DIRECT SELECTIVE LASER TRABECULOPLASTY – THE NEW APPROACH IN GLAUCOMA TREATMENT

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Introduction: Glaucoma is multifactorial chronic disease, which is a leading cause of irreversible blindness. It affects millions of people all over the world, mainly over the age of 50. Glaucoma usually involves both eyes and is characterized by progressive visual field loss due to damage to the optic nerve resulting from gradual loss of retinal ganglion cells. The etiology of glaucoma is still unknown, but there are potential risk factors such as: older age, high IOP (intraocular pressure), pseudoexfoliation deposits, decreased central corneal thickness (CCT), family history of glaucoma, high myopia, and African population. The current strategy for glaucoma treatment is the reduction of IOP. IOP can be decreased by hypotensive eye drops, laser trabeculoplasty or surgical intervention. Before the release of the pivotal LiGHT study about 2 years ago, the first line treatment for glaucoma was only hypotensive eye drops. Currently, based on the LiGHT clinical trial results (which demonstrated that selective laser trabeculoplasty (SLT) is a good as, and even superior to hypotensive eye drops), the European Glaucoma Society (EGC) strongly recommend the use of SLT as a first line treatment for primary and secondary open angle glaucoma (OAG). The new device - Direct Selective Laser Trabeculoplasty (DSLT) is a rapid, noncontact automated procedure performed directly through the limbus without gonioscopy.

Aim of GLAUrious clinical trial is to compare the safety and effectiveness of trans-limbal Direct Selective Laser Trabeculoplasty with conventional Selective Laser Trabeculoplasty in reducing intraocular pressure in participants with open angle glaucoma including exfoliative and pigmentary glaucoma or ocular hypertension.

Results: The new device - DSLT has already demonstrated early evidence for safety and efficacy in OAG patients. Fifteen patients (15 eyes: 10 with open-angle glaucoma, 4 with ocular hypertension, and 1 with pseudoexfoliation glaucoma), naive or after medication washout, with an IOP ≥22 mm Hg, underwent DSLT by irradiation with 100 or 120 sequential noncontact 532-nm, Q-switched laser shots (0.8−1.4 mJ) automatically applied during 1.5 or 2.3 seconds on the limbus, guided by image analysis and eye tracking. Results were assessed at 1 and 3 hours, 1 day, 1 week, and 1, 3, and 6 months. Yet, there is a need to further demonstrate that this new treatment is both safe and effective in a randomized controlled trial (RCT) and to compare it to the standard SLT treatment.

Conclusions: Automated DSLT appears to be an effective and safe noncontact, rapid modality for reducing IOP in patients with OAG. Higher energy usage led to better results. The primary effectiveness endpoint of GLAUrious clinical trial is difference between the two treatment group's change from baseline IOP, where change-from-baseline is defined as the difference between baseline (wash-out for medicated patients) IOP and IOP measured at 6month (wash out for medicated patients) and IOP measured at 6month for each subject.