

COMPARISON BETWEEN COMBINED PENETRATING TRABECULOTOMY-TRABECULECTOMY AND NON-PENETRATING TRABECULECTOMY IN THE SURGICAL TREATMENT OF PRIMARY CONGENITAL GLAUCOMA

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Introduction

Primary congenital glaucoma (PCG) in Egypt accounts for 26–29% of childhood blindness. Surgical intervention is the primary treatment of PCG, with multiple options according to the case severity and expected prognosis. One of these is Combined Trabeculotomy-Trabeculectomy (CTT) which has the advantage of gaining a dual approach: targeting the developmentally abnormal angle structure, and an additional external filtration mechanism. With reported greater success than with either procedure performed alone. Non-Penetrating Deep Sclerectomy (NPDS) is a technically more demanding non-penetrating glaucoma surgery, with some potential advantages as: increase in the intraocular pressure-lowering effect predictability, creation of new outflow pathways, and the non-penetration of the anterior chamber with avoidance of iridectomy.

Aim of the work

The aim of this work was comparing Combined Trabeculotomy-Trabeculectomy and Non-Penetrating Deep Sclerectomy in the surgical treatment of primary congenital glaucoma regarding their safety and efficacy.

Subjects and Methods

Subjects: This was a retrospective study that included sixty eyes; with the diagnosis of PCG selected randomly from the files of the ophthalmology department of Alexandria University. The cases were divided in to two groups each comprises 30 eyes, one of them were subjected to Combined Trabeculotomy-Trabeculectomy while the other group cases were subjected to Non-Penetrating Deep Sclerectomy as their primary surgical intervention.

METHODS: After assuring the confidentiality of the records, and gaining the approval of the local ethics committee of the faculty medicine, a retrospective comparative study of preoperative, postoperative and follow up visits findings was done for both study groups. With main outcome studied is the postoperative intraocular pressure and complications in both groups.

Results

Table 1: Comparison between the two studied groups according to IOP (mmHg)

IOP (mmHg)	CTT (n = 30)	NPDS (n = 30)	U	P
Preoperative				
Min. – Max.	21.0 – 36.0	21.0 – 38.0	309.0*	0.036*
Mean ± SD.	25.57 ± 4.52	27.90 ± 5.04		
Median (IQR)	23.50 (22.0 – 28.0)	26.50 (24.0 – 32.0)		
1 week				
Min. – Max.	0.0 – 26.0	2.0 – 8.0	176.0*	<0.001*
Mean ± SD.	9.73 ± 6.44	4.53 ± 1.48		
Median (IQR)	8.0 (6.0 – 12.0)	5.0 (3.0 – 5.0)		
1 month				
Min. – Max.	0.0 – 26.0	3.0 – 15.0	430.0	0.766
Mean ± SD.	9.0 ± 6.55	7.53 ± 2.75		
Median (IQR)	8.0 (5.0 – 10.0)	8.0 (6.0 – 9.0)		
3 month				
Min. – Max.	1.0 – 34.0	4.0 – 18.0	331.0	0.074
Mean ± SD.	8.80 ± 7.14	9.17 ± 2.83		
Median (IQR)	8.0 (5.0 – 10.0)	9.0 (8.0 – 10.0)		
6 month				
Min. – Max.	0.0 – 30.0	6.0 – 18.0	318.50*	0.049*
Mean ± SD.	9.53 ± 7.01	10.27 ± 2.61		
Median (IQR)	8.0 (5.0 – 12.0)	10.0 (8.0 – 11.0)		
1 year				
Min. – Max.	2.0 – 38.0	8.0 – 18.0	277.5*	0.010*
Mean ± SD.	10.17 ± 7.03	11.0 ± 2.36		
Median (IQR)	8.0 (7.0 – 11.0)	10.0 (10.0 – 12.0)		
2 year				
Min. – Max.	3.0 – 34.0	8.0 – 20.0	317.0	0.044*
Mean ± SD.	10.70 ± 6.34	11.73 ± 2.59		
Median (IQR)	10.0 (6.0 – 12.0)	12.0 (10.0 – 12.0)		

Figure: Comparison between the two studied groups according to IOP (mmHg)

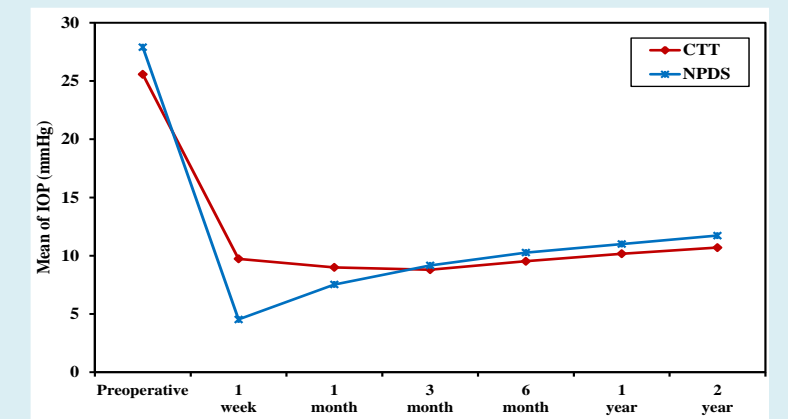


Table 2: Comparison between the two studied groups according to the post-operative complications

	CTT (n = 30)		NPDS (n = 30)		χ^2	FEp
	No.		No.			
Complications						
No	28	93.3	24	80.0	2.308	0.254
Yes	2	6.7	6	20.0		
Hyphaema	0	0.0	4	13.3	4.286	0.112
Incarcerated iris	0	0.0	3	10.0	3.158	0.237
Drawn up pupil	2	6.7	1	3.3	0.351	1.000
Suprachoroidal hemorrhage	1	3.3	0	0.0	1.017	1.000

Conclusion

- In experienced surgeons' hands both Combined Trabeculotomy-Trabeculectomy (CTT) and Non-Penetrating Deep Sclerectomy (NPDS) had comparable overall success rates and were found to be efficient in lowering the intraocular pressure in primary congenital glaucoma (PCG) cases.
- Non-Penetrating Deep Sclerectomy (NPDS) had insignificant postoperative complications in our study and can be considered a safe procedure added to the armamentarium of primary congenital glaucoma (PCG) management.