

Supplemental Digital Content 1

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Table S1 - Search strategies.

PubMed	
("Eye Drops" OR "Eye Drop" OR "Drops, Eye" OR "Drop, Eye" OR Eyedrops OR eyedrop OR "Solutions, Ophthalmic" OR "Ophthalmic Solution" OR "Solution, Ophthalmic" OR latanoprost OR bimatoprost OR Tafluprost OR travoprost OR timolol OR betaxolol OR Brimonidine OR apraclonidine OR dorzolamide OR brinzolamide OR Netarsudil OR "dorzolamide-timolol" OR "brinzolamide-brimonidine" OR levobunolol OR Prostaglandins OR prostaglandin OR "Beta blockers" OR "beta blocker" OR "Alpha adrenergic agonist" OR "Alpha adrenergic agonists") AND (laser OR slt) AND (Trabeculectomies OR Trabeculoplasty OR Trabeculoplasties OR Trabeculotomy OR Trabeculotomies OR Goniotomy OR Goniotomies) AND (Glaucomas OR Glaucoma OR "open-angle" OR "Open Angle" OR "Glaucoma, Compensated" OR "Compensated Glaucoma" OR "Glaucoma, Pigmentary" OR "Pigmentary Glaucoma" OR "Glaucoma, Simple" OR "Simple Glaucoma" OR "Glaucoma Simplex" OR "Simplex, Glaucoma" OR "Simplices, Glaucoma" OR "Glaucoma, Compensative" OR "compensative glaucoma" OR "Glaucoma, Primary Open Angle" OR "Glaucoma, Secondary Open Angle")	
Embase	
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Cochrane Library	
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Ophthalmic"):ti,ab,kw OR ("Ophthalmic Solution"):ti,ab,kw OR ("Solution, Ophthalmic"):ti,ab,kw OR (latanoprost):ti,ab,kw OR (bimatoprost):ti,ab,kw OR (Tafluprost):ti,ab,kw OR (travoprost):ti,ab,kw OR (timolol):ti,ab,kw OR (betaxolol):ti,ab,kw OR (Brimonidine):ti,ab,kw OR (apraclonidine):ti,ab,kw OR (dorzolamide):ti,ab,kw OR (brinzolamide):ti,ab,kw OR (Netarsudil):ti,ab,kw OR ("dorzolamide-timolol"):ti,ab,kw OR ("brinzolamide-brimonidine"):ti,ab,kw OR (levobunolol):ti,ab,kw OR (Prostaglandins):ti,ab,kw OR (prostaglandin):ti,ab,kw OR ("Beta blockers"):ti,ab,kw OR ("beta blocker"):ti,ab,kw OR ("Alpha adrenergic agonist"):ti,ab,kw OR ("Alpha adrenergic agonists"):ti,ab,kw) AND ((laser):ti,ab,kw OR (slt):ti,ab,kw) AND ((Trabeculectomies):ti,ab,kw OR (Trabeculoplasty):ti,ab,kw OR (Trabeculoplasties):ti,ab,kw OR (Trabeculotomy):ti,ab,kw OR (Trabeculotomies):ti,ab,kw OR (Goniotomy):ti,ab,kw OR (Goniotomies):ti,ab,kw) AND ((Glaucomas):ti,ab,kw OR (Glaucoma):ti,ab,kw OR ("open-angle"):ti,ab,kw OR ("Open Angle"):ti,ab,kw OR ("Glaucoma, Compensated"):ti,ab,kw OR ("Compensated Glaucoma"):ti,ab,kw OR ("Glaucoma, Pigmentary"):ti,ab,kw OR ("Pigmentary Glaucoma"):ti,ab,kw OR ("Glaucoma, Simple"):ti,ab,kw OR ("Simple Glaucoma"):ti,ab,kw OR ("Glaucoma Simplex"):ti,ab,kw OR ("Simplex, Glaucoma"):ti,ab,kw OR ("Simplices, Glaucoma"):ti,ab,kw OR ("Glaucoma, Compensative"):ti,ab,kw OR ("compensative glaucoma"):ti,ab,kw OR ("Glaucoma, Primary Open Angle"):ti,ab,kw OR ("Glaucoma, Secondary Open Angle"):ti,ab,kw)

Web of Science

(TS=("Eye Drops") OR TS=("Eye Drop") OR TS=("Drops, Eye") OR TS=("Drop, Eye") OR TS=(Eyedrops) OR TS=(eyedrop) OR TS=("Solutions, Ophthalmic") OR TS=("Ophthalmic Solution") OR TS=("Solution, Ophthalmic") OR TS=(latanoprost) OR TS=(bimatoprost) OR TS=(Tafluprost) OR TS=(travoprost) OR TS=(timolol) OR TS=(betaxolol) OR TS=(Brimonidine) OR TS=(apraclonidine) OR TS=(dorzolamide) OR TS=(brinzolamide) OR TS=(Netarsudil) OR TS=("dorzolamide-timolol") OR TS=("brinzolamide-brimonidine") OR TS=(levobunolol) OR TS=(Prostaglandins) OR TS=(prostaglandin) OR TS=("Beta blockers") OR TS=("beta blocker") OR TS=("Alpha adrenergic agonist") OR TS=("Alpha adrenergic agonists")) AND (TS=(laser) OR TS=(slt)) AND (TS=(Trabeculectomies) OR TS=(Trabeculoplasty) OR TS=(Trabeculoplasties) OR TS=(Trabeculotomy) OR TS=(Trabeculotomies) OR TS=(Goniotomy) OR TS=(Goniotomies)) AND (TS=(Glaucomas) OR TS=(Glaucoma) OR TS=("open-angle") OR TS=("Open Angle") OR TS=("Glaucoma, Compensated") OR TS=("Compensated Glaucoma") OR TS=("Glaucoma, Pigmentary") OR TS=("Pigmentary Glaucoma") OR TS=("Glaucoma, Simple") OR TS=("Simple Glaucoma") OR TS=("Glaucoma Simplex") OR TS=("Simplex, Glaucoma") OR TS=("Simplices, Glaucoma") OR TS=("Glaucoma, Compensative") OR TS=("compensative glaucoma") OR TS=("Glaucoma, Primary Open Angle") OR TS=("Glaucoma, Secondary Open Angle"))

Table S2. Safety-related outcomes of included studies.

