

Study to Determine Etiology of Myopia in School Going Children In Wardha

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Abstract:

Introduction: Prevalence of myopia is fast rising and has become a significant global public health issue. Many studies correlate environmental factors for the same hence as an endeavour to know more about partially understood topic of etiology of myopia this study was carried out.

Materials and Methods: It was a cross sectional study with 500 randomly selected 5-15 year old school going children in Wardha who were screened for myopia using vision on Snellen's chart and dilated retinoscopy. All of them were made to fill questionnaire related to etiology of myopia that we were trying to study and answers of emmetropes were compared with those of myopes.

Results: Out of 500 patients 39 percent students had myopia. 34.87% spent <1 hr in sun, 52.30 spent <3hrs and 12.82 spent <5 hours. When compared to data from emmetropes its significantly associated. Near work, wrong posture while performing near work, diet were not significantly associated according to our study.

Conclusion: We found out significant association with amount of hours spent in sun to be significantly associated as an etiology of myopia. Sedentary lifestyle and urbanisation has increased the incidence of myopia.

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I. Introduction :

Myopia is one of the most common ocular disorders seen in children and young adults and is a cause of concern. It is one of the most common cause of blindness [1,2], it has become a global public health issue [1,3,4]. It may be inherited or can be caused by environmental factors [3,4,5,6,7,8,9,10]. In some children eyeball continues to grow such that the initial hyperopia present at birth goes beyond emmetropization [1]. Associated complications include cataract, glaucoma, myopic macular degeneration and choroidal neovascularization which are vision threatening [11,12]. Its prevalence is rapidly increasing, exact mechanism regarding progression is not fully understood [13]. Many studies indicate involvement of environmental and nutritional factors such as more time spent indoors, excess near work, less exposure to natural sunlight and western diet [4,14,15,16,17]. Vitamin D and dopamine have also been linked.

II. Aims And Objectives

To study the etiology of myopia in school going children in Wardha.

III. Material And Methods

DURATION-

The duration of the study will be from October 2017 to October 2018

STUDY DESIGN : CROSS SECTIONAL STUDY

SELECTION OF SUBJECT

- All cases were selected from schools in Wardha .
- All subjects demographic records (information comprised of sex, age, educational, and postal address) were collected.
- Age : 5-15 yr

CASES:

- Children with 6/9 vision on the Snellen's chart (new cases)
- Children having previous myopic glasses

CONTROLS

- Children with vision 6/6.

IV. Methods

The study was approved by the Institutional Ethics Committee. Permission for conducting the study in the selected schools was taken from the school principals.

A form in English and the local vernacular language which is marathi was sent to all the parents to sign for providing the informed consent for the procedure. If the consent form was not returned or the parents had any doubts regarding the procedure, they were contacted by telephone and all concerns regarding the study were addressed. If the parents still did not return the signed informed consent form, the child was not enrolled in the study.

All the children were made to fill a structured questionnaire. The vision of the child will be documented using snellen's chart/landolts c chart.

Students using spectacles and students with vision less than 6/9 w identified.

Procedure: Refraction was done in 2 stages by a single person, first under cycloplegia using eye drops 2% homatropine which was instilled in the inferior conjunctival sac twice at an interval of ten minutes. If the pupillary light reflex was still present after 20 minutes, a third drop was administered. Cycloplegia was considered complete if pupil was dilated to 6 mm or more and there was no pupillary light reflex. Retinoscopy was done using a streak retinoscope and an autorefractometer. Based on the findings of the refraction under dilatation, subjective refraction was done at a following visit after a week. The final prescription was based on the subjective refraction.

Answers to questionnaire filled by all the children diagnosed with myopia was compared with children with 6/6 vision.

- SAMPLE SIZE: 500 (taking prevalence of myopia in central india into consideration)

INCLUSION CRITERIA

- Students aged 5-15 years.
- Myopia diagnosed on refraction.
- With or without prior spectacle use.

EXCLUSION CRITERIA:

