Eye diseases in children in Jordan

Pages with reference to book, From 16 To 18

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Abstract

Objective: To investigate eye diseases in children in Jordan and to see whether it is necessary to conduct a visual screening programme.
Methods: The study was conducted between July 2010 and July 2012 at four Royal Medical Service hospitals located in northern, eastern, middle and southern parts of Jordan. Children aged (6-14 years) attending paediatric clinics for various reasons were enrolled. Ophthalmologic assessment included visual acuity and anterior and posterior segment examination. Patients with visual acuity of less than 20/20 underwent refraction under cyclopegia.
Results: Of the 3200 children in the study ocular abnormalities were found in 366 (11.4%); 312 (9.8%) had visual acuity less than 20/20 in one or both eyes. Refractive error was seen in 286 (8.9%); while vernal catarrh was the second most common ocular abnormality with 51 (1.6%) patients followed by squint 16(0.5%). Four (0.12%) patients had severe visual impairment and one (0.03%) patient was blind.
Conclusion: The prevalence of refractive error was high in school children in the study area. It is important to conduct a visual screening programme in early school years in order to prevent amblyopia.
Keywords: Ocular abnormalities, Refractive errors, Vernal catarrh, Squint and Amblyopia. (JPMA 64: 13; 2014).

Introduction

Screening of vision is a routine examination done in schools in developed countries.[1] In United Kingdom, screening is done before school entry.[2] On the other hand, other studies doubt the benefit of visual screening programmes regarding its cost effectiveness.[3,4] In Jordan, national eye screening programme is conducted in selective schools, and it is usually done by teachers, and not by physicians.[5] Based on statistics from population census, the population of Jordan was estimated to be around six million and a half in 2011. Approximately 45% of them are below 14 years of age. Most of them were in moderate socioeconomic status.[5] Around three million people live in Amman city[6] one million in Irbid city and northern districts, and one million in Zarqa city and eastern districts. Around half-a-million live in Southern districts.[5] The Royal Medical Service (RMS) provides health-care to around 40% of Jordanian populations. Other health-providing services are the Ministry of Health and private sector.
The aim of the study was to investigate eye diseases in children in Jordan and to see whether it is necessary to conduct a visual screening programme.

Subjects and Methods

This descriptive analytical study was conducted in the period between July 2010 and July 2012 in four RMS hospitals in Jordan. In Amman, we did the survey at King Hussein Medical Centre. Other

hospitals were Prince Hashem Hospital in Zarqa city which covers eastern part of Jordan, Prince Rashed Hospital in Irbed city in northern Jordan, and Prince Ali Hospital in Karak city in southern Jordan.

Children aged 6-14 years attending paediatric clinics for various reasons were enrolled. Patients were referred to ophthalmology clinic and examined by senior ophthalmologist. An informed parental consent form meeting the World Health Organisation (WHO) Research Ethics Review Committee recommendations, was signed by all parents. Ophthalmologic examination included visual acuity assessment by Snellen's E-chart. When visual acuity was less than 20/20 or with suspected eye abnormality, further eye examination was done, including anterior segment examination by slit lamp, posterior segment examination after mydriasis by indirect ophthalmoscope, and refraction under cyclopaegia.

Ocular abnormalities were recorded. Causes of visual acuity of less than 20/20, severe visual impairment, blindness and amblyopia were investigated. Severe visual impairment was defined as visual acuity less than 20/200 up to 20/400 in the better eye with the best correction, and blindness as visual acuity of less than 20/400 in the better eye with the best correction according to WHO definitions.[7]

Results

Overall, ocular abnormalities were found in 366 (11.4%) patients, and 286 (8.9%) of them had refractive errors. Vernal catarrh (n=51; 1.6%) was the second most common ocular abnormality, followed by squint (n=16; 0.5%). Other conditions included congenital cataract, glaucoma, corneal and retinal pathologies (Table-1).

Table-1 Ocular pathology.

