Early experience of micropulse transscleral cyclophotocoagulation for the treatment of glaucoma in a single unit

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Background

Micropulse transscleral cyclophotophoagulation has been developed as an alternative to traditional transscleral cyclodiode and aims to reduce intraocular pressure (IOP) while reducing collateral damage to surrounding tissues. We have audited the effectiveness and safety of micropulse transscleral cyclophotophoagulation at the Royal Wolverhampton NHS Trust over the course of 15 months.

Method

Patients who underwent micropulse transscleral cyclophotophoagulation between June 2018 and November 2020 were identified via theatre records. Data including IOP, number of IOP lowering medications being used, post-operative complications and further glaucoma procedures were recorded retrospectively.

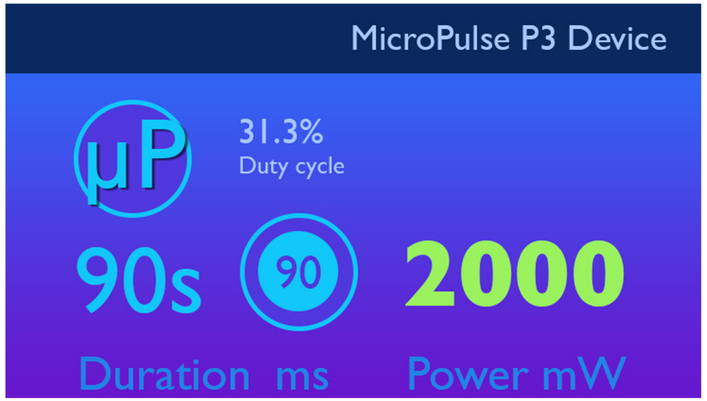


Figure 1 - Settings used for Micropulse cyclophotocoagulation

Results

A total of 32 patients were identified. 20 (63%) patients had a diagnosis of primary open angle glaucoma. The remaining patients had a diagnosis of secondary glaucoma. 11 (34%) patients had undergone previous glaucoma surgery. The mean pre-operative IOP was 28.0 on mean of 3.1 IOP lowering medications. At 1 month post-operatively, the mean IOP was 21.7 on 2.4 medications. At 6 months, the mean IOP was 25.9 on 2.4 medications. At 12 months the mean IOP was 23.6 on 2.4 medications. At 15 months, the mean IOP was 22.6 on 3.0 medications. On average, 15 (48%) patients were followed up at each time point. 7 (22%) patients underwent further glaucoma surgery within 15 months. 6 (19%) of these were further micropulse or conventional cyclodiode while 1 (3%) patient went onto have a trabeculectomy. 1 (3%) patient developed post-operative cystoid macular oedema. Visual acuity (VA) at 12 months compared to baseline remained the same or improved in 15% of patients. There was a reduction of 2 lines or more in 38%.

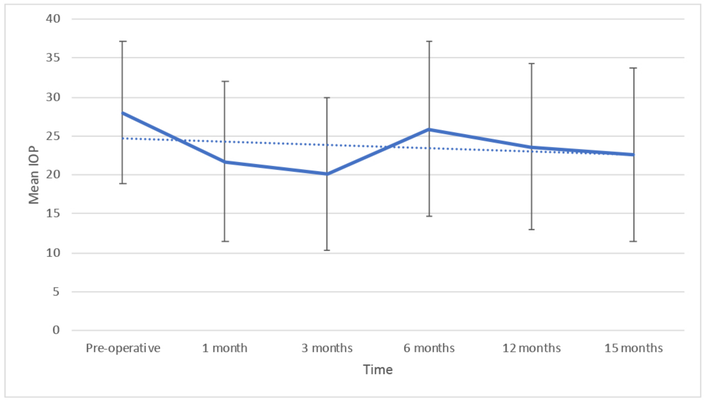


Figure 2 - Mean intraocular pressure at each timepoint (+/- 1 standard deviation)

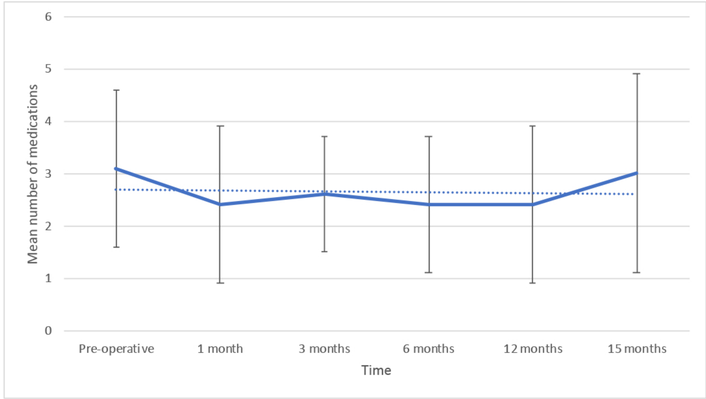


Figure 3 - Mean number of medications at each timepoint (+/- 1 standard deviation)

Conclusion

A single application of micropulse transscleral cyclophotophoagulation was shown to reduce IOP, however, average IOP appeared to fluctuate over the 15 month follow up period, so both topical and systemic medications remained integral to management. The procedure is safe with a low complication rate and can be repeated, however a high proportion of patients required further IOP lowering procedures within the follow up period.