



THE ADVANCED GLAUCOMA INTERVENTION STUDY (AGIS): WHAT DOES IT TELL US ABOUT THE MANAGEMENT OF GLAUCOMA?

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The Advanced Glaucoma Intervention Study (AGIS) was a landmark clinical trial. The AGIS investigators set out in 1988 to answer the question of whether LTP or filtering surgery is the better next intervention in glaucoma when medical therapy fails. To do this, 789 eyes of 591 patients were randomized to either LTP first or filtering surgery first¹, with cross-over when indicated, and then followed through 9-13 years. Different outcomes were found for black and white subjects. In blacks, the failure rate of LTP was found to be less than in whites (relative risk, RR=0.68), while the failure rate of trabeculectomy was found to be greater than in whites (RR=1.79)². In whites, it took 7 years for 50% of LTP procedures to fail, and 80% of trabeculectomies were still working.

Trabeculectomy resulted in an overall 78% increase in the relative risk of cataract (Va 20/50 or worse, or cataract removal), with RR=1.47 when there were no postoperative complications, and RR=2.04 with complications.³ Overall, about 30% of trabeculectomy and 15% of LTP subjects developed cataracts at 5 years after intervention.

AGIS is best known for having taken glaucoma outcomes beyond the usual surrogate of IOP control to the true outcome of visual field preservation. In a pooled analysis of all subjects, it was found that better control of IOP resulted in better visual field stabilization (Figure).⁴

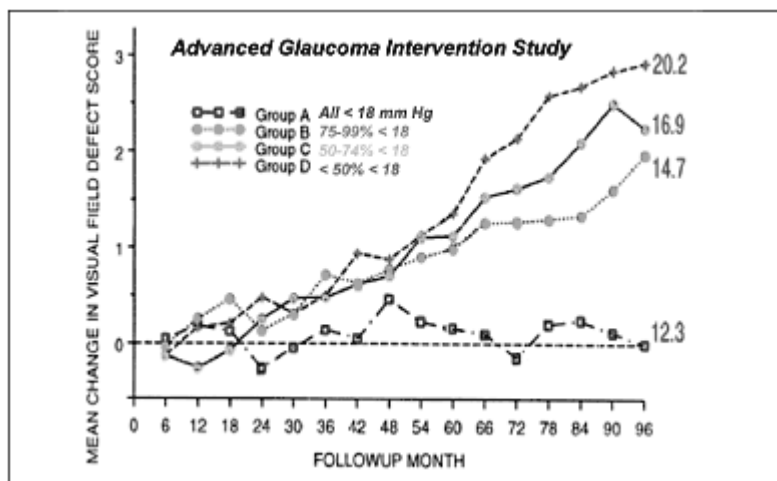


Figure. In a post-hoc analysis, it was found that subjects in whom the IOP at all of the semi-annual visits was below the protocol designated goal of <18 mm Hg

(Group A) had no average change in AGIS visual field score (which is closely related to the Mean Deviation in Humphrey Visual Fields) during 8 years of follow up. Those in whom the IOP was <18 mm Hg on 75-99% of visits (Group B) suffered a net loss of about 2 AGIS units (equivalent to about 2.3 dB of MD). Those with 50-74% (Group C) and <50% of visits (Group D) had proportionally worse results. The mean IOP during the first 6 years of follow up was 12.3, 14.7, 16.9 and 20.2 mm Hg, respectively, for the groups.

The AGIS results support seeking low-normal target pressures in patients with advanced damage, just as Chandler advocated in 1960⁵. We have obtained visual field results equal to the best group in AGIS for 5-10 years after antimetabolite filtering surgery⁶. By contrast, in patients with mild, initial glaucoma damage (average MD 4.8 dB), the Comparison of Initial Glaucoma Treatments Study (CIGTS) showed that reducing the IOP with aggressive medical therapy and laser, from an average of 27 mm Hg to 17.5 mm Hg (37%), was sufficient to prevent any average change in Mean Deviation for 5 years⁷. It will be very important for CIGTS to continue, in order to find out if glaucoma patients require lower target pressures as they age.

References:

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