Study	Safety-related outcomes
Ang et al. 2020	No patient in the SLT group had eyelid erythema at month 24, and a smaller percentage of patients undergoing SLT had conjunctival hyperemia at month 12 compared to the medication group. In the crossover group, there was a significantly higher percentage of conjunctival hyperemia compared to the medical group and blepharitis compared to the SLT group at month 12.
Hsien et al. 2020	No important side effects were reported in the medical group. All patients in the SLT group presented transient anterior chamber reaction, which resolved with topical steroid eye drops. No other complications were documented during the 6-month follow-up.
Katz et al. 2012	One patient in the medical arm had side effects from three different medications and subsequently had SLT. Sustained IOP elevations, persistent uveitis, or peripheral anterior synechiae were documented in no patient undergoing SLT.
Lai et al. 2004	No persistent anterior chamber reactions beyond 1 week after SLT were recorded. No patient in the SLT group showed increased pigmentation of the trabecular meshwork or formation of peripheral anterior synechiae as a result of treatment.
Nagar et al. 2005	Transient ocular discomfort and mild uveitis have been reported and observed during the first week after SLT treatment. Events were more common after 180° and 360° SLT compared to 90° SLT, except concerning ocular pain which occurred more frequently after 360° compared to 90° SLT, however, the differences were not significant. Transient ocular pain occurred in 17 eyes and transient uveitis in 22 eyes after 360° SLT. IOP spikes at 1 hour (≥ 5 mmHg) were observed in 3 eyes after 90° SLT, eight eyes after 180° SLT, and 12 eyes after 360° SLT. No vision-threatening adverse events occurred during follow-up.
Philippin et al. 2021	There were 10 ocular and systemic adverse events reported in the timolol group and 8 in the SLT group. SLT was associated with several transient adverse events, such as pain during the SLT procedure (54.8% mild pain, 8% moderate pain, and 0.5% severe pain), cells in the anterior chamber, endothelial changes, and IOP spike >5 mmHg. No IOP spikes (>5 mmHg) were reported in the first hour after baseline SLT, while in repeated SLT, 2 reversible IOP spikes were reported in 104 procedures performed. Four

Shi et al.
2023

patients died during the 1-year follow-up period, 1 in the timolol group and 3 in the SLT group, due to known pre-existing general medical conditions.

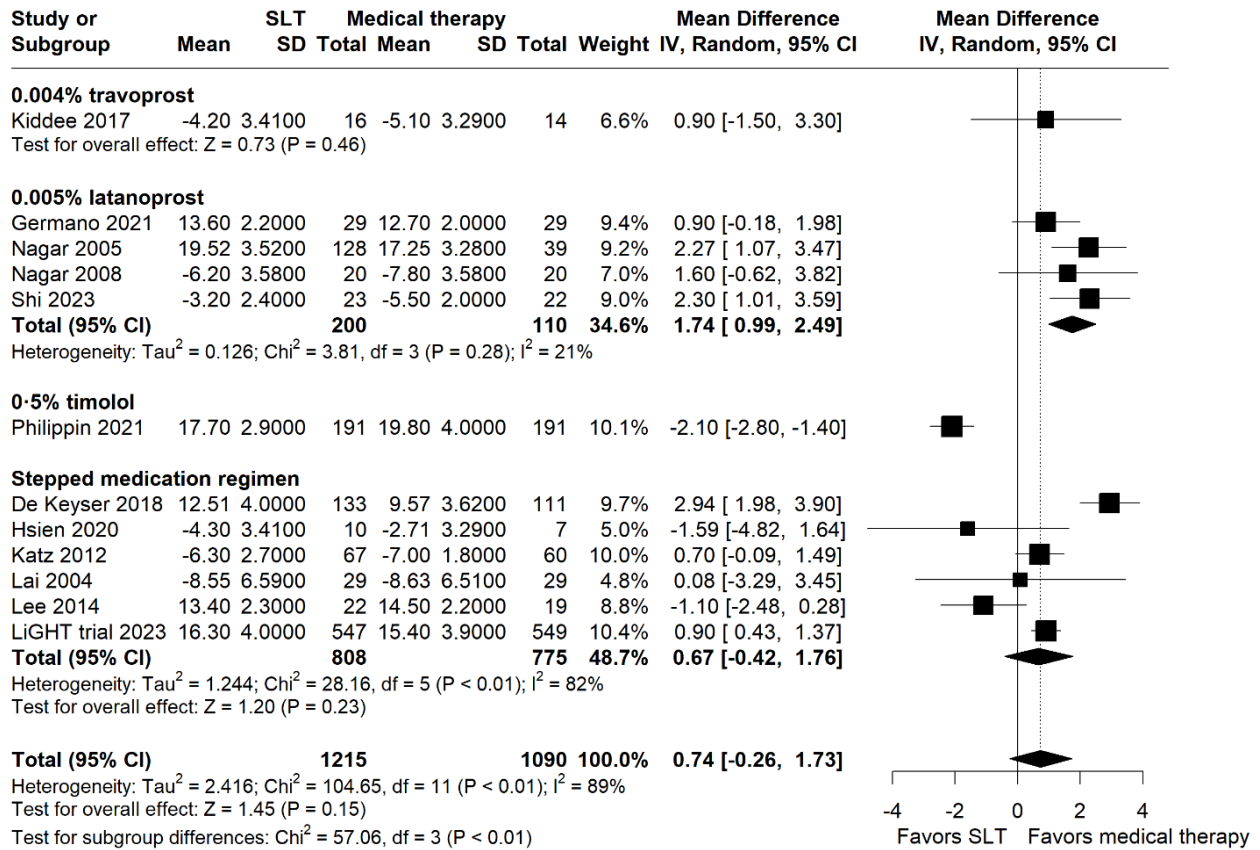
No significant complications were reported following SLT treatment. Among the 23 patients, 8 had mild inflammation (1+ cells) within one hour after treatment, but the inflammation was not maintained during follow-up. IOP spikes were reported in 4 patients, with an increase in IOP between 2.4 to 5.5 mmHg. One patient undergoing SLT did not achieve target IOP after the addition of anti-glaucomatous drugs and therefore underwent trabeculectomy.

