The efficacy of CO₂ laser-assisted deep sclerectomy (CLASS) in Chinese open angle glaucoma (OAG) patients: 12-Months Results

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Purpose:
To determine the safety and efficacy of CO₂ laser-assisted deep Sclerectomy (CLASS) in Chinese open angle glaucoma patients at 12 months’ follow up.

Methods:
33 eyes of 29 consecutive patients with open angle glaucoma (OAG), including 21 POAG eyes, 6 uveitic glaucoma eyes, 3 JOAG eyes, 2 steroid induced OAG eyes, and 1 traumatic glaucoma eye were recruited in a nonrandomized prospective study.

Laser-assisted deep sclerectomy using a CO₂ laser system (IOPtiMate, IOPtima) was performed in all patients. A one-third-thickness scleral flap (5*5mm in size) was created, and a CO₂ laser with a beam-manipulating system was used to achieve deep scleral ablation (over 90% of the sclera depth) and unroofing of Schlemm's canal zone. 0.04% Mitomycin C for 2 minutes or 5Fu for 4 minutes was applied at the scleral lake. Antimetabolic agents were also used at subconjunctival space and sub-superficial flap (before CO₂ ablation) at the surgeon’s discretion. Visual acuity, complete ophthalmologic examination, and IOP were measured and documented at baseline, 1 day, 1, 2, 4, 8 weeks and 6 and 12 months. UBM was used to examine the scleral lake at 1, 3, 6 and 12 months.

Complete success was defined as 5≤IOP≤21 mmHg reduction with no IOP lowering medication. Qualified success was defined as a similar IOP range with one antiglaucoma medication. Laser Goniopuncture (LGP) was applied for chosen cases post-operatively.

Results:
The preoperative IOP of 36.9±13.0 mmHg (mean±SD) dropped to 7.2±1.7 at one day and 16.6±3.8 mm Hg at 12 months. 3 eyes were converted to trabeculectomy due to Iris incarceration (2/33) and totally closure of scleral lake (1/33, uveitic OAG) post-operatively. 36.4% (12/33) of the eyes underwent LGP. Scleral lake existed in 72.7% (24/33) eyes at 12 months visit. Complete success rate at endpoint was 54.5% (18/33) while Qualified success was 81.8% (27/33). Complications were mild and with no sequelae.

Conclusions:
CLASS has been proven as an effective treatment for Chinese OAG patients. It could potentially treat secondary open angle glaucoma. Further modification and peri-operative management are necessary to evaluate the long-term effect of CLASS.

Disclosure
I have the following financial interest or relationship to disclose: IOPtima Ltd., Tel Aviv, Israel.