Both figures show that the centre of the lenses (devoted to far distance) does not reach the nominal distance power of the lens (−3.0 D), being slightly more positive. A higher nominal power of the lenses implies a higher addition, however, this may impact on distance vision. Therefore, this positive over-correction (around 0.5 D) should be taken into consideration by clinicians at the moment of prescribing the nominal power of these lenses.

Finally, it should be mentioned that a decentration of these annular designs could alter their optical performance.[7] Hence, after the current analysis it is clear that the studies that will analyse the effectiveness of these lenses on myopia progression should properly control two parameters: the pupil dynamic of the patients and the centration of the lenses.

In summary, the myopia control CL seems to show some optical improvements for the use of these lenses in children. Nevertheless, future studies should analyse if these optical features are enough in terms of effective myopia control of the patients and the visual effects that this design could cause.

Conflict of interest

The author has no proprietary interest in any of the materials mentioned in this article.

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Javier Ruiz-Alcocer*
Optics and Optometry Department, Universidad Europea, Madrid, Spain

*Correspondence to: Optics and Optometry Department, Faculty of Biomedical Sciences, Universidad Europea, c/ Tajo sn, 28670, Villaviciosa de Odón, Madrid, Spain.
E-mail address: j.ruizalcocer@hotmail.com

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Cataract, strabismus and chorioretinal coloboma in paediatric HIV infection

Catarata, estrabismo y coloboma coriorretiniano en infección pediátrica por VIH

KEYWORDS
Cataract;
Strabismus;
Chorioretinal coloboma;
HIV

Background

With the availability of highly active antiretroviral therapy (HAART), the number of children surviving human immunodeficiency virus (HIV) infection is increasing. HIV-positive children exhibit numerous ocular manifestations and HAART in HIV-infected mothers during pregnancy may increase the risk of birth defects including congenital ocular abnormalities.[1] Here, we present a paediatric case of HIV infection with bilateral posterior sub-capsular cataract, sensory strabismus and chorioretinal coloboma.

Case report

An eleven-year-old HIV-infected boy presented to a tertiary eye care facility in Nepal with the complaints of blurring of vision in both eyes. His CD_4+ T-cell count measured within a month of eye examination was 1087 cells mm^{-3} and he was under antiretroviral therapy since the age of four years. Detailed antenatal and perinatal history was not available except it was known that the mother was HIV positive and receiving HAART during pregnancy. On examination, presenting visual acuity (Bailey-Lovie log MAR chart) was 1.2 log MAR (4/60) in the right eye (RE) and 1.3 log MAR (3/60) in the left eye (LE). Cycloplegic refraction revealed refractive error of −2.50DS/−1.00DC @ 90° in the RE and −1.75DS/−1.25DC @ 90° in the LE, without any improvement on subjective refraction. Head posture was normal but bilateral esotropia was present while viewing at near and distance. The esotropia was ∼60° to 75° with the Hirschberg test; poor vision

did not allow for a more accurate prism cover test to quantify strabismus. Ocular motility was restricted and a jerky horizontal nystagmus was present in extreme dextro- and levo-version, with no nystagmus in the primary position.

Slit lamp examination under mydriasis showed multiple scattered opacities along the posterior sub-capsule of the crystalline lens in both eyes and a diagnosis of bilateral grade II posterior sub-capsular cataract (Lens Opacities Classification System III) was made. Ophthalmoscopy revealed tessellated fundi, myelinated sheaths over and around the optic discs, and large chorioretinal coloboma involving macula in the temporal retina of both eyes. Any old toxoplasmosis and cytomegalovirus retinitis were ruled out with negative serology. After a detailed low vision assessment, a spectacle mounted binocular telescope (8×) for distance viewing and an illuminated hand-held magnifier (10×) for near tasks were prescribed, and eccentric viewing and contrast enhancement techniques (including felt tip pen and bold line notebook) were advised.

Discussion

As many as 52 to 100% of HIV-infected individuals develop at least one ocular manifestation in their life time.[2] Compared to HIV-infected adults, HIV-infected children have a lower prevalence of ocular manifestations,[3] which varies from 7.7 to 54.0% in pre-HAART era[4,5] and 10 to 35.3% in the post-HAART era.[3,6] Most common HIV-related ocular abnormalities range from minor blepharitis and dry eyes to extensive retinal vasculitis and neural involvements.

To the best of our knowledge, this is the first report of chrioretinal coloboma in a paediatric case of HIV infection. Chorioretinal coloboma is analogous to neural tube defects and there is evidence for neural tube defects (0.07% prevalence) in children with antenatal exposure to efavirenz (a part of HAART), during the first trimester of pregnancy.[7] Since this is the first report of chorioretinal coloboma in a child with HIV infection, we cannot be certain if there is causal association of HIV and HAART with coloboma; further studies are warranted to confirm this potential association. Retinal detachments are common (2.4 to 43% prevalence) in eyes with choroidal coloboma[8,9] increasing the risk of further deterioration in vision and therefore regular follow-ups are highly recommended.

Cataract prevalence in HIV-infected adults is ∼6%.[10] Less is known about the prevalence of cataract in HIV-infected children, with one report of 0.0003% prevalence of congenital cataract in children exposed to HAART in utero.[11] Although the exact cause of cataract in HIV infection is not understood, an animal study proposed the accumulation of GAG protein on the lenticular fibres to be a possible causation.[12] Bilateral congenital cataracts can be caused by several factors including infective or inflammatory diseases, metabolic disorders, drugs, trauma, and heredity. Inadequate antenatal history in this case limits the discussion of the differential diagnoses. On the other hand, chorioretinal coloboma can be associated with cataract[8] and if the co-occurrence of these two entities is caused by vertically transmitted HIV infection and/or exposure to HAART in utero or if cataract in such cases is secondary to coloboma alone is an area of further investigation. Strabismus is a common manifestation in HIV-infected children (∼18% Prevalence).[3] Cataract in childhood can result in visual impairment and strabismus; however visual impairment and strabismus in this case should be attributed to the retinal involvement that produces a severe obstacle to sensory fusion.

Awareness of the potential occurrence of cataract and strabismus in HIV-infected children provides a guidance to eye care practitioners for early detection and intervention for such conditions to prevent amblyopia development. Newborns of HIV-positive mothers should undergo a mandatory screening for ocular manifestations including cataract, strabismus, and retinal disorders.

Conflicts of interest

The authors have no conflicts of interest to declare.

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Prakash Adhikari[a,*,c], Pratik Chettry[b,c]
[a] *Institute of Health and Biomedical Innovation, Queensland University of Technology, 60 Musk Avenue, Brisbane, Queensland 4059, Australia*
[b] *Male Optical Co. Ltd., Maldives*

[*] Corresponding author.
E-mail address: p.adhikari@qut.edu.au (P. Adhikari).
[c] These authors contributed equally to this work.

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