

## Outcome of Fine-Tube Glaucoma Drainage Implant in Ibadan, Nigeria

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**Introduction:** Trabeculectomy is regarded as the gold standard for glaucoma surgery, however the use of glaucoma drainage implants (GDIs) has assumed an important role in the management of complicated and intractable glaucoma<sup>[1-3]</sup>. These devices can be used as the primary surgical modality as well as a secondary procedure for patients with failed trabeculectomy. The non valved fine-tube implant is a relatively new glaucoma drainage device (GDD) with a drainage tube that has a smaller caliber than other GDDs.

**Aim:** To report the intraocular pressure control and complications of the fine-tube GDI at the University College Hospital, Ibadan.

**Methods:** This was a prospective study in which 19 eyes of 18 patients were studied. All patients were followed up for a minimum of one year. All surgeries were performed by one surgeon (OO). The procedure of insertion of the tube involved attaching the plate to the sclera, and inserting the tube into the anterior chamber. Success was defined using the world Glaucoma Association (WGA) Consensus criteria 2<sup>[4]</sup>.

**Results:** A total of 19 eyes of 18 patients with a mean age of 42.33 ( $\pm 27.85$ ) years were analyzed. Two (11.1%) had a positive family history of glaucoma. Indications for surgery included failed trabeculectomy in 9 patients (50.0%) and pseudophakic glaucoma in 5 patients (27.78%). Ten (55.56%) patients were on at least 3 anti-glaucoma medications regardless of previous surgical intervention. The mean IOP just before surgery was 28 ( $\pm 11.52$ ) mmHg. The mean IOP was 10.9mmHg on the first post-operative day and was 15 ( $\pm 5.2$ ), 15 ( $\pm 5.8$ ), 16 ( $\pm 4.2$ ), 14 ( $\pm 3.8$ ) and 14.5 ( $\pm 4.7$ ) mmHg at 1, 3, 6, 12 and 24 post-

operative months respectively, with a statistically significant reduction of IOP ( $p < 0.01$ ) at each of these points of follow up compared to the pre-operative IOP. Qualified success at one year was 63.2% (12 eyes), 89.5% (17 eyes) and 94.7% (18 eyes) using an IOP cut off of 15mmHg, 18mmHg and at 21mmHg respectively. Fourteen patients (14 eyes) were followed up for 18 months and 12 patients (12 eyes) have been followed up for 24 months. At 24 months, qualified success was 58.3% (7 eyes), 91.7% (11 eyes) and 91.7% (11 eyes) using an IOP cut off of 15mmHg,

18mmHg and at 21mmHg respectively. Postoperative complications included encapsulation in 2 (10.5%) eyes and early post-operative hyphema in one eye (5.3%).

**Discussion:** In our study, the mean IOP was 10.9mmHg on day 1 and 14.5mmHg at 24 months. This is comparable to other studies showing a controlled IOP of 10 to 13 mmHg at Day 1 and 13 to 17 mmHg at Year 2 to 3<sup>[1-3]</sup>. A study done by Kiage et al in Kenya reported that the mean pre-operative IOP in their patient group was 36.4 mm Hg which was reduced to 16.7 mmHg at 2 months.<sup>[5]</sup> GDI surgery is typically associated with less need for close post-operative follow-up compared with trabeculectomy, and the trabeculectomy versus tube (TVT) study revealed a decreased requirement for re-operation among eyes treated with GDI compared to eyes treated with trabeculectomy.

**Conclusion:** This study shows that the fine-tube as a GDI is effective in IOP reduction in uncontrolled glaucoma cases among Nigerians.

## References

1. Ayyala RS, Zurakowski D, Smith JA, Monshizadeh R, Netland PA, Richards DW, et al. A clinical study of the Ahmed glaucoma valve implant in advanced glaucoma. *Ophthalmology*. 1998; 105:1968-76
2. Gedde SJ, Schiffman JC, Feuer WJ. The Tube versus Trabeculectomy Study Group. Treatment outcomes in the Tube Versus Trabeculectomy (TVT) Study after one year of follow-up. *Am J Ophthalmol*. 2007;143:9-22

3. Lu D-W, Chen Y-H, Tai M-C. Long-term outcomes of Ahmed glaucoma valve surgery in Taiwanese patients with intractable glaucoma. *Taiwan J. Ophthalmol.* 2012(2); 89-92
4. Barton K, Feuer WJ, Heuer DK. Glaucoma definitions of success. *Ophthalmology.* 2010; 117(10); 2043
5. Kiage DO, Gradin D, Gichuhi S, Damji KF. Ahmed glaucoma valve implant: Experience in East Africa. *Middle East Afr J Ophthalmol.* 2009;16:151-5