

General ophthalmology

Clinical science



Quantifying the correlation of ocular manifestations and macular pigment optical density in albinism: a prospective cross-sectional study

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Abstract

Aims To demonstrate the presence of macular pigments in patients with albinism using colour perimetry and to evaluate the relationship between macular pigment optical density (MPOD) and ocular findings.

Methods 50 patients were included. Best-corrected visual acuities (BCVAs) were measured at 2 meters (Early Treatment Diabetic Retinopathy Study charts) and recorded as logMAR. Iris transillumination defect was graded as 5 on a 5-point scale. The severity of foveal hypoplasia was graded as 4 on a 4-point scale using optical coherence tomography. After fixating on a light source 3 cm away for 10 seconds, the time taken to read three letters from the BCVA row was measured as photostress recovery time. MPOD and macular pigment mean defect were measured quantitatively using colour perimetry.

Results Median BCVA was 0.8 logMAR. Median photostress recovery time was 8 seconds. MPOD measurements were acquired from all eyes except two eyes (4%). Median MPOD and macular pigment mean defect were 0.63 decibel (dB) and 4.34 dB, respectively. There was a statistically significant negative correlation between MPOD and BCVA-logMAR, and a positive correlation between macular pigment mean defect and BCVA-logMAR. No statistically significant correlation was found between grade of iris transillumination defect, photostress recovery time and grade of foveal hypoplasia.

Conclusions Patients with albinism have macular pigments, and these can be determined by colour perimetry. Eyes with higher macular pigments tend to have better visual acuity. This finding suggests that supplementation with retinal carotenoids could be a promising therapeutic approach for albinism, as it may increase macular pigment density, leading to improved visual acuity.

Data availability statement

All data relevant to the study are included in the article or uploaded as supplementary information.
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Statistics from Altmetric.com



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Footnotes

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