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Outcomes of Short and Long Duration Burns of Transscleral Diode Cyclophotocoagulation: A Retrospective Study

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ABSTRACT

Introduction: Transscleral cyclo-photocoagulation (TSCPC) is a cyclo-destructive procedure which targets the secretory epithelium of the ciliary epithelium and applicable to reduce intraocular pressure.

Objective: To compare the outcomes of transscleral diode cyclo-photocoagulation using short-duration (SD) versus long-duration (LD) burn treatment in ASEAN brown iris patients.

Methods: We analysed retrospective data from twenty-five eyes with glaucoma cases of any type who underwent cyclo-photocoagulation with SD (2000 ms) with variable power of ≤ 2000 mW versus LD (4000 ms) treatment with variable power ≤ 1200 mW. The intraocular pressure (IOP) and the number of antiglaucoma eyedrops reduction, visual acuity changes, and complications between the two techniques were documented.

Results: The mean IOP before treatment was 47.2 (8.4) mmHg and 30.15 (7.7) mmHg for SD and LD group respectively. At the final visit post-treatment, there was a reduction of IOP in both groups having 28.0 mmHg in SD ($p < 0.05$) and 22.15 mmHg in the LD ($p < 0.05$), respectively from pre-treatment. The mean number of eye drops before treatment was 3.6 for the SD group and 3.9 for the LD group. Post-treatment, it dropped to 1.4 for SD group ($p > 0.05$) and 1.8 for the LD group ($p > 0.05$). The mean logMAR visual acuity before treatment was 2.46 (SD) and 2.10 (LD) and at the post-treatment, the mean logMAR was 2.70 (SD) and 2.10 (LD) ($p > 0.05$). Both treatments resulted in complications such as inflammation, hypotony and hyphaema.

Conclusion: Both treatments reduced the intraocular pressure, and the number of antiglaucoma eye drops needed in ASEAN brown iris glaucoma patient. Comparatively, complications such as inflammation, hypotony and hyphaema were more in the LD group.

Key Words: Cyclophotocoagulation, Glaucoma, Intraocular pressure

INTRODUCTION

Transscleral cyclo-photocoagulation (TSCPC) is a cyclo-destructive procedure. It targets the secretory epithelium of the ciliary epithelium, which subsequently causes a reduction in the aqueous humour production and lowers the intraocular pressure (IOP). It is a semi-conductor solid-state diode laser system (810 nm wavelength) with a handpiece that is used to deliver laser energy.¹ TSCPC is usually reserved for managing uncontrolled intraocular pressure (IOP) in eyes with poor visual potential.² It is beneficial for pain relief in a blind glaucomatous eye^{3,4}, refractory glaucoma^{5,6}, secondary and complex glaucoma patients⁷ or patients who refused invasive surgery. Some chose conventional trabeculectomy with or

without cataract surgery to control IOP.⁸ Nevertheless, critical eye care is important for post-surgery quality.⁹

Both short and long duration has been postulated to be effective in lowering the IOP. Standard, 2000ms short duration was applied for dark iris colour with power titrated according to occasional 'pop'.¹⁰ Meanwhile, the no-pop technique or better known as slow coagulation described by Gaasterland is to use the longer duration of 4000ms in brown iris colour patient.¹¹ Some studies suggested that longer duration of TSCPC is more effective compared to shorter duration of TSCPC, especially in the eye with more pigment.^{11,12} The rationale behind is longer burns and lower power help reducing tissue destruction and inflammation outside the ciliary

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