Eye diseases in children in Southern Jordan

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ABSTRACT

Objective: To study the prevalence of refractive errors and certain eye diseases in children in southern Jordan.

Methods: In the period between May 2001 and April 2002, 1725 patients (6-14 years of age) visiting the Pediatric Clinics in Prince Ali Hospital, Jordan for non ophthalmologic complaints were tested by a pediatrician for their visual acuity (VA) using a Snellen's E-chart. Patients with suspected eye abnormalities and those with VA of <6/12 were referred for further detailed eye examination.

Results: Twelve patients had bilateral VA of <6/12, and an additional 5 patients had unilateral VA of <6/12. Strabismus was seen in 9 patients (0.5%), and amblyopia in 5 patients (0.3%). Vernal keratoconjunctivitis was seen in 26 patients (1.5%).

Conclusion: It is important to conduct a large study, perhaps a multicenter study to evaluate the eye diseases in developing countries.

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In developed countries, screening for eye diseases in preschool or school children has been carried out routinely even though there was an active debate regarding its value and cost effectiveness.[1-2] Screening is mainly directed towards identifying children with amblyopia, strabismus, and refractive errors.[3-6] As in most developing countries, the national eye screening program was carried out in selected schools in Jordan, and it is usually carried out by teachers and not by physicians.

Methods. This study was carried out in the period between May 2001 and April 2002 in Prince Ali Hospital in Southern Jordan. A total of 1725 patients visiting the Pediatric Clinics with a mean age of 6-14 years were examined by a pediatrician for their visual acuity (VA) via Snellen's E-chart for non-ophthalmologic complaints. Those with VA of <6/12 and with suspected eye abnormalities were referred for detailed ophthalmologic examination. Suspected eye abnormalities included the history of previous eye disease, large cornea, abnormal eye movement, abnormal pupillary light reflex, and squint. The Snellen's E-test was conducted in an adequately lighted room. Eye examination in the ophthalmology clinic by an Ophthalmologist included anterior segment examination, screening for strabismus (Hirschberg test and cover tests), direct ophthalmoscopy and cycloplegic refraction. The population of southern Jordan is nearly half million, and approximately 45% of them are below 14 years of age. Most of them were in moderate socio-economic status.

Results. A total of 17 patients had VA of <6/12 in at least one eye (12 were bilateral and 5 were unilateral). Of these 5 were blind in one eye (VA<3/60). The causes of unilateral blindness were congenital glaucoma (2

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Table 1 - Prevalence of eye diseases in children.

Eye diseases	Prevalence	
	n	(%)
Refractive error (VA <6/12)	17	(1)
Strabismus	9	(0.5)
Amblyopia	5	(0.3)
Trachoma	2	(0.1)
Vernal keratoconjunctivitis	26	(1.5)
Cataract	3	(0.2)
Glaucoma	3	(0.2)
Macular disease	2	(0.1)

VA - visual acuity

Table 2 - Causes of poor vision in children (VA <6/12).

Cause	Number of patients with poor vision	
	Bilateral	Unilateral
Significant refractive error (VA <6/12)	10	7
Cataract	1	1
Glaucoma	1	2
Strabismic amblyopia	0	5
Macular disease	0	2
Total	**12**	**17**

VA - visual acuity

patients), macular disease (2) and congenital cataract (one). No patient had bilateral blindness (VA<3/60 in the better eye). Significant refractive errors causing VA<6/12, strabismus and amblyopia were uncommon; each had a prevalence of less than 1% (**Table 1**). Refractive errors were responsible for 10 cases of poor bilateral vision (VA<6/12 in both eyes). The causes of poor unilateral vision (VA<6/12 in one eye) were mainly refractive errors in 7 patients and strabismic amblyopia in 5 patients. (**Table 2**). Vernal keratoconjunctivitis was seen in 26 patients, most of them had a mild to moderate course, and 2 of them had corneal scaring. Strabismus was seen in 9 patients (7 were convergent and 2 were divergent). Accommodative esotropia was seen in 5 patients, 6th nerve palsy in one patient and infantile esotropia in the last patient. The 2 patients with divergent squint had macular disorder. Three patients had congenital glaucoma; 2 of them suffered severe unilateral visual impairment (VA<3/60). Three patients had bilateral congenital cataract; one patient had minimal lens opacity (VA=6/9 in both eyes), the other patient had VA of <6/12 in both eyes, and the last one had VA of <6/12 in one eye only.

