

Advanced Glaucoma Intervention Study (AGIS) - 1994



Objective

To evaluate long-term visual outcomes after eyes with medically uncontrolled open-angle glaucoma were randomized to different treatment sequences

Methods

Design: Multicenter RCT

Sample Size: 789 eyes

Treatment Groups:

- ATT: argon laser trabeculoplasty (ALT) → trabeculectomy (trab) → trab
- TAT: trab → ALT → trab

Outcome Measures:

- Primary: Visual Function: Visual Field (VF) & Visual Acuity (VA)
- Secondary: intraocular pressure (IOP), surgical complications, time to treatment failure, additional medical therapy needed

Results

AGIS 9: TAT slows glaucoma progression more effectively in white patients than in black patients. ATT was slightly more effective in black participants than in white participants.

- Sustained decrease of VF is 31% less for blacks than whites in the ATT sequence (RR=0.69, P=0.087), and 51% greater for blacks than whites in the TAT sequence (RR=1.51, P=0.107).

AGIS 4 & 13: Black patients with ATT had a lower combined VA & VF losses than those with TAT. White patients had a lower combined VA & VF loss after 7 years with TAT.

- In black patients, VA losses progressively increased over 10 years in both intervention sequences, with losses significantly greater (P<0.01) with TAT than with ATT.

AGIS 7: Less VF loss occurred with lower IOP - an average IOP≤14mmHg in the first 18 months after the first surgical intervention and with IOP≤18mmHg for all study visits.

AGIS 11: ALT ineffectiveness was associated with younger age and higher IOP. Trab ineffectiveness was associated with younger age, higher IOP, diabetes mellitus, and postoperative complications.

- Initial intervention failed in 256 (33%) eyes. Most treatment failures (79% in ALT, 71% in trabeculectomy) went on to have a second intervention, of which 54 (27%) failed.

AGIS 12: Risk factors for sustained VF loss included better baseline VF, male sex, worse baseline VA, and diabetes mellitus. Risk factors for sustained VA decrease included better baseline VA, older age, and less formal education.

TLDR: ATT slows glaucoma progression more effectively than TAT for black patients, but TAT is favored for all white patients without life-threatening health problems