Invest Ophthalmol Vis Sci. 2000 Jan;41(1):1-7.

Albinism: its implications for refractive development.

Wildsoet CF[1], Oswald PJ, Clark S.
Author information

Abstract

PURPOSE:

Albinism involves the mutation of one or more of the genes associated with melanin synthesis and has many ramifications for vision. This study focuses on the refractive implications of albinism in the context of emmetropization.

METHODS:

Refractive, biometric, and visual acuity data were collected for a group of 25 albino individuals that included the following: 18 oculocutaneous (13 tyrosine positive, 5 tyrosine negative); 7 ocular (2 autosomal recessive, 5 sex-linked recessive). Their age range was 3 to 51 years. All exhibited horizontal pendular nystagmus.

RESULTS:

There were no statistically significant differences relating to albino subtype for any of the measured parameters. All the subjects had reduced visual acuity (mean: 0.90, logMAR) and overall, there was a bias toward hyperopia in their refractiveerrors (mean: + 1.07 D). However the refractive errors of the group covered a broad range (SD: 4.67 D) and included both high myopia and high hyperopia. An axial origin to the refractive errors is implied by the high correlation between refractive errors and axial lengths. Refractive astigmatism averaged 2.37 D and was consistently with-the-rule and highly correlated with corneal astigmatism, which was also with-the-rule. Meridional analysis of the refractive data indicated that the vertical meridian for hyperopic subjects was consistently nearer emmetropia compared to their horizontal meridian. Myopic subjects showed the opposite trend.

CONCLUSIONS:

The overall refractive profile of the subjects is consistent with emmetropization being impaired in albinism. However, the refractive errors of hyperopic subjects also can be explained in terms of "meridional emmetropization." The contrasting refractive profiles of myopic subjects may reflect operational constraints of the emmetropization process.