LiGHT Trial
2019

No sight-threatening complications were reported with SLT treatment. Regarding ocular adverse effects. Fifty-six patients experienced adverse events in the medication group and 261 in the SLT group. In the medication group, there were 117 aesthetic side effects of medication, 33 allergic reactions, 1 reactivation of herpes simplex keratitis, 1 uveitis, and 744 other events. In the SLT group, there were 12 aesthetic side effects of medication, 18 allergic reactions, 1 reactivation of herpes simplex keratitis, 2 uveitis, and 459 other events. Regarding SLT-related ocular adverse events, there was 1 inflammation event after SLT, 6 IOP spike events after SLT in 6 patients (only one eye required treatment), 171 other transient events in 122 patients (transient discomfort, blurred vision, photophobia, and hyperemia), and 14 patients had an adverse event during SLT procedure. Systemic adverse events were similar between groups. There were 23 pulmonary events reported by 14 patients in the eye drop group compared with 24 events reported by 13 patients in the SLT group. There were 6 cardiac events reported by 5 patients in the eye drop group compared with 8 events reported by 5 patients in the SLT group. Especially, drug-related events involving impotence, depression, somnolence or tiredness, nightmares, taste disturbance, and generalized skin rash were reported more frequently and by more patients in the group treated with eye drops: 148 events reported by 52 of 361 patients compared to 87 events reported by 23 of 355 patients in the SLT group. Serious adverse events were also similar between the two groups: 68 out of 95 in the group treated with eye drops and 64 out of 107 patients in the SLT group.

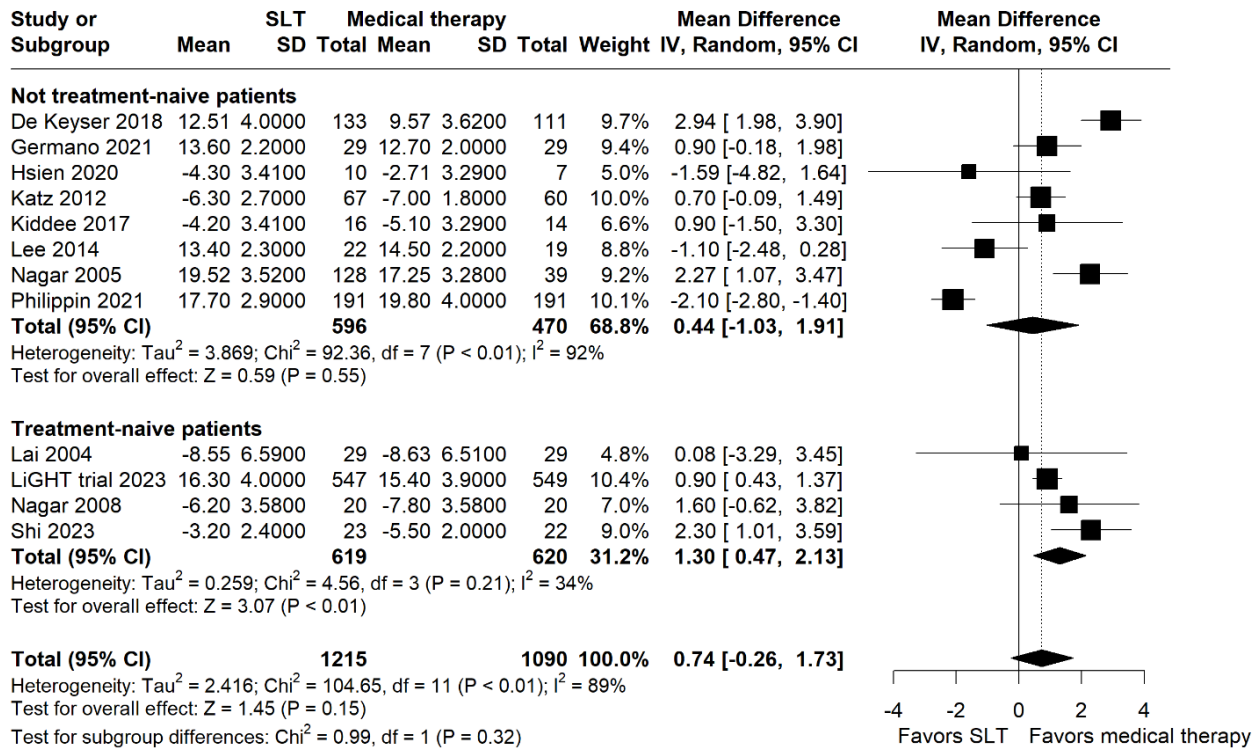
Footnotes: IOP, intraocular pressure; SLT, selective laser trabeculoplasty.

Figure S1 - Subgroup analysis of IOP according to the class of drugs used in the medical therapy group.



Footnotes: in the medical therapy group, a stepped medication regimen was applied in six studies for optimal control of IOP. CI, confidence interval; IOP, intraocular pressure; IV, inverse-variance; MD, mean difference; SD, standard deviation; SLT, selective laser trabeculoplasty.

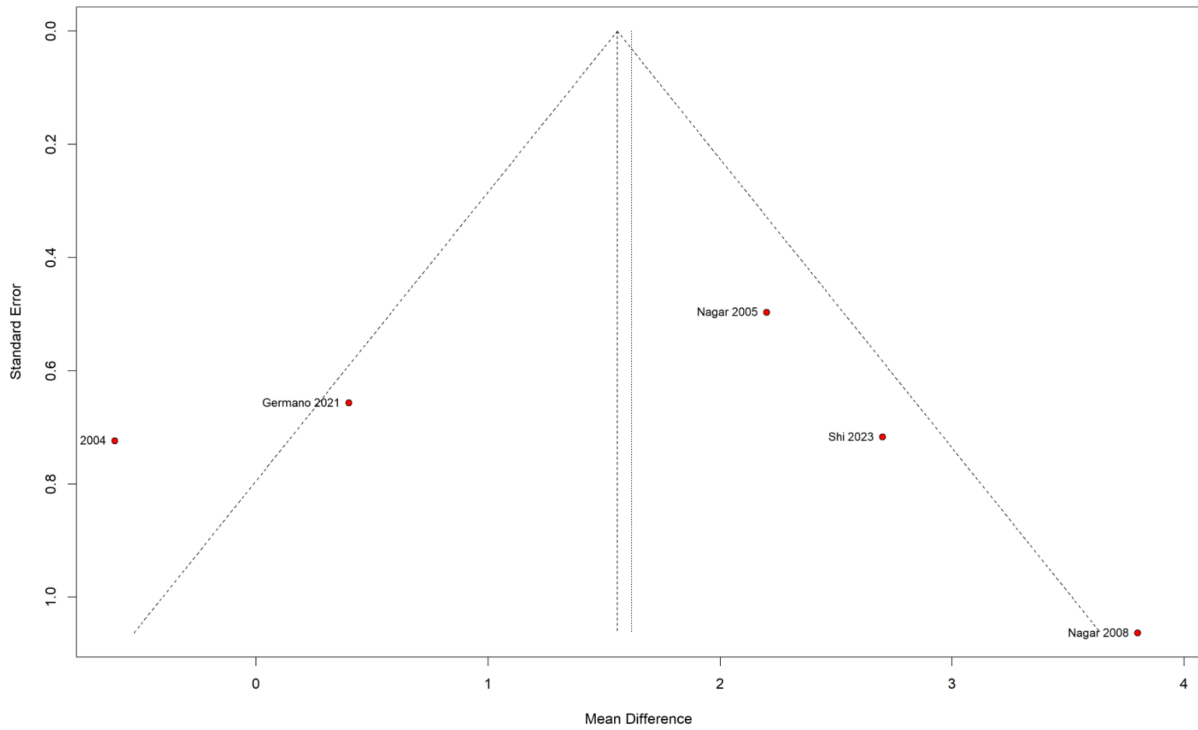
Figure S2 - Subgroup analysis of IOP in treatment-naive patients.



