Scleral Fixated Intraocular Lens in Children: Meta-analysis and Systematic Review

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PURPOSE

The purpose of this study was to compare the outcomes of different techniques of scleral fixated intraocular lenses in the paediatric population. We included suture-less scleral fixated intraocular lenses (SLSFIOL), glued scleral fixated intraocular lenses (GSFIOL), and sutured scleral fixated intraocular lenses (SSFIOIL) using polypropylene and Gore-Tex sutures.

METHODOLOGY

A systematic review and meta-analysis were performed in line with the PRISMA guidelines. An electronic search was performed to include studies from 1999 to 2023. We included studies of 1-18 years of age. The analysis was based on fixed and random effect models. Primary outcomes included visual acuity, refraction, and intraocular pressure (IOP). Secondary outcomes were lens tilt and extrusion of IOL. We excluded studies with anterior segment dysgenesis or combined corneal transplant, uveitis, and studies that included other types of intraocular lens implantation in the same analysis.

RESULT

Thirty-three studies (1531 eyes) were included (GSFIOL n = 75, SLSFIOL n = 162, SSFIOL n = 1294 40(Gore-tex n = 30, and polypropylene n = 1264)). Vision improved from preoperative (mean 0.75 41 42 ± 0.50 SD) to postoperative (mean 0.39 ± 0.19 SD) logMAR. The mean spherical equivalent was 43 0.59 ± 0.91. Transient high IOP post-OP was highest among polypropylene SSFIOL, 8.1%. 44 Polypropylene SSFIOL had glaucoma in 0.31% and corneal decompensation in 0.15%. A suture 45 break or erosion was reported in 1.19%. None of the other groups develop glaucoma or corneal 47 decompensation. Suture erosion was not reported in Gore-tex SSFIOL. GSFIOL had a 5.3% 48 reoperation rate, mostly for IOL repositioning. 49

DISCUSSION AND CONCLUSION

The current study demonstrates that scleral fixated intraocular lens implantation, especially sutured with polypropylene 9-0, is a safe and effective option for managing paediatric aphakia. Complication rates, including lens decentration and IOL tilt, were low across all groups. However, polypropylene sutures had a higher rate of suture-related complications compared to Gore-Tex. Visual outcomes were generally favourable, with improvement in best-corrected visual acuity in the majority of eyes. The cost-effectiveness and availability of polypropylene make it a viable option in resource-limited settings.