

# Three-year Treatment Outcomes in the Ahmed Baerveldt Comparison Study

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**PURPOSE:** To compare 3-year outcomes and complications of the Ahmed FP7 Glaucoma Valve (AGV) (New World Medical, Cucamonga, CA) and the Baerveldt Glaucoma Implant (BGI) 101-350 (Abbott Medical Optics, Abbott Park, IL) for the treatment of refractory glaucoma.

**DESIGN:** Multicenter, randomized, controlled clinical trial.

**PARTICIPANTS:** A total of 276 patients: 143 in the AGV group and 133 in the BGI group.

**METHODS:** Patients aged 18 to 85 years with refractory glaucoma and intraocular pressures (IOPs)  $\geq 18$  mmHg in whom an aqueous shunt was planned were randomized to an AGV or a BGI.

**MAIN OUTCOME MEASURES:** The IOP, visual acuity (VA) , supplemental medical therapy, complications, and failure (IOP  $>21$  mmHg or not reduced by 20% from baseline, IOP RESULTS: At 3 years, IOP (mean  $\pm$  standard deviation) was  $14.3 \pm 4.7$  mmHg (AGV group) and  $13.1 \pm 4.5$  mmHg (BGI group) ( $P = 0.086$ ) on  $2.0 \pm 1.4$  and  $1.5 \pm 1.4$  glaucoma medications, respectively ( $P = 0.020$ ) . The cumulative probabilities of failure were 31.3% (standard error [SE], 4.0%) (AGV) and 32.3% (4.2%) (BGI) ( $P = 0.99$ ) . Postoperative complications associated with reoperation or vision loss of  $>2$  Snellen lines occurred in 24 patients (22%) (AGV) and 38 patients (36%) (BGI) ( $P = 0.035$ ) . The mean change in the logarithm of the minimum angle of resolution VA at 3 years was similar (AGV:  $0.21 \pm 0.88$ , BGI:  $0.26 \pm 0.74$ ) in the 2 treatment groups at 3 years ( $P = 0.66$ ) . The cumulative proportion of patients (SE) undergoing reoperation for glaucoma before the 3-year postoperative time point was 14.5% (3.0%) in the AGV group compared with 7.6% (2.4%) in the BGI group ( $P = 0.053$ , log rank) . The relative risk of reoperation for glaucoma in the AGV group was 2.1 times that of the BGI group (95% confidence interval, 1.0-4.8;  $P = 0.045$ , Cox proportional hazards regression) .

**CONCLUSIONS:** Implantation of the AGV was associated with the need for significantly greater adjunctive medication to achieve equal success relative to implantation of the BGI and resulted in a greater relative risk of reoperation for glaucoma. More subjects experienced serious postoperative complications in the BGI group than in the AGV group.

Ophthalmology. 2014 Apr 23. pii: S0161-6420(14) 00204-8. doi: 10.1016/j.ophtha.2014.01.036.

PMID: 20932583

<http://www.ncbi.nlm.nih.gov/pubmed/20932583>