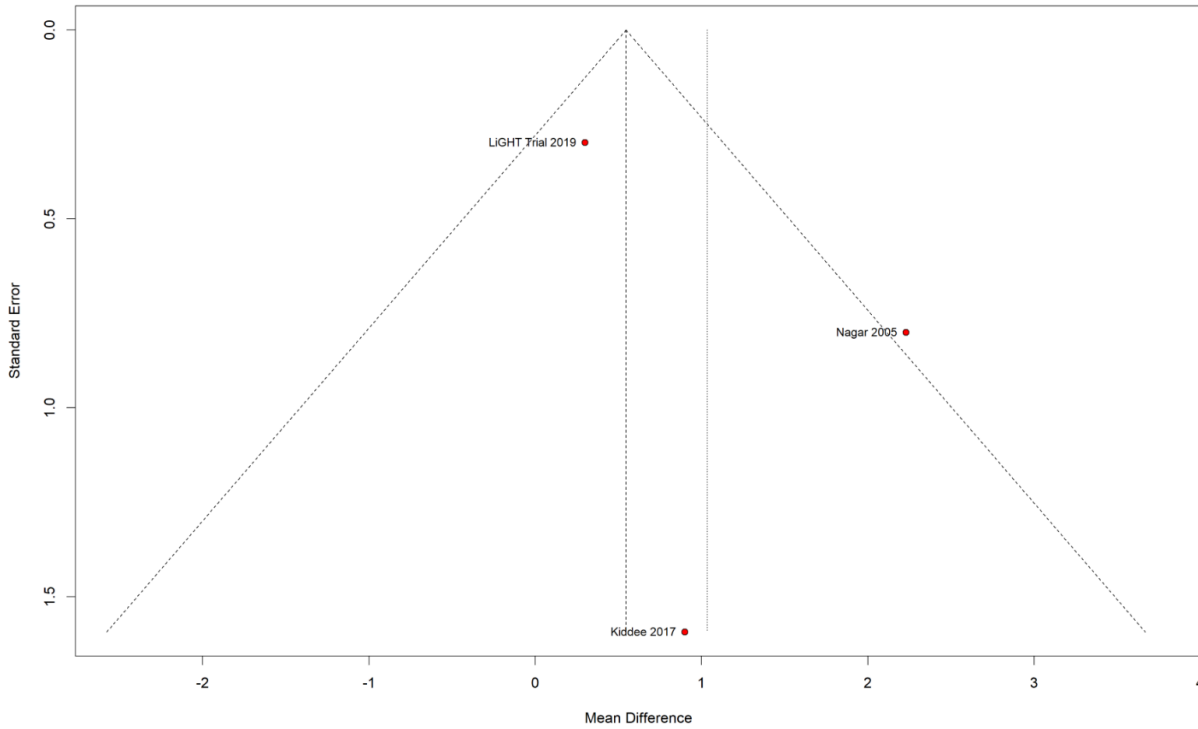
Footnotes: CI, confidence interval; IOP, intraocular pressure; IV, inverse-variance; MD, mean difference; SD, standard deviation; SLT, selective laser trabeculoplasty.

Figure S3 - Funnel plots of IOP at 1 and 2 months.

