

The PAUL Glaucoma Implant: Early Results in a Paediatric Cohort

E Drysdale, R Mohindra, N Vallabh, C Fenerty, K Yau

Results



MREH 200

MANCHESTER ROYAL EYE HOSPITAL
TWO HUNDRED YEARS OF EXCELLENCE 1814-2014

Purpose

The PAUL Glaucoma Implant (PGI) is a novel glaucoma drainage device, which has been demonstrated to reduce intraocular pressure (IOP) in an adult population. (1) The efficacy and utility of PGI with an intraluminal prolene stent in paediatric glaucoma management has not been previously reported.

Method

Cohort

- 26 cases from MREH
- Age at surgery = 7.68 ± 5.01 (Mean \pm SD)

Intervention

- Surgical insertion of a PGI with an intraluminal prolene stent to treat raised IOP
- 14 right eyes, 12 left eyes

Timeframe

- Operation dates ranging from Sept 2019 to Sept 2020
- Follow up data collected to Jan 2021

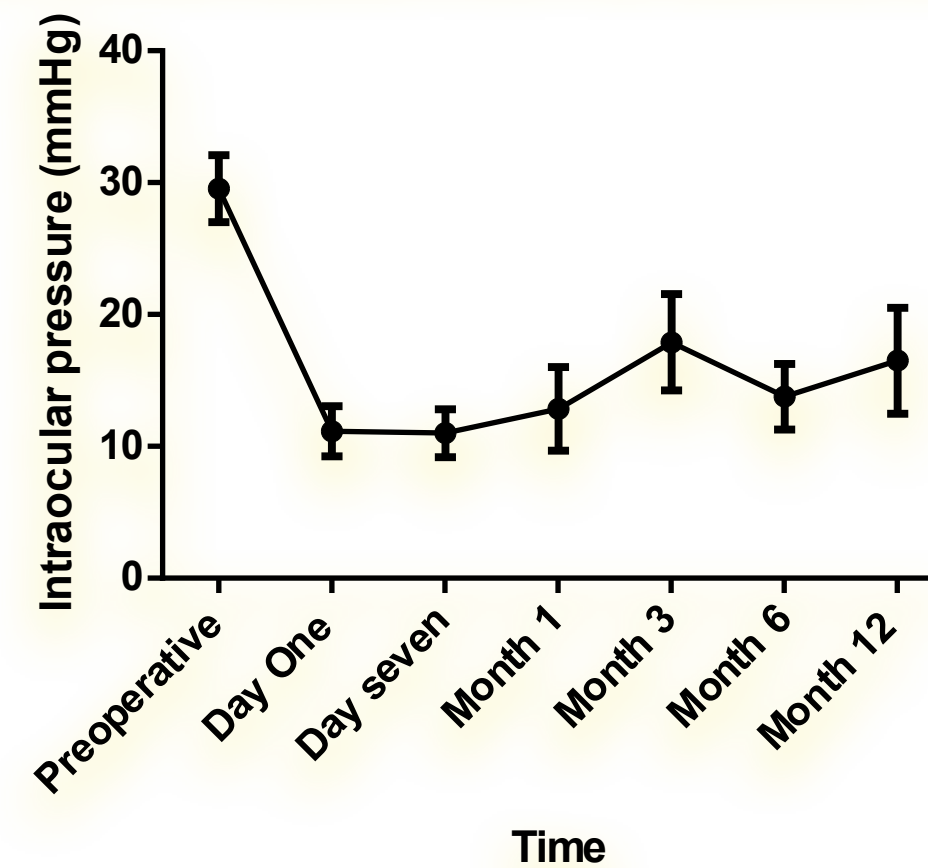
Data

- IOP at pre-op, and post-op at day 1, week 1, months 1, 3, 6 & 12 where data was available
- Number of pressure-lowering medications pre and post-op
- logMAR visual acuity pre and post-op
- Post-op procedures e.g. intraluminal stent removal and IOP changes were noted

Further Interventions

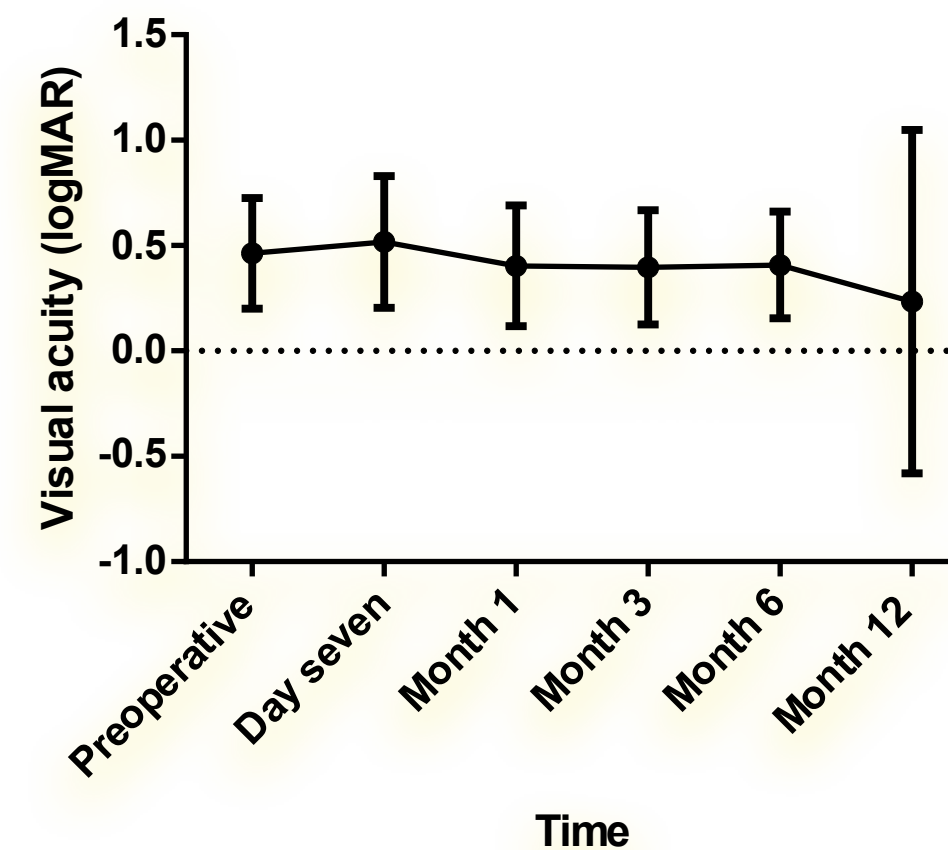
- Seven patients required removal of the intraluminal prolene stent from the PGI for further pressure lowering.
- Two cases of hypotony were reported following removal of the intraluminal prolene stent and one case required re-stenting of the PGI.

