Clarifying the Optimal Application of SLT Therapy (COAST) Trial: Study Synopsis

Study Objective:

1. To compare the intraocular pressure (IOP)-lowering efficacy of standard energy SLT versus low energy SLT
2. To compare the long-term medication-free survival of SLT repeated as needed (PRN) versus repeated annually

Study Treatments:

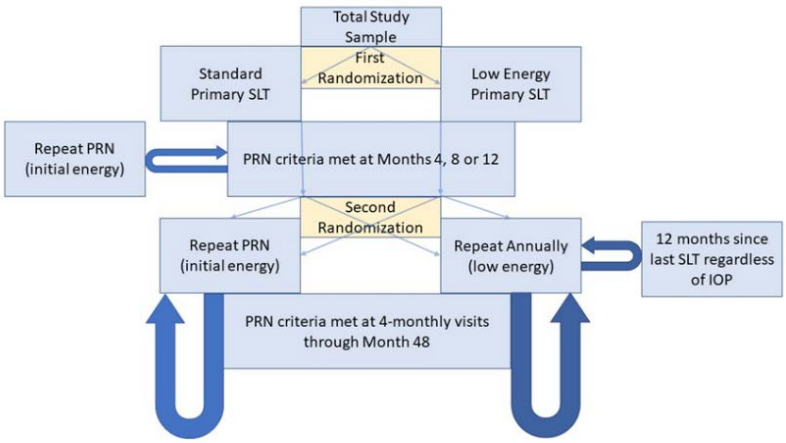
- Standard SLT will be performed as follows: beginning at 0.8 mJ, energy will be titrated up or down within the first 5-10 spots until champagne bubbles are visualized with every 2nd or 3rd spot. Energy can be titrated throughout the procedure, in response to variations in pigmentation, to ensure the appearance of champagne bubbles with every 2nd or 3rd spot throughout the full 360° treatment. Energy should be increased if no bubbles are seen with 5 consecutive spots and decreased if bubbles are seen with 5 consecutive spots.
- Low energy SLT will consist of 100 treatment spots delivered at 0.4mJ per spot throughout the full 360° treatment, with the exception that energy can be reduced to 0.3mJ if bubbles are seen with 5 consecutive spots and can be increased back to a maximum of 0.4mJ if no bubbles are seen with 5 consecutive spots.
- Regardless of energy level randomization, energy may be adjusted downward in 0.1mJ increments throughout the procedure in response to factors such as heavy focal pigmentation or patient discomfort.
- In eyes with heavy angle pigment, investigators may elect to deliver the full 360° treatment in 2 staged sessions of 180° each, no more than 2 weeks apart, to minimize the risk of post-SLT IOP elevations.

Study Population:

Treatment-naïve patients with mild-moderate primary open-angle glaucoma (POAG) or high-risk ocular hypertension (OHT). Full eligibility criteria given at the end of this document.

Study Design:

COAST is a consecutive pair of prospective multicenter randomized trials in which patients are randomized first to standard energy versus low energy SLT, and at 12 months are re-randomized to PRN versus annual repeat SLT.



Study Outcomes:

1. 12-month survival of initial SLT (survival defined as attaining and maintaining disease- and severity-specific target IOP) with a single SLT treatment
2. 48-month medication-free survival (same definition as above) with SLT repeated as needed
3. Safety outcomes to include incidence and frequency of adverse events

Table 1: Schedule of Activities (SOA)

Data Collection Form/Utility/Assessment/ Procedure	Eligibility Day –14 to –1	Baseline Day –7 to 0	Month 1 Visit ± 7 days	Month 4 visit ± 14 days	Month 8 Visit ± 14 days	Month 12 Visit ± 28 days	Months 16 Visit through 44 Visit ± 28 days	Final visit Month 48 ± 28 days	As-Needed Reassessment visit
Informed consent	X								
Contact and emergency contact	X	X	X	X	X	X	X	X	X
Demographics	X								
Medical history	X	X	X	X	X	X	X	X	X
Visual acuity	X	X	X	X	X	X	X	X	X
Intraocular pressure	X	X	X	X	X	X	X	X	X
Gonioscopy	X						X[4]	X	X[4]
Pachymetry	X							X	X[4]
Anterior segment examination	X	X	X	X	X	X	X	X	X
Dilated posterior segment examination	X						X[4]	X	X[4]
Automated visual field	X	X					X[4]	X	X[4]
Ocular Biometry		X							
Optical Coherence Tomography	X						X[4]	X	X[4]
Randomization		X[1]				X[2]			
SLT treatment and Post treatment pain and safety assessments		X[3]	PRN	PRN	PRN	X[3]	PRN[5]	PRN[5]	PRN[5]
Adverse event tracking	X	X	X	X	X	X	X	X	X
Completion of data collection Forms (DCFs)	X	X	X	X	X	X	X	X	X

[1] Initial standard energy versus initial low energy SLT

[2] Repeat SLT as needed (at first-randomized energy) versus annual low energy repeat SLT

[3] Bilateral

[4] Required at Month 24 and Month 36 visits. At other visits, only if warranted.

[5] Frequency and energy level determined by second randomization

Full Eligibility Criteria

Inclusion criteria:

1. In good health, newly diagnosed and treatment naïve (no prior IOP-lowering treatments), with decision to treat made by an ophthalmologist on the basis of risk profile, patient preference, or both
2. Informed consent obtained
3. Age 18 years or older
4. Each eye with BCVA at least 20/200 (6/60 UK)
5. Both eyes with a qualifying diagnosis (diagnosis can differ between eyes):
    a. Ocular hypertension: IOP > 21 mmHg without glaucomatous optic neuropathy (excavation, diffuse or focal thinning or notching of the neuroretinal rim, visible nerve fiber layer defects, or asymmetry of the vertical cup-to-disc ratio of $\geq$0.2 between eyes) [enrollment of subjects with OHT will be capped at 25% of total enrollment]
    b. Early primary open-angle glaucoma: glaucomatous optic neuropathy, visual field mean deviation >-6.0 dB with no points in the central 5° <15 dB
    c. Moderate primary open-angle glaucoma: glaucomatous optic neuropathy, visual field mean deviation -6.0 dB to $\geq$-12 dB and no more than 1 central 5° point <15 dB

Exclusion criteria:

1. Advanced POAG in either eye
2. Glaucoma other than POAG (including pigmentary and pseudoexfoliation glaucoma) in either eye
3. Mean IOP > 35 mmHg in either eye at the Eligibility or Baseline visit
4. Narrow or closed angle (Shaffer Grade 0, 1, or 2) in either eye
5. Contraindications to SLT, brimonidine, or any other study intervention
6. Any corneal pathology that would preclude accurate assessment of IOP by Goldmann tonometry in either eye
7. Pregnancy or planning to become pregnant in next four years
8. Any intraocular surgical procedure within the past 6 months in either eye
9. Inability to attend all scheduled study visits