A. Funnel plot of IOP at 1 month



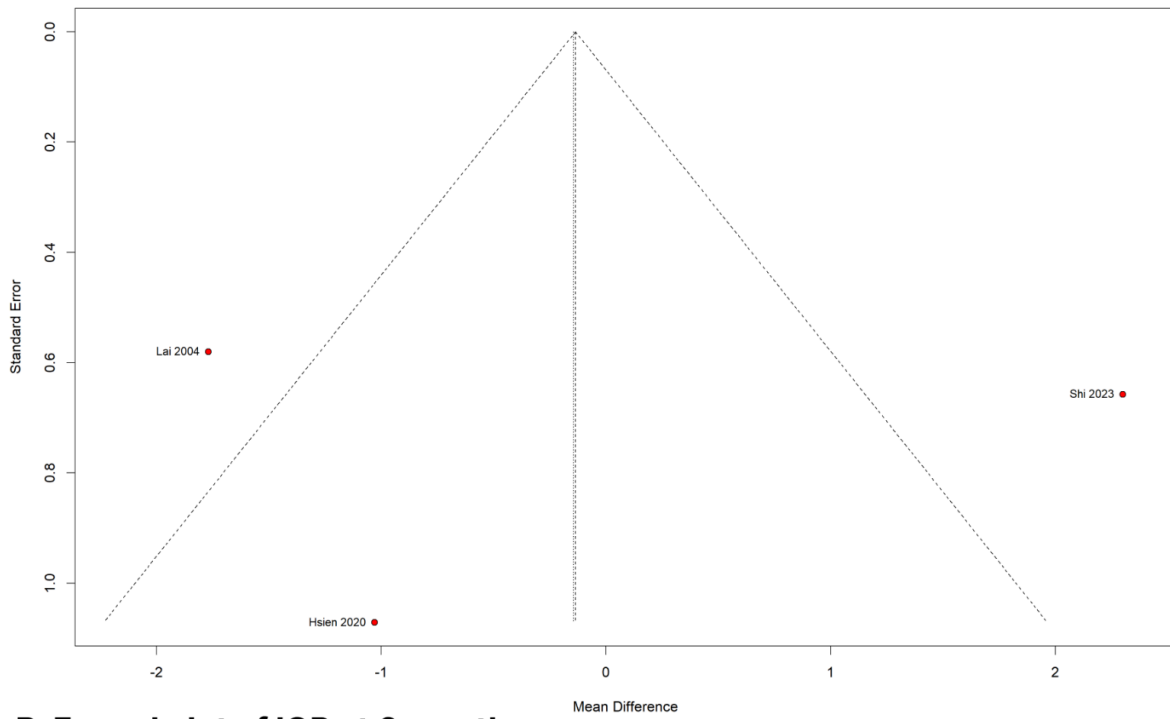
B. Funnel plot of IOP at 2 months



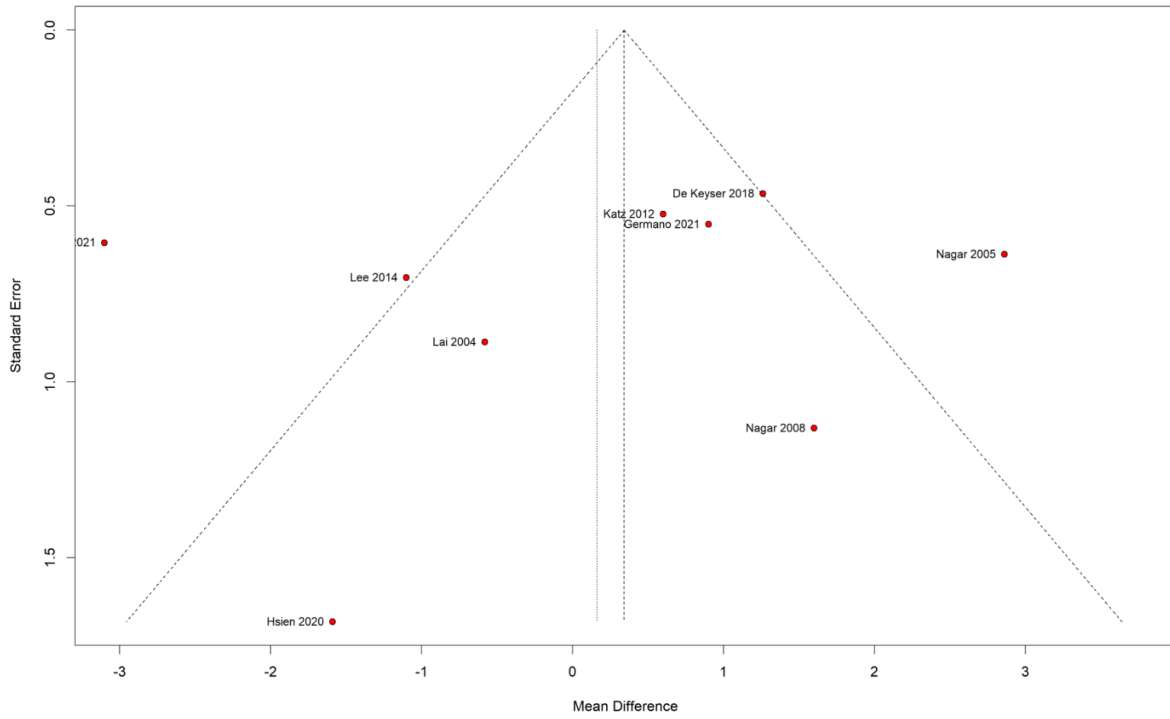
Footnote: IOP, intraocular pressure.

Figure S4 - Funnel plots of IOP at 3 and 6 months.