A graph to show the mean intraocular pressure (with 95%CI) prior to and after insertion of the Paul Glaucoma Drainage Device

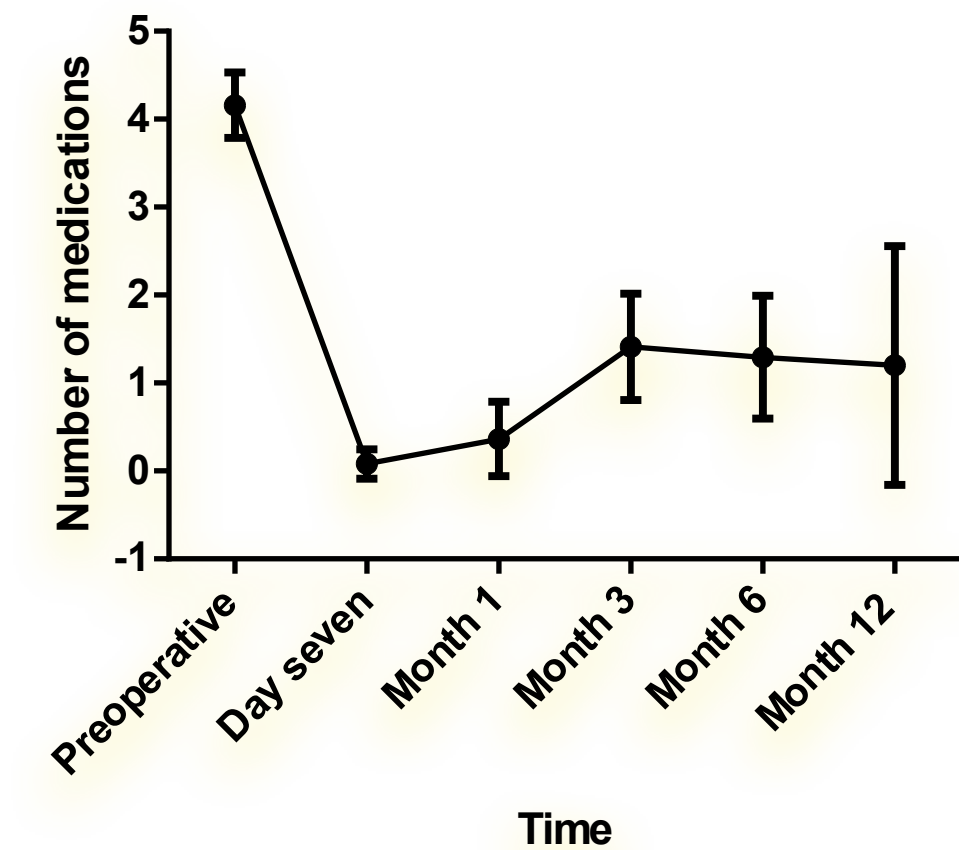


- Mean preop IOP was 29.5 ± 6.0 mmHg (n=24), falling to 11.0 ± 4.1 mmHg at week 1 post-operatively, then 12.9 ± 7.0 at 1 month.
- At 3 months, mean IOP was 17.9 ± 7.8 mmHg and 13.3 ± 4.9 mmHg at 6 months (n=18).

A graph to show the mean logMAR visual acuity (with 95%CI) prior to and after insertion of the Paul Glaucoma Drainage Device



A graph to show the mean number of medications (with 95%CI) prior to and after insertion of the Paul Glaucoma Drainage Device



- The number of medications preop was 4+ medications in all cases (mean 4.16 ± 0.9 (n=25)).
- On day 7, one patient was on medical management (mean 0.08 ± 0.4).
- Medications increased to a mean of 0.35 ± 0.9 at one month, 1.33 ± 1.2 at 3 months and 1.22 ± 1.4 at 6 months (n=18).

Conclusion

These preliminary results demonstrate paediatric PGI surgery is effective at reducing IOP and the need for glaucoma medical therapy, in the timeframe analysed.

Visual Acuity was not greatly affected in this study. Further research is required across a variety of sites and an increased number of cases.

References

1. Koh V, Chew P, Triolo G, et al. Treatment outcomes using the PAUL glaucoma implant to control intraocular pressure in eyes with refractory glaucoma. *Ophthalmology Glaucoma* 2020 Sep-Oct;3(5):350-359. doi: 10.1016/j.ogla.2020.05.001.