

Practical advice for practitioners

Refractive correction with spectacles and ametropia

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Refractive errors are the leading cause of visual impairment in children, and the proportion of the cases of visual impairment and blindness due to these errors is as high as 22.4% to 98.4% [1, 2].

Visual functions develop in parallel with the maturation of the mechanisms that control accommodation, binocular vision and ocular motility [3-7]. Since central vision is influenced also by refractive errors [8-9], the latter should be corrected rationally and at the right time [10-12].

Maintaining high visual acuity in the amblyopic eye and ensuring the development of binocular vision is a challenge for the ophthalmologist [13-15].

The purpose of this report is to identify the role of refractive correction with spectacles in the treatment of refractive errors.

Asthenopia and refractive amblyopia are the most important signs of visual system deconditioning. Refractive amblyopia is most commonly seen in eyes with hypermetropic refraction [16, 17].

In spite of advances of contact lens and surgical correction of refractive errors, the use of these modalities in children is limited, and treating these errors with spectacles remains the most popular method of correction. As multiple factors should be considered in selection of optimal correction for a particular child with ametropia, it is a difficult task for the doctor. Foreign ophthalmologists prefer correcting even slightest non-zero refractive errors [17].

Astigmatism of at least 1D affects visual comfort. Spectacle prescription for an amblyopic child should be determined only based on the objective measurement of the refractive error under cycloplegia, with the latter required for improvement in the excessive ciliary muscle tone. In children presenting for refractive errors, it is reasonable to administer atropine twice daily for three days from the day of presentation. A hypermetropic child aged two to four should be prescribed spectacles for constant wear with age norms for visual acuity taken into account. Prescribe a spherical lens power that is 1 D less than the amount

of hypermetropia determined by cycloplegic objective measurement.

Cyclomed 1% is a popular cycloplegic option and can be used in children with refractive errors both at presentation and follow-up. It is well tolerated by children and adolescents and exerts no allergic or toxic effects on the cardiovascular system.

Traditionally, the main criteria for selecting the refractive correction with spectacles have been the amount of ametropia, ocular function (i.e., visual acuity, position of the eyes, type of binocular vision, and the effect of correction on these characteristics), patient's age, presence or absence of asthenopia, correction tolerance, etc. [18-21]. As refraction changes with child's age and with axial growth, the approach to this selection should be individualized [1, 22-23].

In conclusion, it should be noted that adequate correction for ametropia is required for effective rehabilitation measures and prevention of disabilities in children with amblyopia.

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