A. Funnel plot of IOP at 3 months



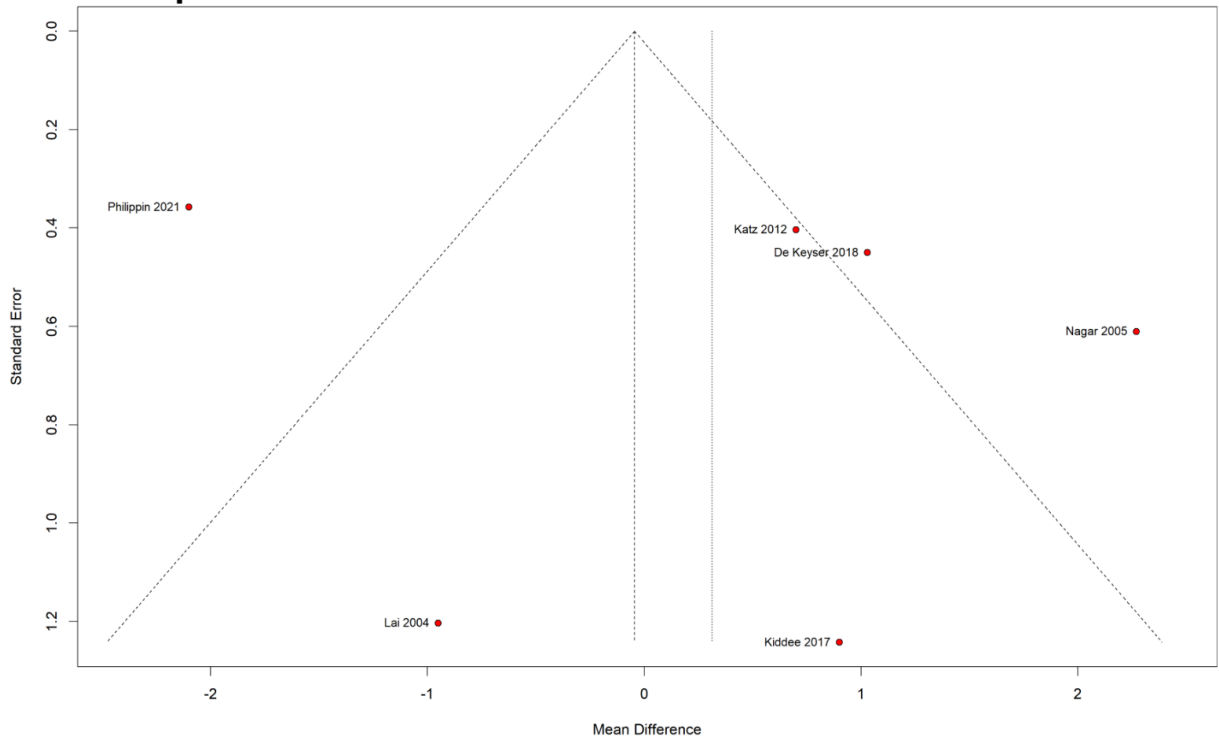
B. Funnel plot of IOP at 6 months



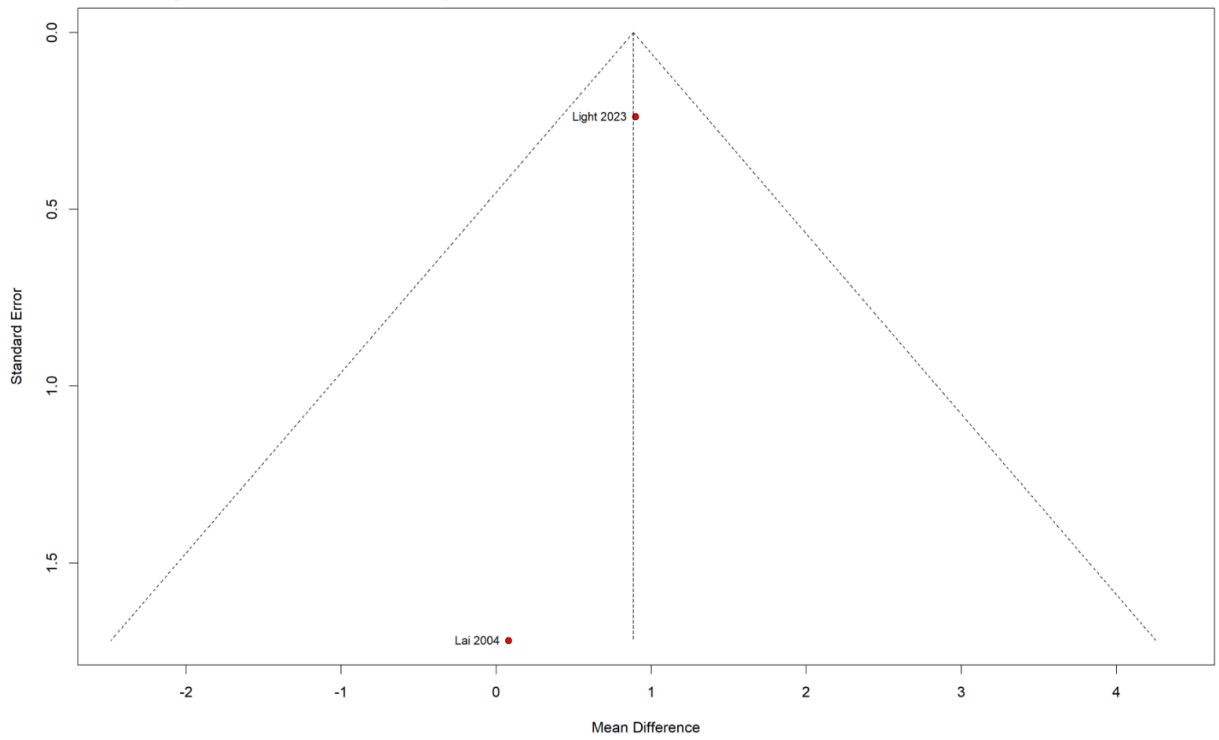
Footnote: IOP, intraocular pressure.

Figure S5 - Funnel plots of IOP at 12 months and ≥ 5 years.

A. Funnel plot of IOP at 12 months



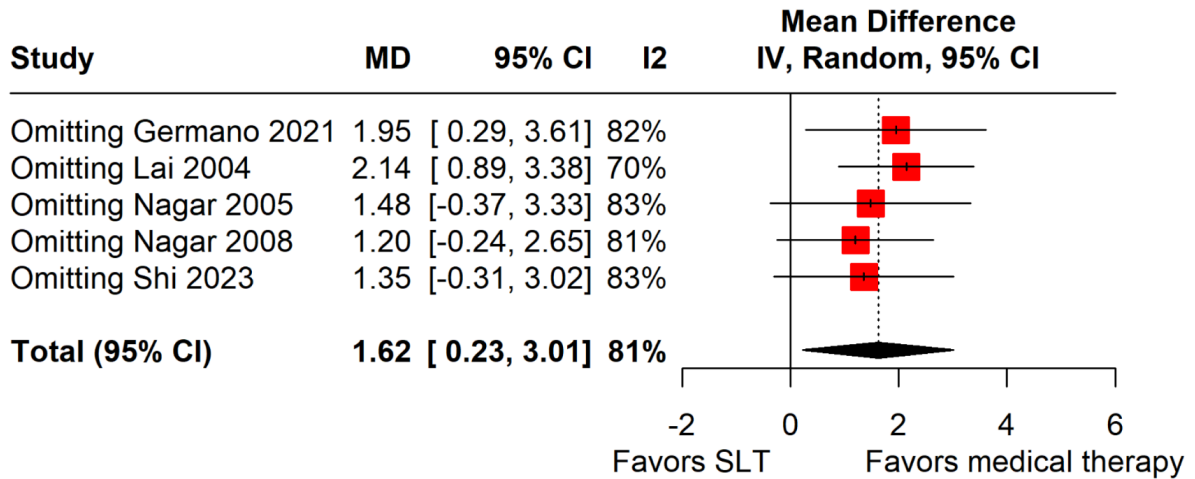
B. Funnel plot of IOP at ≥ 5 years



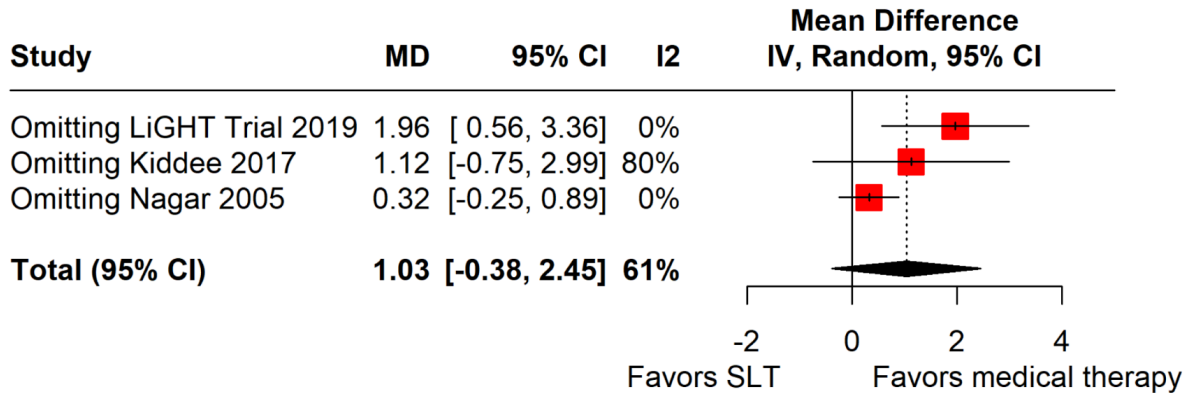
Footnote: IOP, intraocular pressure.

