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East Lancashire Hospitals NHS Trust

A Retrospective Study To Assess Visual Field Improvement Following Augmented Trabeculectomy

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Purpose: To explore the visual field (VF) changes 2 years following augmented trabeculectomy.

Methods: A retrospective study of patients who underwent augmented trabeculectomy surgery with Mitomycin C by a single surgeon at East Lancashire Teaching Hospitals NHS Trust over 3 years. Patients with a minimum of two years post operative follow-up were included. Baseline characteristics, IOP, VF, number of glaucoma medications and complications were recorded.

Results: 206 eyes were included, 97 (47%) patients were female and the mean age was 73.8 ± 10.3 (range 43 to 93) years. 131 (63.6%) eyes were pseudophakic before trabeculectomy.
The patients were divided into three outcome groups according VF outcome. 77 (37.4%) patients had stable VF, 35 (17.0%) patients showed VF improvement and 94 (45.6%) had VF deterioration.

Surgery type	N (%)
Trabeculectomy + MMC	170 (82.5%)
Phacotrabeculectomy + MMC	24 (11.7%)
Redo trabeculectomy + MMC	9 (4.4%)
Trabeculectomy + MMC + anterior vitrectomy	3 (1.5%)

Table 1. Type of surgery of all patients

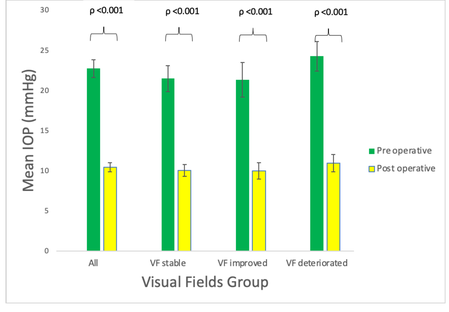


Figure 1. Pre operative and post operative IOP (mmHg) for all patients and each of the three outcome groups; VF stable, VF improved and VF deteriorated at 2 years after trabeculectomy surgery.

The overall mean pre operative IOP was 22.7 ± 8.0 mmHg and post operative IOP 10.4 ± 4.2 mmHg, with a reduction of 50.2% (p<0.001). 84.5% of post operative patients did not require glaucoma medications. A higher number of patients with post operative IOP ≥ 15mmHg had deteriorating VF (p<0.001).

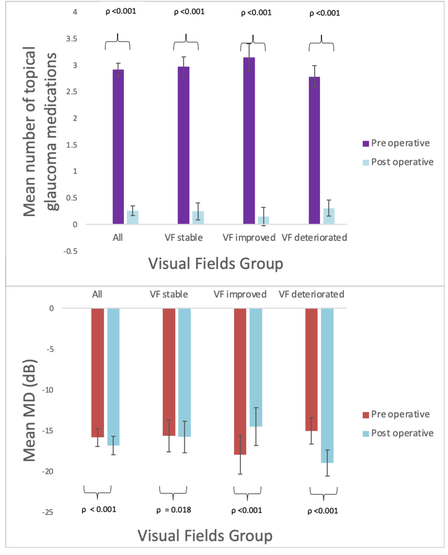


Figure 2. Pre operative and post operative number of topical glaucoma medications for all patients and each of the three outcome groups; VF stable, VF improved and VF deteriorated at 2 years after trabeculectomy surgery

Figure 3. Pre operative and post operative Mean deviation (dB) for all patients and each of the three outcome groups; VF stable, VF improved and VF deteriorated at 2 years after trabeculectomy surgery.

Visual Fields Group		Mean MD (dB)					
		Total	0 to -6	-6 to -12	-12 to -18	-18 to -24	>-24
All	n	206	19	50	66	32	39
	(%)	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
VF stable	n	77	9	25	18	7	18
	(%)	37.4%	47.4%	50.0%	27.3%	21.9%	46.2%
VF improved	n	35	1	6	10	11	7
	(%)	17.0%	5.3%	12.0%	15.2%	34.4%	17.9%
VF deteriorated	n	94	9	19	38	14	14
	(%)	45.6%	47.4%	38.0%	57.6%	43.8%	35.9%

Table 2. Distribution of pre operative MD for all patients and each of the three outcome groups; VF stable, VF improved and VF deteriorated at 2 years after trabeculectomy surgery.

Based on pre operative MD distribution, VF improvement or stability was more achievable with patients with a pre operative VF defect up to -12 dB (n=41, 59.4%) and in those with greater than -24dB (n= 25, 64.1%).

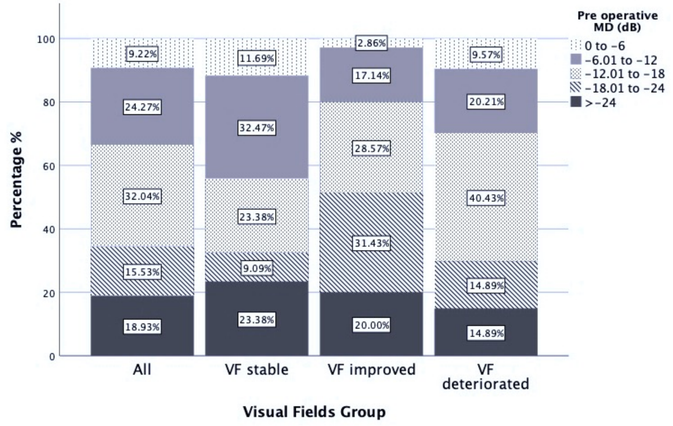


Figure 4. Stacked bar chart of the distribution of pre operative MD for all patients and each of the three outcome groups; VF stable, VF improved and VF deteriorated at 2 years after trabeculectomy surgery.

Complication, n (%)	All patients (n=206)	VF stable at 2 years (n=77)	VF improved at 2 years (n=35)	VF deteriorated at 2 years (n=94)
Numerical hypotony (≤5mmHg)	28 (13.6%)	11 (14.3%)	3 (8.6%)	14 (14.9%)
Bleb edge leak	7 (3.4%)	1 (1.3%)	1 (2.9%)	5 (5.3%)
Cystoid macular oedema	6 (2.9%)	2 (2.6%)	2 (5.7%)	2 (2.1%)
Minimal hyphema	3 (1.5%)	0	0	3 (3.2%)
Bleb dysthesia	2 (1.0%)	1 (1.3%)	0	1 (1.1%)
Corneal abrasion	1 (0.5%)	0	0	1 (1.1%)
Corneal oedema	1 (0.5%)	0	0	1 (1.1%)
Fibrin in anterior chamber	1 (0.5%)	1 (1.3%)	0	0
Sclerostomy occlusion	1 (0.5%)	0	0	1 (1.1%)
Corneal epithelial defect	2 (1.0%)	1 (1.3%)	0	1 (1.1%)
Total	52 (25.2%)	17 (22.1%)	6 (17.1%)	29 (30.9%)

Table 3. Type and frequency of post operative complications for all patients and each of the three outcome groups.

Conclusion: Trabeculectomy continues to be an effective means of lowering IOP in patients with uncontrolled glaucoma and is important in stabilising or improving visual fields. We recommend early trabeculectomy to prevent further VF deterioration. This may help in maintaining VF for driving status and thus quality of life.