Discussion. The prevalence of bilateral impaired vision due to refractive errors (VA<6/12 in the better eye) was relatively low at 0.6% (10 out of 1725), only 5 patients (0.3%) had VA of <6/18 in the better eye, 2 patients had severe visual impairment (defined as VA<6/60 in the better eye), and no patient was blind (VA<3/60 in the better eye). These results were similar to those found in a population based survey of 7043 children 5-14 years of age in Botswana,[7] were the prevalence of bilateral VA of <6/18 was 0.2%. In our study, refractive errors caused almost all of the causes of bilateral visual impairment (10/12), and a substantial proportion of those with unilateral impairment of vision (7/17). Only patients with VA of <6/12 in either eye had cycloplegic refraction as the compliance with prescribed glasses was expected to be low in children with minor refractive errors.[8] In all our study children with refractive errors, VA increased to within the normal range (6/12 or better) in at least one eye with glasses. Similar findings were also found in the Botswana study.[7] Another study in India[9] showed that bilateral visual impairment (VA<6/18) was found in 3.1%. Ten percent of 12853 10-year-old children in the United Kingdom were found to wear glasses, but only 80% of children who wore glasses had uncorrected VA of less than 6/9.[10] In a study of Chinese school children[11] 24% had unaided VA of 6/12 or worse. The differences in these figures may be due to racial or ethnic variations in the prevalence of refractive errors, or due to different lifestyles or living conditions. These findings imply that differences in lifestyle (reading, watching television), living conditions such as nutrition, or medical care may be more important than racial or ethnic differences. There are many factors that need to be considered when deciding whether or not to introduce an eye-screening program in children. These include the prevalence and health, educational, or work impact of poor vision within the population, the human and financial resources available for screening, the cost effectiveness of the screening and the treatment given, and the availability and compliance with any treatment offered. As no study regarding the cost effectiveness of children screening program for eye disease has been reported from developing countries, any judgments related to whether or not to introduce a screening program will be necessarily subjective. In our opinion, it

is advised to conduct a large study, perhaps multicenter study, to evaluate the eye disease in developing countries.

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Related Abstract
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Search Word: eye disease

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Title: Prevalence of coxsackieviruses among healthy populations and ophthalmic disease patients in the Eastern Province, Saudi Arabia

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Abstract

Objectives: To detect the basal antibody levels of coxsackieviruses A and B among the healthy populations, to record the most prevalent serotypes in Saudi Arabia and to identify the coxsackievirus types and serotypes in the coxsackievirus associated eye disease patients. **Methods:** The method of choice for this study was complement fixation test. The study was carried out in the Virological Diagnostic Laboratories, Dammam Regional Laboratory and Blood Bank, Dammam, Saudi Arabia from January 1991 through December 1996. Single blood sera was collected from 2638 blood donors, 547 children, and 467 healthy pregnant women. Three hundred and sixty three duplicate serum specimens were taken from coxsackievirus associated eye disease patients of different age-groups with a 4-6 week interval between the acute and the convalescent sera. **Results:** The main outcomes were measured by complement fixing antibody titer for total and different serotypes of the coxsackieviruses. The general prevalence rate was 14.8% among healthy populations, with more prevalence of A16, A9, A7, B3, B5, and B4 in descending order. The prevalence rate showed 41.04% among the coxsackievirus associated eye disease patients, with more prevalence of serotypes A24, A 16, A9, B2, B5, and B3 in descending order. **Conclusion:** We record for the first time the prevalence of coxsackieviruses among the general populations in Saudi Arabia, with special serotypes more prevalent and in circulation in this part of the world, hence the epidemiological importance of this study. Coxsackievirus associated eye disease is now evident by this study showing the most prevalent serotypes, A24, A 16, and B 2.