32 Outcomes of Ahmed Valve Implantation Supplemented with Limited Diode Cyclophotocoagulation

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Purpose/Relevance

To report the outcomes of Ahmed glaucoma valve (AGV) implantation supplemented with limited diode cyclophotocoagulation (cpc) if IOP is medically uncontrolled after AGV.

Methods

Retrospective review, 2003 to 2017. Treatment was considered a failure if any 1 of the following criteria were met: 1) Additional glaucoma surgery except limited diode cpc, 2) IOP >20% from baseline at 2 consecutive visits 3 months post AGV, 3) loss of light perception (LP), and 4) AGV removal. Limited diode cpc was defined as number of laser applications 18 or less, power of 1.25 to 2 W and duration of 2 to 4 seconds.

Results

107 eyes (90 patients) were reviewed. Mean age 66 yrs, 47% female, 62% Caucasian, 47% with POAG. Mean VCDR was 0.8, avg HVF MD was -11.7 dB (range -29.1 to -0.8). 63% were pseudophakic, 42% had prior glaucoma surgery, 13% had prior diode cpc. Mean number of glaucoma procedures prior to AGV was 0.9 (range 0 to 5). Tube tip was placed in the AC (81%) or in the pars plana (19%). Patch graft was used in all except 1 eye, material used most frequently was pericardium (78%). Mean follow-up was 39 ± 32 months (range 42 days-14 years). Limited cpc was performed in 28/107 (26%); 18% (19/107) had 1 cpc, 6% (6/107) had 2 cpc, and 0.9% (1/107) each had 3, 4, and 5 cpc. Average number of spots for 1st cpc was 13 ± 3 and for 2nd cpc was 14 ± 2. Mean interval between AGV and first cpc was 18 ± 26 mths. Mean IOP decreased from 23.3 ± 8.1 to 12.2 ± 4.8 mmHG at last follow-up ($p < 0.0001$, paired t-test). Mean number of meds decreased from 3.5 ± 1.1 to 2.0 ± 1.2 ($p < 0.0001$, paired t-test). There was no significant change in mean logMAR VA. 6/107 eyes (5.6%) required additional glaucoma surgery, 2/107 (1.9%) had AGV removal, 1/107 (0.9%) had loss of LP, and 25/107 (23.4%) did not meet IOP lowering criteria such that the total number of failures was 34 (32%). Complications included worsening of pre-existing corneal edema (9/107, 8.4%), tube erosion (7/107, 6.5%), transient diplopia (≤3 mths; 7/107, 6.5%), persistent diplopia requiring prism correction (1/107, 0.9%), hyphema >1 mth (4/107, 3.7%), endophthalmitis (2/107, 1.9%), and ptosis requiring lid surgery (2/107, 1.9%). In addition,1 eye (0.9%) each had serous choroidals >1 mth, fibrinous iritis, loss of LP, vitreous heme, patch graft exposure, RD, iris bombe, and plate exposure. 1/28 eyes (3.6%) with cpc had new-onset macular edema.

Discussion

This study presents a case series of 107 eyes that underwent AGV implantation for different types and stages of glaucoma over a period of 14 years. Limited diode cyclophotocoagulation following AGV was not considered a failure and was performed in 26% of eyes. Failure by any one of 4 different criteria occurred in 32%, but only 5.6% required additional glaucoma surgery. Worsening of pre-existing corneal edema was the most common complication.

Conclusion

Ahmed valve implantation supplemented with limited cyclophotocoagulation was successful in two thirds of the eyes in this case series, and very few required additional glaucoma surgery. Complications were comparable to those previously reported.

References

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