



CORRELATION BETWEEN ASYMMETRIC GLAUCOMATOUS VISUAL FIELD DAMAGE AND ASYMMETRIC WATER DRINKING TEST RESPONSE

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Aim: To determine if there is a correlation between Water Drinking Test (WDT) response and asymmetric glaucomatous visual field (VF) damage in eyes with similar mean basal intra-ocular pressure (IOP).

Design: Retrospective observational case series

Participants: 101 glaucoma patients

Main Outcome Measure: IOP comparisons before and after WDT

Methods/Testing: VF and WDT data were analyzed from 101 glaucomatous patients. Asymmetric VFs were defined by means of Mean Deviation (MD) values for OD and OS. Similar basal mean IOP OU (maximum 2mmHg difference) was required for controls using the same medication in both eyes. Tukey's post-hoc multiple comparison test was used to compare WDT IOP levels in each eye. The student t-test was used to compare WDT responses between eyes with higher MD and fellow eyes with lower MD values.

Results: Mean age was 60.7+15.8 years old. The eyes were divided into two groups according to MD values. Mean MD was -4.62 ± 5.34 dB in the higher MD values group and -9.02 ± 7.45 dB in the fellow eyes ($p=0.0000001$). Mean basal IOP was 13.93 ± 3.15 mmHg in the higher MD group and 13.88 ± 3.26 mmHg in the fellow eyes ($p=0.67$, ns). Fifteen minutes after water ingestion, mean IOP was 15.36 ± 3.63 mmHg in the higher MD values group and 15.66 ± 3.67 mmHg in the fellow eyes ($p=0.03$). At 30 minutes, mean IOP was 15.56 ± 4.04 mmHg in the first group and 16.17 ± 4.23 mmHg in the lower MD group ($p=0.00379$). At 60 minutes, mean IOP was 114.4 ± 3.75 mmHg and 14.57 ± 3.96 mmHg respectively ($p=0.35$).

Conclusion: This study shows a lower capacity of eyes with worse glaucomatous damage to respond to a stimulus that in normals leads to a transitory IOP elevation.