Pathology		Number of patients	Percentage
Refractive error	Corrected	276	8.6
	Uncorrected	10	0.3
	Total	286	8.9
Vernal catarrh		51	1.6
Squint		16	0.5
Cataract		5	0.2
Corneal pathology		3	0.1
Glaucoma		3	0.1
Retinal pathology		2	0.06
Severe visual impairment			4
0.1			
Blindness		1	0.03
Unilateral cases		46	1.4
Bilateral cases		320	10.0
Amblyopia	Anisometropic	10	0.3
	Strabismic	1	0.03
	Deprivational	2	0.06

The majority of cases (n=320; 10%) showed bilateral eye involvement.
Besides, 312 (9.8%) children had visual acuity less than 20/20 in one or both eyes. Among them, 285 (9%) were corrected to 20/20 and 27 (8.4%) had best corrected visual acuity of less than 20/20 in at least one eye (Table-2).

Table-2: Patients with best corrected visual acuity of less than 20/20 according to etiology.

Cause	Number of patients	Percentage
Refractive error	10	0.31 %
Squint	5	0.16%
Cataract	4	0.13%
Glaucoma	3	0.09%
Corneal pathology	3	0.09%
Retinal pathology	2	0.06%
Bilateral cases	22	0.69%
Unilateral cases	5	0.16%
Total	27	0.84%

Regarding distribution of cases according to site of residence, only cases of vernal catarrh (21/51; 41%) were significantly common in eastern areas (Table-3).

Table-3: Distribution of patients according to region.

Pathology	Middle area	Northern area	Southern area	Eastern area	Total
Refractive error	144	69	16	57	286
Vernal catarrh	17	8	5	21	51
Squint	7	5	1	3	16
Cataract	2	2	0	1	5
Glaucoma	2	1	0	0	3
Corneal pathology	1	0	1	1	3
Retinal pathology	2	0	0	0	2

Discussion

The prevalence of ocular abnormalities and refractive errors in our study was 11.4% and 8.9% respectively. The majority of patients with refractive errors (91.34%) were corrected to 20/20. Only 10 (0.3%) patients had best corrected visual acuity of less than 20/20 in at least one eye. Other studies done for visual acuity problems in Jordanian schools and other developing countries showed the prevalence of visual acuity deficit to range from 0.2% to 6.1%.[1,5,8-12] A study done in Karak city in southern Jordan showed the prevalence of ocular abnormalities and refractive errors that were not corrected to visual acuity of 20/20 to be 3.89% and 0.99% respectively.[5] Sha'aban et al. found the

prevalence of visual acuity deficits among Jordanian school children to be2.7%.[1] In Saudi Arabia, the prevalence of visual acuity deficits ranged from 1.9% to 3.3% in different cities.[9,10] In United Kingdom, 10% of 12853 children had refractive error and 2% had visual acuity of less than 20/20.[13] The figure was higher in a study done in a Chinese school, 24%.[14]

The differences in these findings from different countries could be attributed to racial or ethnic factors, nutrition, environment, medical services and different lifestyles, for example using computers. The use of electronic devices such as playstations and mobile phones is becoming popular among school children. The effect of such devices on children health, including vision needs further investigation.

The distribution of patients with ocular abnormalities according to their site of residence was the key observation in the study. We took into consideration the distribution of Jordanian population in different areas before correlating the results with statistical significance. For example, refractive errors were seen in 286 patients. Among them, 144 (50.4%) lived in the middle area of Jordan. This figure correlates with the population of Jordan in middle areas which contributes to almost half the population (3 out of 6 million). In eastern, northern and southern areas, refractive errors were seen in 69 (24.1%), 57 (19.9%), and 16 (5.6%) respectively. The population in eastern and northern areas is about one million each (16.7%) and half-a-million in southern area (8.3%). The differences found in results regarding refractive errors distribution according to area of residence, were not significant when matched with relative population of each area. This also applies to all other diseases except for vernal catarrh which was more prevalent in eastern area (21/51; 41.2%) compared to 33.3% of middle, 15.7% of northern and 9.8% of southern areas). This can be explained by the climate of eastern area which is considered a desert with hot climate compared to the other areas.

Before establishing a screening programme, it is important to know the severity of the problem and the cost effectiveness of such a programme. For example, In Mwanza city in Tanzania, the relatively high prevalence of refractive errors at 6.1% in secondary school students was enough to justify a regular eye screening programme.[12] In our study, the prevalence of ocular abnormalities was relatively high at 11.4%. Refractive errors were common in 8.9%, with a huge majority of them being correctable. Correcting such a problem at an early age is important to prevent amblyopia.

Conclusion

Conducting a visual screening programme in early school years in Jordan in order to prevent amblyopia is recommended in view of the high prevalence of correctable refractive errors.

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