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Abstract Information

Abstract Title:
How much of glaucoma damage is pressure-dependent?

Purpose:
To investigate visual field changes (worsening or improvement), assessed by commonly used criteria, in patients with advanced glaucoma damage who underwent antimetabolite filtering surgery, and to identify risk factors associated with change.

Design:
Prospective, protocol-controlled data collection, periodic retrospective data analysis, of a consecutive case series.

Participants:
All patients undergoing primary 5-Fluorouracil (1989-1991) or Mitomycin C (1991-1995) filtering surgery by PP were asked to come for examination annually. All 205 eyes of 159 subjects were assessed.

Main Outcome Measures:
IOP control, Humphrey VF parameters: MD, PSD; VF change as assessed by change in MD, PSD, or clustered points; best-corrected visual acuity, number of glaucoma medications, complications and interventions; Kaplan-Meier analysis of results.

Methods:
Visual field change (MD, PSD) was assessed for the group by annual mean values, and for individual eyes by a 3 dB change in MD, PSD or 10-5-5 dB change in clustered points. Multiple regression analysis was used to identify associations of clinical factors with VF change.

Results:
The mean IOP was reduced from 26 to 11 mm Hg during 10 years of follow up. The average follow up was 6.8 years (+/-3.7). There was no net visual field progression (from a baseline of MD = -14.54 dB, PSD = 8.58) for the whole group by either change in MD or PSD, similar to Group A in the AGIS report 7.

Of 83 eyes followed for more than 5 years, nearly equal percentages improved as progressed by MD (13 vs 10%), PSD (4 vs 6%) or clustered point (16 vs 17%) changes. However, correlations were found between progression and clinical factors: maximum IOP and standard deviation of IOP during follow up and higher pre-operative IOP and PSD. No correlations were found between clinical improvement and clinical factors. None of 15 eyes with all IOP < 14 mm Hg progressed in 5-14 years of follow up; 11 of 52 (21%) progressed at maximum IOP >13, <21; 6 of 16 (38%) progressed at a maximum IOP > 20 mm Hg.

Conclusion:
Our results suggest that glaucoma progression can be halted for at least 5-10 years in the vast majority of advanced cases by lowering the IOP to the low teens.

While the finding that nearly equal numbers of subjects improved as progressed by any of three criteria suggested that it represented variation, or