Figure S6 - Leave-one-out sensitivity analysis of IOP at 1, 2, and 3 months.

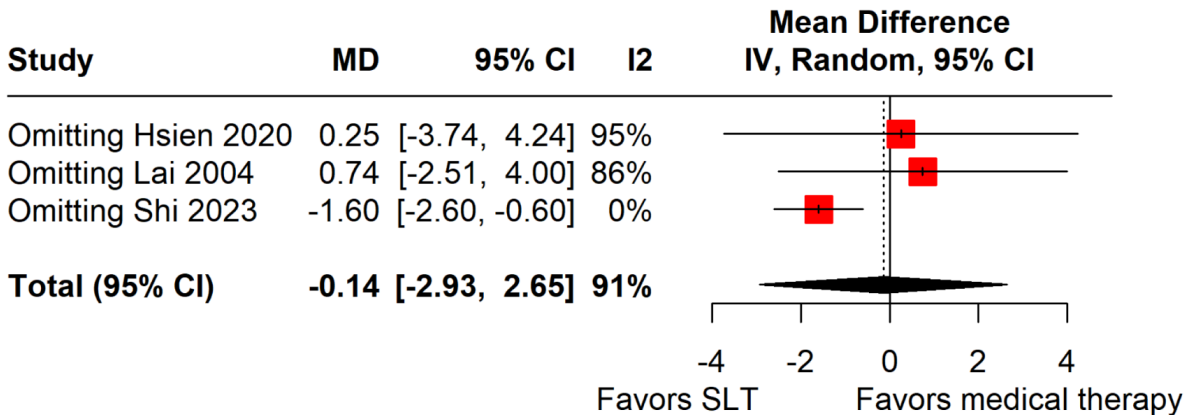
A. IOP at 1 month



B. IOP at 2 months



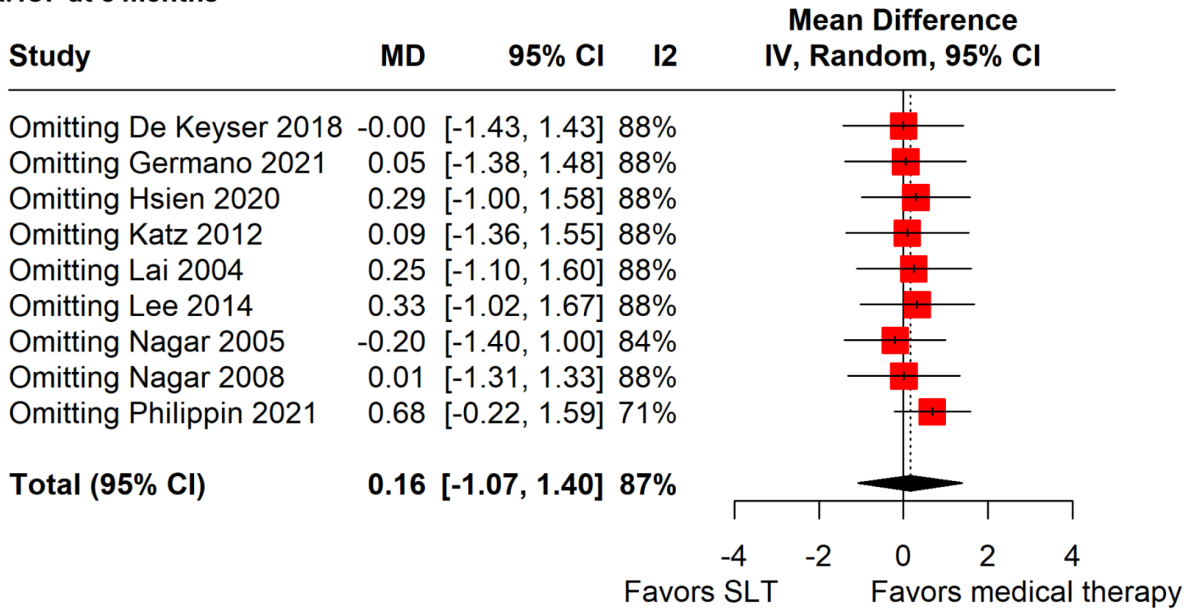
C. IOP at 3 months



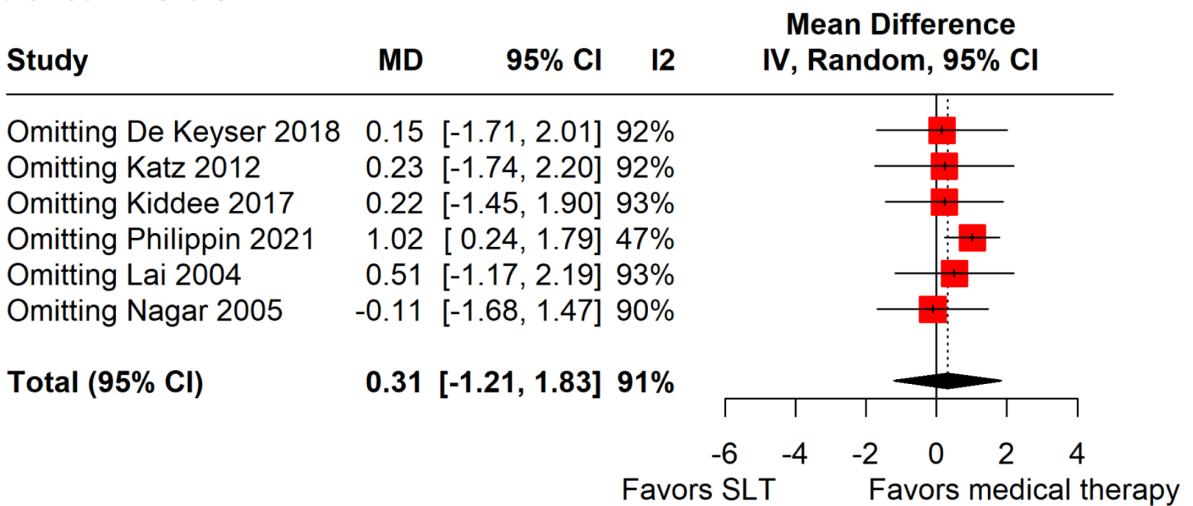
Footnotes: CI, confidence interval; IOP, intraocular pressure; IV, inverse-variance; MD, mean difference; MH, Mantel-Haenszel; RR, risk ratio; SD, standard deviation; SLT, selective laser trabeculoplasty.

