ACTA SCIENTIFIC PAEDIATRICS (ISSN: 2581-883X)

Volume 2 Issue 10 October 2019

Mini Review

Findings Not to Miss During Pediatric Vision Screening

Danyal Saeed[1], Nirojini Sivachandran[2]* and Gloria Isaza[2,3]

[1]*McMaster University, Michael G. DeGroote School of Medicine, Hamilton, Ontario, Canada*

[2]*McMaster University, Division of Ophthalmology, Department of Surgery, Hamilton, Ontario, Canada*

[3]*McMaster Children's Hospital, Hamilton, Ontario, Canada*

***Corresponding Author:** Nirojini Sivachandran, McMaster University, Division of Ophthalmology, Department of Surgery, Hamilton, Ontario, Canada.

Received: September 03, 2019; **Published:** September 13, 2019

DOI: 10.31080/ASPE.2019.02.0148

Keywords: Vision Screening; Paediatric; Amblyopia; Public Health; Primary Prevention

Leukocoria can be a sign of a life-threatening and/or sight-threatening eye condition and requires urgent referral

Leukocoria is the clinical finding of a white pupillary light reflex. It is best assessed in a darkened room using a direct ophthalmoscope. Leukocoria can be caused by diseases affecting various parts of the eye, including the cornea (anisometropia), lens (congenital cataract), vitreous humor (persistent fetal vasculature), and the retina (retinoblastoma, Coats' disease) [1]. Urgent referral to an ophthalmologist is indicated for all children with leukocoria to rule out life-threatening conditions such as retinoblastoma and to assess for other causes of permanent visual disability.

Strabismus may be subtle, intermittent or a constant finding and can lead to an irreversible decrease in visual acuity

Strabismus refers to any misalignment of the visual axes of the eyes [2]. Manifest strabismus is an eye deviation present at all times, whereas latent strabismus is observed only when binocular fusion is interrupted. The cover-uncover test can be used to detect the presence of strabismus and distinguish between its latent and manifest forms. Suppression of input from the deviating eye can lead to loss of visual potential, strabismic amblyopia [2]. Consequently, all children with persistent strabismus should be considered for referral to an ophthalmologist.

Anisocoria can be a sign of neurological or rheumatological disease

Anisocoria refers to unequal size of the pupils. The abnormal pupil can be identified through pupillary examination in light and dark ambient light. Anisocoria in children can be physiological, particularly when it is less than 0.5 mm in size when comparing the pupil of each eye [3]. If a child has anisocoria consider referral to an ophthalmologist. If anisocoria is associated with ptosis and or iris heterochromia assessment for neurological causes such as Horner syndrome or third nerve palsy should be conducted [3]. Iritis associated with juvenile idiopathic arthritis should also be considered as a potential cause of anisocoria in children [3].

Uncorrected refractive error should be identified and corrected early in life

The development of binocular vision relies on normal visual experiences in early childhood, and uncorrected refractive error is the most common cause of visual impairment in school-age children [4]. Even in developed countries, refractive errors often go undetected and uncorrected in children, and this highlights the need for increased screening in this realm [4]. In infants, visual acuity can be evaluated through the assessment of fixation and following. Other tools for the assessment of visual acuity in pre-school age children include the HOTV letter chart, Lea symbols chart, and the tumbling E chart. Asymmetric red reflex or bilateral dark red reflex can be indicative of underlying refractive error.

In addition to ocular assessment, abnormalities of the orbit should be assessed during pediatric vision screening

A breadth of orbital masses can be identified in pediatric populations, and may be cystic, vascular, inflammatory, neurogenic, or metastatic in nature [5]. Tumours of the orbit can present as sub-

cutaneous nodules, lid retraction, ptosis, or proptosis [5]. Proptosis refers to anterior displacement of the eye and should prompt investigation for space-occupying lesions of the orbit [5]. Though most orbital masses observed in children are benign, imaging and/or biopsies may be indicated to ensure that lesions are not sight-threatening or life-threatening in nature [5].

Authors Contribution

*D.S and N.S contributed equally to this study.

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