmos (25.92%), corneal scar (20.98%), phthisis bulbi (16.04%), retinal dystrophy (8.64%), optic nerve decay (8.64%), buphthalmos/glaucoma (6.17%), amblyopia (3.7%), staphyloma (3.7%), waterfall (1.23%), anophthalmos (1.23%), aphakia (1.23%), coloboma (1.23%), retinal separation (1.23%), and so forth. Of these, 11 (13.58%) understudies had preventable reasons for visual impairment. Comparably Agarwal *et al*. tracked down Inborn visual irregularities (microphthalmos, coloboma, and anophthalmos) represented visual misfortune in 38 (40.86%; N = 93) kids reading up in schools for the blind [5].

Bhattacharjee *et al*. found that 93.76% were visually impaired and just 12.26% of causes were avoidable and etiological causes were obscure (52.69%), inherited (26.02%), intrauterine (15.05%), and 26.08% had blinding inherent visual anomaly (s) [7].

Table 1: Distribution according to sociodemography

Age groups	Number	Percentage
0–10 years	18	22.24
11–15 years	37	45.67
>15 years	26	32.09
Sex		
Male	46	56.79
Female	35	43.21

Table 2: Visual acuity among blind and visual impaired student as per the WHO classification

WHO category	Level of vision	Number	Percentage
No Impairment	6/6–6/18	0	0
Visual impairment	<6/18–6/60	3	3.72
Severe Visual Impairment	<6/60–3/60	8	9.87
Blind	<3/60-PL	51	62.96
Blind	NPL	19	23.45
Total		81	100

Table 3: Etiology of vision impairment in blind and vision-impaired students

Etiology	Number	Percentage
Microphthalmos	22	27.16
Corneal Scar	16	19.75
Phthisis bulbi	13	16.04
Retinal dystrophy	7	8.64
Optic nerve atrophy	7	8.64
Buphthalmos/Glaucoma	5	6.17
Amblyopia	3	3.7
Staphyloma	3	3.7
Cataract	1	1.23
Anophthalmos	1	1.23
Aphakia	1	1.23
Coloboma	1	1.23
Retinal detachment	1	1.23

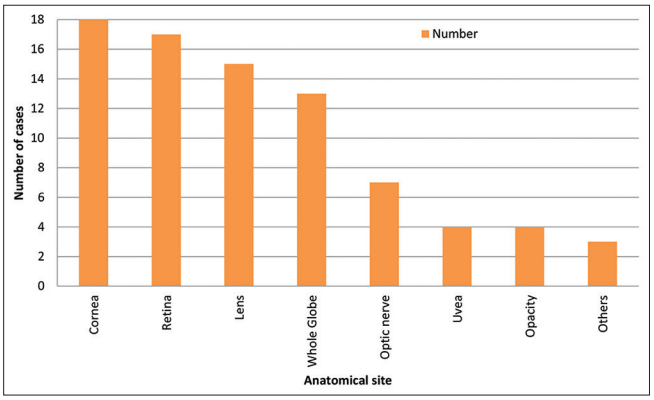

Fig. 1: Anatomical site of abnormality leading to vision impairment in blind and vision-impaired students.

Prakash *et al*. found that optic decay seen in 73 (24.17%) cases was the most well-known, trailed by retinal dystrophy in 44 (14.56%), corneal scarring in 35 (11.59%), waterfall in 22 (7.28%), and inborn glaucoma in 20 (6.6%) cases [8].

As VISION 2020 targets killing preventable and treatable reasons for visual impairment, a thorough methodology is expected for the work. It ought to incorporate checking and expansion of the ongoing screening and inoculation programs at the essential level as well as foundation of pediatric ophthalmic medical procedure units.

CONCLUSION

This study gives truly necessary information on the reasons for childhood visual impairment, which is the essential prerequisite for creating methodologies toward prevention and management. It was observed that inherited infections, corneal scar, glaucoma, and waterfall were the conspicuous reasons for visual deficiency among the understudies of visually impaired school. Practically, 13.58% of the understudies had preventable causes, showing the need of genetical advising and centered intercession. More examinations and visual evaluation should be completed on understudies in blind schools to figure out which understudies can profit from a good ways and close to visual guides. By diminishing the pace of consanguineous marriage and playing out an ordinary hereditary discussion before marriage, we can forestall the hereditary/innate eye infections.

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AUTHORS' CONTRIBUTION

All the authors have contributed equally.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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