Figure S7 - Leave-one-out sensitivity analysis of IOP at 6 and 12 months.

A. IOP at 6 months



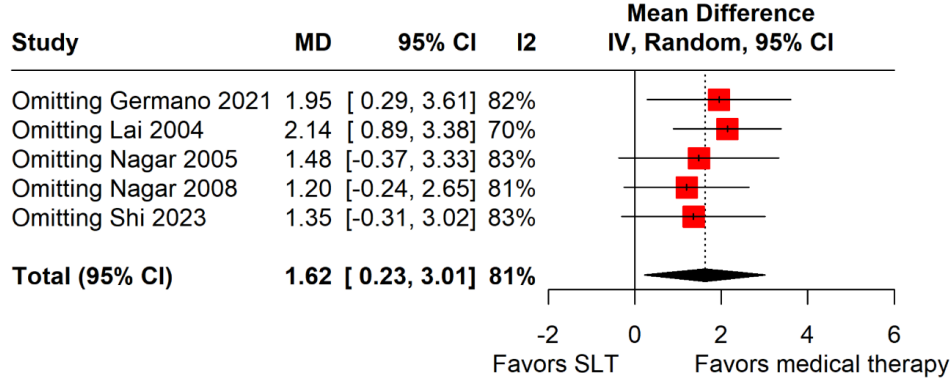
B. IOP at 12 months



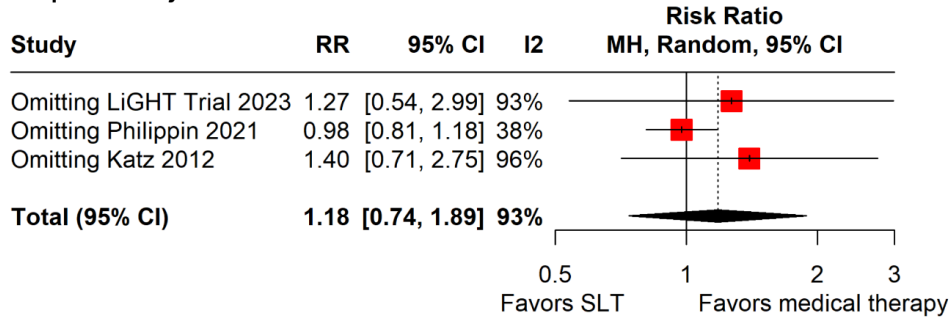
Footnotes: CI, confidence interval; IOP, intraocular pressure; IV, inverse-variance; MD, mean difference; MH, Mantel-Haenszel; RR, risk ratio; SD, standard deviation; SLT, selective laser trabeculoplasty.

Figure S8 - Leave-one-out sensitivity analysis of the proportion of eyes that achieved $\geq 20\%$ reduction of IOP, the proportion of eyes that achieved the target IOP, the number of medications, and adverse effects.

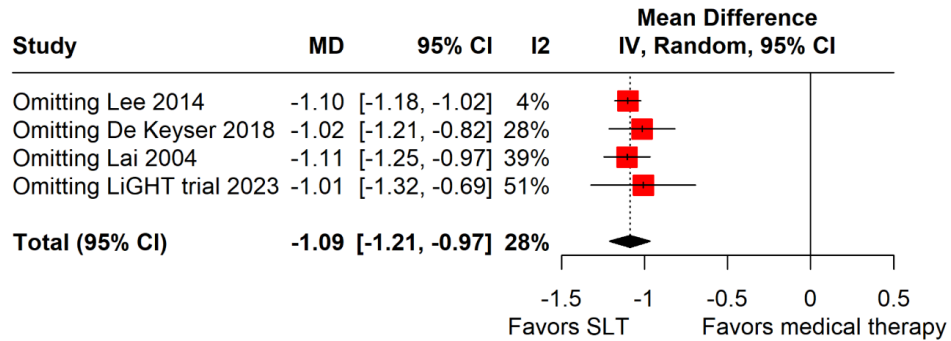
A. Proportion of eyes that achieved the target IOP



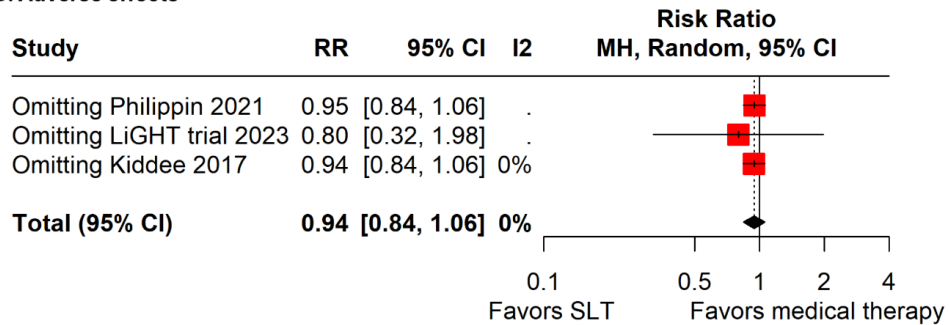
B. Proportion of eyes that achieved $\geq 20\%$ reduction of IOP



C. Number of medications



D. Adverse effects



Footnotes: CI, confidence interval; IOP, intraocular pressure; IV, inverse-variance; MD, mean difference; MH, Mantel-Haenszel; RR, risk ratio; SD, standard deviation; SLT, selective laser trabeculoplasty.