

RESEARCH ARTICLE

Metamorphopsia Associated with Branch Retinal Vein Occlusion

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Abstract

Purpose

To apply M-CHARTS for quantitative measurements of metamorphopsia in eyes with acute branch retinal vein occlusion (BRVO) and to elucidate the pathomorphology that causes metamorphopsia.

Methods

This prospective study consisted of 42 consecutive patients (42 eyes) with acute BRVO. Both at baseline and one month after treatment with ranibizumab, metamorphopsia was measured with M-CHARTS, and the retinal morphological changes were examined with optical coherence tomography.

Results

At baseline, metamorphopsia was detected in the vertical and/or horizontal directions in 29 (69.0%) eyes; the mean vertical and horizontal scores were 0.59 ± 0.57 and 0.52 ± 0.67 , respectively. The maximum inner retinal thickness showed no association with the M-CHARTS score, but the M-CHARTS score was correlated with the total foveal thickness ($r = 0.43$, $p = 0.004$), the height of serous retinal detachment ($r = 0.31$, $p = 0.047$), and the maximum outer retinal thickness ($r = 0.36$, $p = 0.020$). One month after treatment, both the inner and outer retinal thickness substantially decreased. However, metamorphopsia persisted in 26 (89.7%) of 29 eyes. The posttreatment M-CHARTS score was not correlated with any posttreatment morphological parameters. However, the posttreatment M-CHARTS score was weakly correlated with the baseline total foveal thickness ($r = 0.35$, $p = 0.024$) and closely correlated with the baseline M-CHARTS score ($r = 0.78$, $p < 0.001$).

Conclusions

Metamorphopsia associated with acute BRVO was quantified using M-CHARTS. Initial microstructural changes in the outer retina from acute BRVO may primarily account for the metamorphopsia.