Intraocular Pressure Control in Primary Open Angle Glaucoma Following Selective Laser Trabeculoplasty at 1 year in an African Black Population

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Background: Primary open angle glaucoma (POAG) is the commonest type of glaucoma, with its highest prevalence in Africans thus the need for early and effective intervention.[1] Early Selective laser trabeculoplasty(SLT) treatment in POAG patients is advocated. This is due to the high incidence of ocular surface disease which worsens with topical medication use in glaucoma patients and low acceptance of drainage surgery. SLT offers the benefits of safety, low side effects, compliance, cost savings, efficacy and simplicity of technique.[2] Few studies however, have evaluated the efficacy of intraocular pressure(IOP) control following SLT in African blacks, thus the need for this study.

Patients and Methods: Retrospective review of patients with uncontrolled POAG who underwent SLT at The Eye Specialist Hospital Enugu, Nigeria from December 2011 to December 2012. Information on bio-data, diagnosis, use of antiglaucoma medications and modality of treatment were retrieved. Newly diagnosed cases of POAG and patients who had adjunctive SLT for uncontrolled IOP were included. Patients who had prior glaucoma surgery were excluded. Patients underwent 360 degrees laser applications at an energy level of 0.7-1.3 mJ performed by a single ophthalmologist. Gutt Brimonidine 0.2% was administered prior to treatment while Gutt Diclofenac 8hourly applications were given postoperatively for 5 days. Patients on Latanoprost stopped medication 28 days prior to SLT. Each patient had SLT in one eye either as primary or adjunctive treatment. Pre SLT IOP and IOP in treated eyes were measured at 2weeks, 6weeks, 3months, 9months and 12months post SLT using the Goldmann applanation tonometer. Data was analysed using SPSS version 22 with level of significance set at $p<0.05$.

Results: A total of thirty-eight eyes of twenty-six patients were reviewed. Nineteen (73.1%) were males. The mean age was 57.97 ± 14.56 years (range,15-80 years). Four (10.5%) eyes were in the Primary SLT group while 34 (89.5%) eyes were in the adjunctive group. The mean Pre SLT IOP was 20.3 mmHg (SD 5.8) and the mean Post SLT IOP at 3months, 6months and 12months were 13.6 mmHg (SD 3.4), 13.6 mmHg (SD 5.1) and 14.3 mmHg (SD 5.2) respectively. The mean baseline IOP for the primary group was 16.8 mmHg (SD 4.1) and 18.6 mmHg (4.7) for the adjunct group. The mean IOP at 1 month and 1 year respectively for the primary group was 8.0 mmHg (SD 3.2), 11.2 mmHg (SD 2.5) and 16.1 mmHg (SD 3.8), 13.1 mmHg (SD 4.1) for the adjunct group. There was an overall percentage IOP decrease of 27.1% (SD 21.1), 33.2%(SD 14.6), and 27.9%(SD 14.3) at 3months, 6months and 12months respectively. However, the mean number of antiglaucoma medications before SLT was 1.6(SD 1.3) while mean number of antiglaucoma medications post SLT was 1.5(SD 1.1 to 1.5) within a period of 3months to 12months. About 79.4% had greater than 20% IOP reduction from pre-SLT level at 3months, 84% IOP reduction at 6months and 66% IOP reduction at 12months.

Conclusion: Abdelrahman and Eltanamly[3] in a study in African patients found 20% or more IOP reduction in 70% of patients post SLT though IOP had a tendency to rise after SLT. This was corroborated by Onakoya[4] et al and is consistent with this study. Primary SLT treatment achieved a lower IOP reduction than the adjunct group. SLT was found to achieve a sustained reduction in IOP in these patients with or without prior medical therapy at 1 year. However, definite conclusions cannot be drawn from the findings due to its small sample size, retrospective nature and non-randomization.

References

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