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Integrating New Technologies In Clinical Practice with CO2 Laser-Assisted Sclerectomy Surgery (CLASS)

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Introduction

Trabeculectomy is the most commonly used surgical procedure in patients with glaucoma, but its role is constantly evolving. Deep sclerectomy surgery is a non-penetrating filtering procedure which is proposed as a procedure similar to trabeculectomy. However, this procedure is difficult to perform manually in a safe and effective way. CO2 laser is a tool to facilitate this important step with effective ablation. Kowloon West Cluster (KWC) Ophthalmology Centre is the first Centre in Hospital Authority uses CO2 laser to assisted sclerectomy surgery (CLASS) in more than 20 indicated glaucoma patients.

Objectives

- (1) To provide an alternative using CO2 laser to assist surgeries for glaucoma patients
- (2) To improve patients' satisfaction by reducing the number of daily glaucoma eye drops application.

Methodology

Subjects were glaucoma patients attended KWC Ophthalmology Center who were candidates for glaucoma filtration surgery. A system with CO2 laser was used to create deep sclerectomy. Visual acuity, complete ophthalmic examination, change in intraocular pressure (IOP), post-operative complications were analyzed. Outcome measures were to evaluate reduction in IOP, number of eye drops and complications.

Result

Results: 25 eyes of 22 patients underwent CO2 laser-assisted sclerectomy surgery in KWC Ophthalmology Center. The mean age was 66.7 ± 12.8 years (range 41 to 91 years). The mean IOP with maximal topical medications was of 24.8 ± 2.68 mmHg pre-operatively. The average IOP 1 month and 3 month post-operation was 20.8 ± 7.67 mmHg and 21.1 ± 8.40 mmHg respectively, with reduction in IOP of 16.0% at 1 month and 14.8% at 3 month ($P < 0.05$). The number of eye drops was reduced by 51.9 % at 3 months post-operation from 2.7 to 1.3 ($P < 0.001$). Overall, patients' satisfaction was improved and the budget spend on glaucoma eye drops is reduced.

Conclusions: Kowloon West Cluster Ophthalmology Centre set forth the use of CO2 laser to perform glaucoma surgery in Hospital Authority. Our study is in accordance with international published clinical studies proven the efficacy and safety of CO2 laser in glaucoma surgery. It improves patients' satisfaction as well as reduces the total budget spent on glaucoma eye drops in long term. With improvement in intraocular pressure control, the frequency of follow up is minimize.