

ORIGINAL ARTICLE

A comparative analysis of Phacotrabeculectomy and conventional combined technique in coexisting glaucoma and cataract patients

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ABSTRACT:

Background: Primary angle-closure glaucoma, often referred to as simply angle-closure glaucoma, is a type of glaucoma, a group of eye diseases that can lead to progressive vision loss and blindness. The present study compared efficacy of single-site phacotrabeculectomy and conventional combined surgery in primary open-angle glaucoma and cataract patients. **Materials & Methods:** 70 patients with primary open-angle glaucoma with coexisting cataract were divided into 2 groups of 35 each. Group I underwent single-site phacotrabeculectomy and group II patients were subjected to combined extracapsular lens extraction with trabeculectomy. Post-operative complications were recorded in both groups. **Results:** Group I had 20 males and 15 females and group II had 18 males and 17 females. There was a progressive change of visual fields and fundus status of 1 patient in group I at 4 weeks, 3 in group I and 1 in group II at 1 month, 4 in group I and 3 in group II at 6 months and 5 in group I and 4 in group II at 1 year. The difference was non-significant ($P > 0.05$). Post-operative complications were uveitis seen in 1 in group I and 2 in group II, uncontrolled glaucoma 3 in group I and 2 in group II, and posterior capsule opacification 2 in group I and 1 in group II, hyphaema 1 in group I and 2 in group II, shallow AC 2 in group I and 1 in group II, and significant striate 2 in group I and 1 in group II. The difference was non-significant ($P > 0.05$). **Conclusion:** Authors found that in patients with primary open angle glaucoma and cataracts, phacotrabeculectomy alone is more advantageous than standard combination surgery.

Key words: Cataract, Open-angle glaucoma, Phacotrabeculectomy

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INTRODUCTION

Primary angle-closure glaucoma, often referred to as simply angle-closure glaucoma, is a type of glaucoma, a group of eye diseases that can lead to progressive vision loss and blindness.¹ In angle-closure glaucoma, there is a blockage or narrowing of the drainage angle in the eye, which results in increased intraocular pressure (IOP). Elevated IOP can damage the optic nerve, leading to vision loss.² Many ocular risk factors have been shown to lead to acute PAC, including hyperopia, shallow anterior chamber depth (ACD), thick crystalline lens and short axial length. Without treatment patients may develop primary angle closure glaucoma (PACG) and progressive vision loss.³

The therapy of coexisting cataract and primary open angle glaucoma has advanced quickly with the introduction of microsurgical techniques. This has led to the successful application of combination surgical intervention, such as intraocular lens implantation and trabeculectomy, to treat both glaucoma and cataract concurrently in one session.⁴ Considered the safety and efficacy of a valve incision for a closed chamber surgery for cataract, it is very much justified to apply this qualitatively superior technique to patients with coexisting cataract and glaucoma as well.⁵ Small

incision phacoemulsification surgery has emerged as the most ideal and widely accepted technique in the management of cataract.⁶ The present study compared efficacy of single-site phacotrabeculectomy and conventional combined surgery in primary open-angle glaucoma and cataract patients.

MATERIALS & METHODS

The present study was conducted on 70 patients with primary open angle glaucoma with coexisting cataract of both genders. All patients were informed regarding the study and their consent was obtained.

Data such as name, age, gender etc. was recorded. Patients were divided into 2 groups of 35 each. Group I underwent single site phacotrabeculectomy and group II patients were subjected to combined extracapsular lens extraction with trabeculectomy. Periodic regular follow up was done. Parameters such as status of visual acuity corrected and uncorrected, intra ocular pressure, optic disc and fundus changes as well as presence of any post-operative complications were recorded. Results were tabulated and subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Groups	Group I	Group II
Method	Phacotrabeculectomy	Combined extracapsular lens extraction with trabeculectomy
M:F	20:15	18:17

Table I shows that group I had 20 males and 15 females and group II had 18 males and 17 females.

Table II Assessment of visual fields & fundus status

Duration	Group I	Group II	P value
1 week	35	35	1
2 weeks	35	35	1
4 weeks	34	35	0.92
1 month	32	34	0.91
6 months	31	32	0.95
1 year	30	31	0.86

Table II, graph I shows that there was progressive change of visual fields and fundus status of 1 patient in group I at 4 weeks, 3 in group I and 1 in group II at 1 month, 4 in group I and 3 in group II at 6 months and 5 in group I and 4 in group II at 1 year. The difference was non-significant ($P > 0.05$).