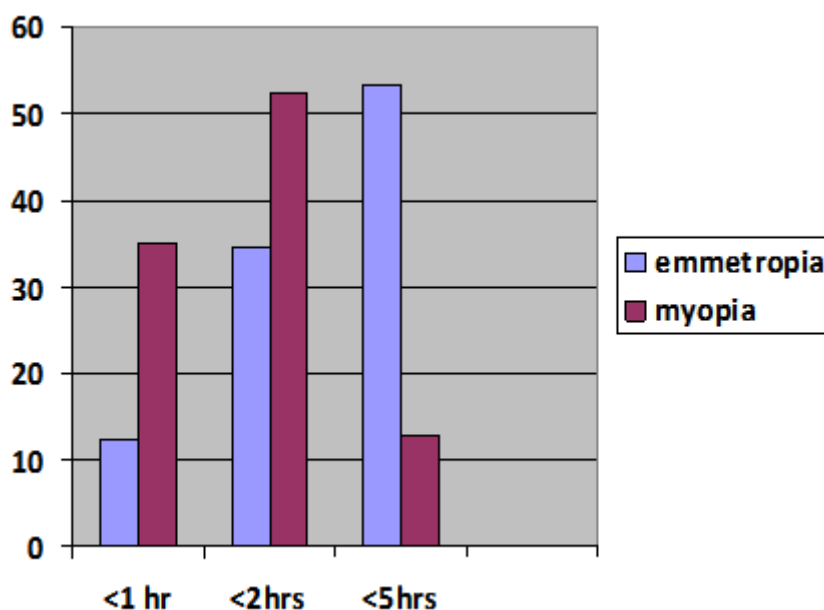
- Parents not giving consent for the study.
- Mixed refractive error
- Congenital cataract
- Amblyopic child

V. Results

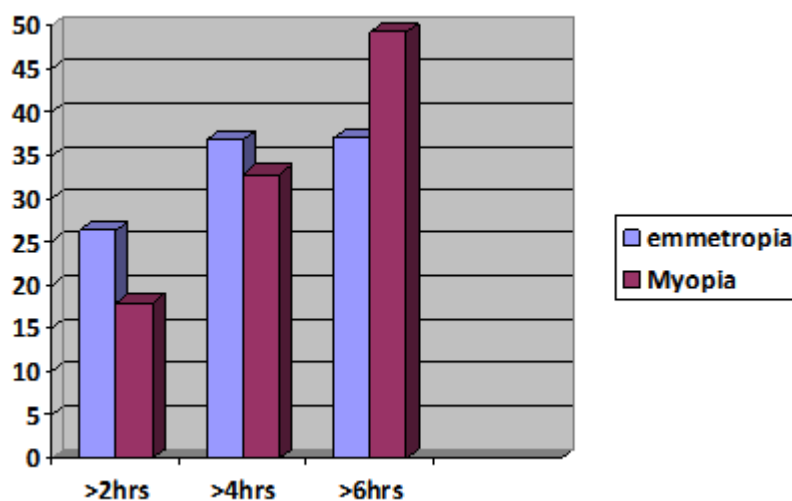
1. Total students studied-500

- Myopia-195
- Emmetropia -305

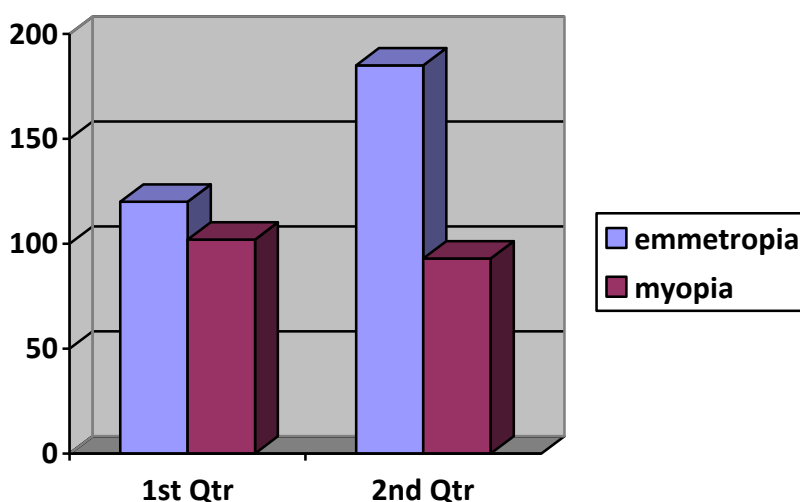
2. Association with time Spent in Sun : (in percentage)



3. Association with Near Work (study,TV,Vid game: in percentage):



4. Association with wrong posture while doing near work:



VI. Conclusion

We concluded that only hours spent in sun has significant association with etiology of myopia. The hours of near work ,posture and diet is not significantly associated in etiology of myopia. But at the same time it is to be considered that a cohort study with a long followup period will help establish the etiology of myopia in a more accurate manner,

VII. Limitation

Etiology is concerned with the *development* of a condition and is most directly addressed by incidence rates in longitudinal studies. Prevalence, which measures the proportion of people who are myopic at a given time, is affected by the incidence of myopia plus persistence of the condition and longevity of individuals with myopia.Ours is a cross sectional study,without any followup involved.

When there is an observed relationship of myopia prevalence with other subject characteristics (risk factors), it is not always possible to determine which preceded the other.

Secondly, since an individual's refraction results from the combination of several ocular components.

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