

Quantitative assessment of macular edema with Heidelberg retinal tomography in diabetic retinopathy

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Purpose:

To investigate the quantitative assessment of macular edema in diabetic retinopathy by volumetric analysis with Heidelberg Retinal Tomography (HRT).

Methods:

Two hundred and thirty-two eyes of 116 patients with diabetic retinopathy and one hundred and twenty eyes of 60 healthy control subjects were included in the study. Complete ophthalmological examination including slit-lamp biomicroscopy with 90 D lens was performed in all patients with diabetes. Macular surface topography was analyzed by HRT in both groups. Volume above reference plane (VARP) was measured with 1.0 and 2.0 mm diameter circles. Measurements were repeated three times and the mean measurements were used for the analysis.

Results:

Of the diabetic patients, 50% were male and 50% were female with the mean age being 56.21 ± 11.52 years. Of the 232 diabetic eyes, 90.5% had nonproliferative and 9.5 % had proliferative diabetic retinopathy. Macular edema was detected in 19.8% of all the eyes while the remaining 80.2% didn't have any signs of it. Diabetic eyes with macular edema had statistically greater VARP than did diabetic eyes without macular edema ($p \leq 0.001$) and greater than the control eyes ($p \leq 0.001$) for both circles. There was no statistically significant difference between volumes above reference plane measured in eyes without macular edema and control eyes ($p > 0.05$).

Conclusion:

Heidelberg Retinal Tomography can quantitatively identify diabetic macular edema by volumetric analysis.

Take home message:

Volumetric analysis with Heidelberg Retinal Tomography may be a useful supplement to clinical examination.

