Outcomes up to One Year Follow-Up in Patients undergoing Phacoemulsification with Kahook Dual Blade Goniotomy in a District General Hospital

Laura Boddy, Mohamed Hegab, Noor Asir, Siddharth Agarwal

Northern Care Alliance, Rochdale Infirmary, Whitehall St, Rochdale OL12 0NB

Introduction

Kahook Dual Blade Goniotomy is a cost-effective Minimally Invasive Glaucoma Surgery (MIGS) not commonly used in the United Kingdom. Evidence from other countries have found efficacy at reducing intraocular pressure (IOP)[1]. This poster examines patients who have undergone KDB goniotomy alongside Phacoemulsification up to 1 year follow-up to see if it effectively reduces IOP and maintains it long-term.

Variables	All Patients (n=97)
Age, years	74.3 (7.8)
Female (%)	49 (50.5%)
Left Eye (%)	47 (48.5%)
IOP, mmHg	20.7 (7.2)
No. of IOP-lowering eye drops	3.1 (1.8)
Acetazolamide use (%)	14 (14.4%)
Acuity	(6/10.5)

Table 1. Patient demographics, Data is shown as Mean (SD) unless stated otherwise

Methods

A retrospective analysis was performed on all cases of Phacoemulsification with KDB goniotomy identified between 1st January 2019 to 5th May 2022. Intraocular pressure, visual acuity and medication regimes were obtained pre-procedure and 1 week, 1 month and 1 year follow-up. Data was analysed using R statistical software[2] using paired T-tests to assess significance.

Results

Patient Demographics pre-op are show in Table 1. The most common diagnosis was primary open-angle glaucoma (n=64). Other diagnoses include angle-closure (n= 6) normal-tension glaucoma (n=2) and ocular hypertension (n=1). All patients received post-operative chloramphenicol and steroids for the first 6 weeks. Post-operative complications included Hyphaema, uveitis and development of narrow angles.

For the whole group, intraocular pressure was significantly reduced at 1 week, 1 month and 1 year (fig 1, table 2). Acuity was significantly reduced at 1 week follow-up ($p<0.01$), but no significant changes were seen at 1 month or 1 year follow-up ($p>0.05$). The number of IOP-reducing drops were significantly reduced at 1 week and 1 year ($p<0.01$, $p=0.02$) but insignificant at 1 month ($p>0.05$).

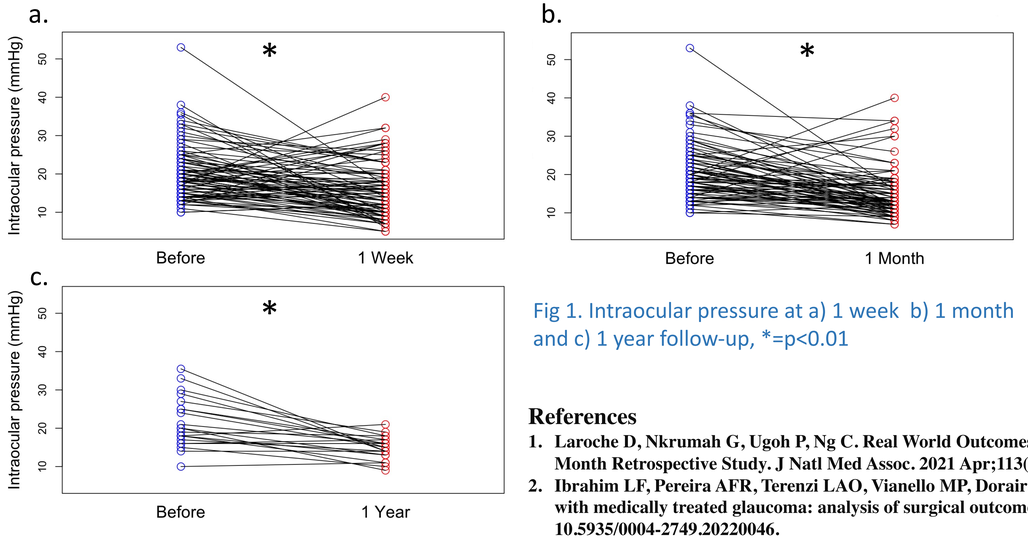


Fig 1. Intraocular pressure at a) 1 week b) 1 month and c) 1 year follow-up, *=p<0.01

Follow-up	Intraocular Pressure, mmHg		P-value
	Pre-op	Post-op	
1 Week (n= 91)	20.7 (18.9-21.9)	15.5 (14.1-16.9)	*<0.01
1 Month (n=88)	20.7 (19.4-22.1)	14.9 (13.4-16.4)	*<0.01
1 Year (n=21)	21.5 (18.6-24.3)	14.8 (13.5-16.1)	*<0.01

Table 1. IOP of patient pre and post surgery at different points of follow-up, data is presented as mean (95% CI)

Discussion and Conclusions

This poster demonstrates KDB goniotomy is an effective MIGS at reducing IOP and reducing medication burden at 1 year. Some patients had incomplete data collection for all time points leading to differences in sample numbers. The initial reduction in acuity can be accounted for by Intravitreal antibiotic/steroid injections during the procedure. Some patients had initial pressure spikes which may be due to post-operative steroids, complications or the reduction in IOP reducing eye drops initially post-operatively. Initially, some patients pre-emptively ceased medications and were advised to continue their previous medications at first follow-up which may account for the return to insignificance at 1 month. The reduction at one year may be due to deprescribing following stable IOP reduction but further analysis is needed.

An initial retrospective comparison study of KDB vs IStent found superiority of KDB in dual cataract and glaucoma surgery but comparison with other MIGS is still needed[4]. Nevertheless, this data demonstrates this surgical technique has efficacy and warrants consideration for patients with glaucoma undergoing cataract surgery.

References

1. Laroche D, Nkrumah G, Ugoh P, Ng C. Real World Outcomes of Kahook Dual Blade Goniotomy in Black and Afro-Latinx Adult Patients with Glaucoma: A 6-Month Retrospective Study. J Natl Med Assoc. 2021 Apr;113(2):230-236.
2. Ibrahim LF, Pereira AFR, Terenzi LAO, Vianello MP, Dorairaj SK, Prata TS, Kanadani FN. Phacoemulsification with Kahook Dual Blade goniotomy in eyes with medically treated glaucoma: analysis of surgical outcomes and success predictors. Arq Bras Oftalmol. 2021 Sep 10:S0004-27492021005007230. doi: 10.5935/0004-2749.20220046.
3. R Core Team. 2016, R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL https://www.R-project.org/
4. Arnljots TS, Economou MA. 2021, Kahook Dual Blade Goniotomy vs iStent inject: Long-Term Results in Patients with Open-Angle Glaucoma. Clin Ophthalmol. Feb 11;15:541-550. doi: 10.2147/OPTH.S284687.