Graph I Assessment of visual fields & fundus status

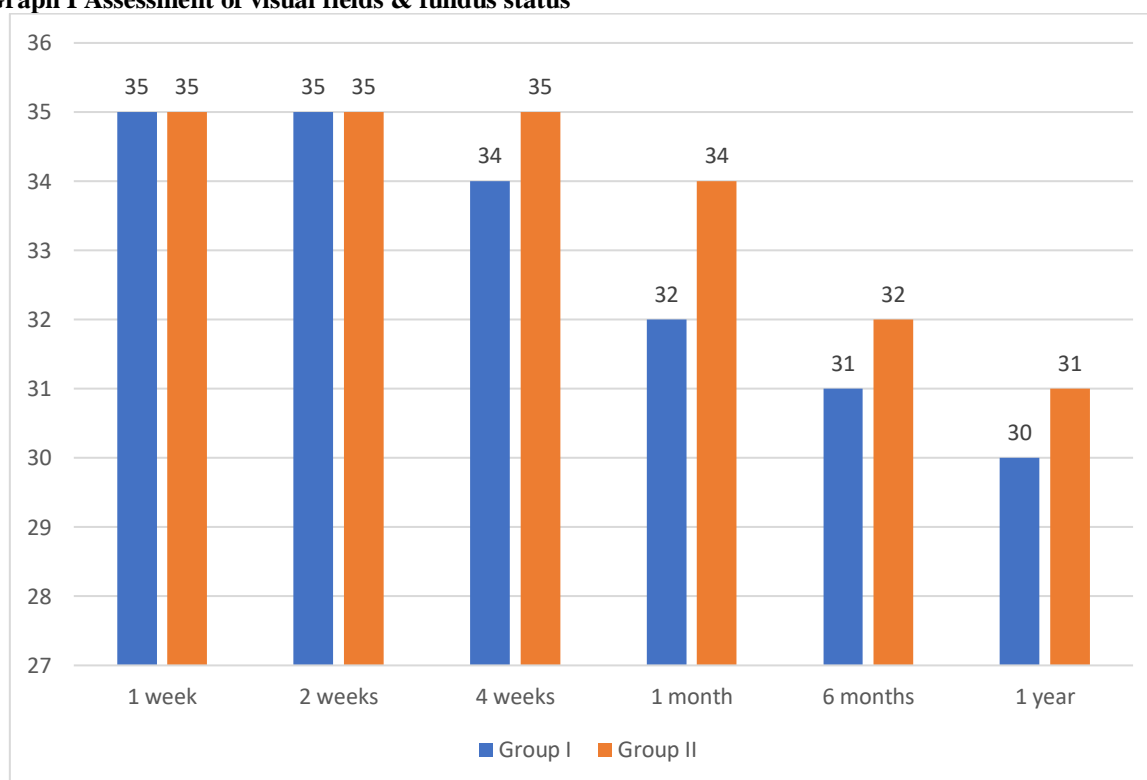


Table III Post-op complications in both groups

Post-op complications	Group I	Group II	P value
Uveitis	1	2	0.84
Uncontrolled glaucoma	3	2	
Posterior capsule opacification	2	1	
Hyphaema	1	2	
Shallow AC	2	1	
Significant striate	2	1	

Table III shows that post-operative complications were uveitis seen in 1 in group I and 2 in group II, uncontrolled glaucoma 3 in group I and 2 in group II, and posterior capsule opacification 2 in group I and 1 in group II, hyphaema 1 in group I and 2 in group II, shallow AC 2 in group I and 1 in group II, and significant striate 2 in group I and 1 in group II. The difference was non-significant ($P > 0.05$).

DISCUSSION

In some cases, primary angle-closure glaucoma can present as an acute attack, characterized by a sudden and dramatic increase in IOP. This is a medical emergency that requires immediate attention, as it can lead to rapid vision loss if not treated promptly.^{7,8} Some individuals may have chronic or subacute angle-closure glaucoma, which develops more gradually and may have milder symptoms. However, it can still lead to significant vision problems if left untreated.^{9,10} The present study was conducted to compare the efficacy of single-site phacotrabeculectomy and conventional combined surgery in primary open-angle glaucoma and cataract patients.

We found that group I had 20 males and 15 females and group II had 18 males and 17 females. There was a progressive change of visual fields and fundus status of 1 patient in group I at 4 weeks, 3 in group I and 1 in group II at 1 month, 4 in group I and 3 in group II at 6 months and 5 in group I and 4 in group II at 1 year. Chia et al¹¹ in their study fifty patients who had undergone combined extracapsular cataract extraction (ECCE), intra-ocular lens (IOL) placement and trabeculectomy (ECCE-trab) and 50 who had undergone combined cataract phaco-emulsification, IOL placement and trabeculectomy (phaco-trab) were reviewed. Postoperatively, intra-ocular pressure (IOP) in both eyes fell significantly. Initially, IOP fell to roughly equal degrees (mean IOP being 14 mmHg at 3 months; $P = 0.84$). At 12 months, IOP in the phacotrab group was slightly lower than that in the ECCE-trab group (13.4 \pm 4.3 vs 15.4 \pm 4.4 mmHg, respectively; $P = 0.0312$). The number of pre-operative medications did not appear to affect outcome. Visual recovery was approximately 3 months faster in the phaco-trab group. By 12 months there was little difference in visual acuity, with an average improvement of two Snellen lines. The mean change in astigmatism was significantly less in the phaco-trab group (0.61 \pm 1.25 vs 1.39 \pm 1.46 D, respectively, $P = 0.0063$). Transient hypotony (IOP < 5 mmHg) was more frequent in the phaco-trab group (66 vs 32%, respectively; $P < 0.002$). The frequency of other complications was not significantly different between the two groups.

We found that post-operative complications were uveitis seen in 1 in group I and 2 in group II, uncontrolled glaucoma 3 in group I and 2 in group II, and posterior capsule opacification 2 in group I and 1 in group II, hyphaema 1 in group I and 2 in group II, shallow AC 2 in group I and 1 in group II, and significant striate 2 in group I and 1 in group II. Ahmed et al¹² reviewed 50 patients who had undergone combined phacoemulsification with IOL implantation and trabeculectomy (phacotrab group) and 50 who had undergone combined ECCE, IOL implantation and trabeculectomy (ECCE trab group), over a period of 12 months. Postoperative IOP in both groups fell significantly ($P=0.050$). At 12 months, the

IOP in phacotrab group was lower than ECCE trab group. Postoperative visual recovery was much better and faster in phacotrab group than in ECCE trab group. The frequency of complication was significantly higher in ECCE trab group. The shortcoming of the study is small sample size.

CONCLUSION

Authors found that in patients with primary open angle glaucoma and cataracts, phacotrabeculectomy alone is more advantageous than standard combination surgery.

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