**MicroPulse Laser Trabeculoplasty for the Treatment of Primary Open Angle Glaucoma**

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**Introduction**
Primary open angle closure glaucoma (POAG) is a chronic eye disease characterized by irreversible optic nerve damage due to elevated intraocular pressure (IOP). IOP-lowering medications are first-line therapy before invasive surgeries. Medications have various side effects including eye irritations, allergies, and poor adherence. Glaucoma surgery complications include bleeding, infection, reduced vision, and even blindness. Micro-pulse laser trabeculoplasty (MLT) is the newest generation of non-invasive eye laser that lowers IOP with less inflammation than its predecessors and fewer complications than medication or surgery. MLT is an outpatient procedure that is without scar, external wound, or infection and is repeatable.

**Objectives**
To investigate the safety and efficacy of adjuvant MLT in treating POAG in Hong Kong Chinese.

**Methodology**
This was a prospective case-controlled study. Consecutive, POAG subjects were randomized to receive MLT in 1 eye while the fellow (control) eye continued medication use. Subjects were excluded if they had previous laser trabeculoplasty, 1 functional eye, or corneal pathologies. After 1 month, medications in both eyes were titrated to achieve either an IOP reduction of 25% from first presentation or an IOP<18mmHg, whichever was lower. The following were compared before and after MLT using the Repeated Measures ANOVA with Bonferroni's Multiple Comparison Test: IOP and number of medications pre-MLT, day 1, 1 week, and 1, 3, and 5 months post-MLT. The above parameters were also compared between both eyes using T-test. P≤0.05 was statistically significant.

**Result**
In 40 Chinese subjects, the mean age was 63.6±12.8 years. Prior to MLT, both eyes had statistically similar IOP and number of medications (P≥0.1). At 5 months, MLT treated eyes had 18.0% IOP reduction in addition to 21.4% medication reduction compared to the pre-treatment (both P<0.0001). MLT treated eyes had 6.1% lower IOP and 13.6% fewer medications compared to the fellow eye (P≥0.1). None of the MLT treated eyes had any long-term side effects and none required hospitalization; only 10.0% had a mild self-limiting anterior chamber inflammation at 1-week post-laser. To the best of our knowledge, this is the first and largest clinical application of MLT in Hong Kong and in Chinese patients worldwide. MLT is an innovative technology that delivered an effective clinical enhancement via an 18% IOP reduction plus a 21% reduction in medication expenditure with zero long-term complications and hospitalization. MLT has immense potential as an alternative to anti-glaucoma medication and surgery in an era where safe, professional, and patient-centred cares are top priorities.