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A qualitative and quantitative assessment of fundus auto-fluorescence patterns in patients with choroideremia

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Purpose: We set out to characterize the pattern of fundus auto-fluorescence (AF) loss in choroideremia (CHM) patients of varying ages and disease severity in order to determine the average rate of progression of this potential disease biomarker.

Methods: Fifty consecutive CHM patients (100 eyes) attending outpatient clinics at Oxford Eye Hospital underwent analysis with the Heidelberg OCT Spectralis with auto-fluorescence capabilities. The area of residual AF was traced using Heidelberg Eye Explorer. Bland-Altman analysis was used to calculate the coefficient of repeatability (CR). The degree of AF loss was correlated to age and the pattern of residual AF constructed into color-coded maps in order to gain insight into the mechanism of disease progression.

Results: The CR for measurement of AF area is <1% indicating a small change is likely to be significant. Correlation of patient age and area of residual AF produced a clinically relevant index of expected anatomical disease. Progression is 5-10% of the residual area each year and follows a logarithmic pattern with age ($r=0.69$, $P<0.001$). The mean half-life of AF is 9 years. Qualitatively, the pattern of remaining AF was bifocal, with maximal preservation around the fovea (predominantly temporal) with late preservation around the optic disc.

Conclusions: The area of residual AF in CHM can be measured reproducibly and shows a distinct pattern of loss. The residual area is inversely correlated to age. The ratio of the two variables may provide useful information regarding the rate of progression for any individual at a point in time.

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Correlation between pterygium and dry eye

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Background: Ultraviolet radiation exposure is a common cause of both pterygium and dry eye. It is unclear whether tear dysfunction is a precursor to pterygium growth or pterygium causes tear film dysfunction.

Purpose: To assess the clinical co-relation between pterygium and dry eye and to evaluate the status of tear film in patients having pterygium.

Methods: This is a prospective hospital based case control study. 110 eyes with pterygium were compared with 110 eyes of normal healthy subjects. Patients between 20-60 years were included in the study. Tear film break up time and Schirmer's test parameters were evaluated.

Results: Maximum patients i.e., 54 affected with dry eye were in the age group 31-40 years. Schirmer's Test and Tear Film break up time were reduced significantly in patients with pterygium. Tear film break up time was decreased maximally in 51-60 years age group with pterygium showing tear film instability.

Conclusion: Thus there is a co-relation between dry eye and pterygium as indicated by decreased Tear film break up time and Schirmer's Test. Thus, this indicates that an unstable tear film does contribute to initiation and progression of pterygium.

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