



ORIGINAL RESEARCH PAPER

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EFFICACY OF TRAVOPROST 0.004 % IN PRIMARY OPEN ANGLE GLAUCOMA - A CLINICAL STUDY

KEY WORDS: POAG, IOP, Travoprost eye drops

Dr.K.V.V.

Satyanarayana*

MD., Govt. Regional Eye Hospital. Visakhapatnam *Corresponding Author

Dr.G.V.Prasad

MD., Govt. Regional Eye Hospital. Visakhapatnam

Prof. V.V.L.

Narasimha Rao

MS .DO, Govt. Regional Eye Hospital. Visakhapatnam

ABSTRACT

Aim: A prospective clinical study - To evaluate the clinical Efficacy of Travoprost 0.004 % eye drops, as Mono therapy in Primary Open Angle Glaucoma.

Material & Methods: This study conducted between Sept 2016 to August 2017, at Govt. Regional Eye Hospital, Visakhapatnam. 71 cases of 119 eyes of Primary Open Angle Glaucoma, which includes 39 Male and 32 Female patients in this study. Patients age varies between of 40 – 74 years. All cases are investigated in the lines of POAG to confirm the diagnosis.

All POAG cases are treated with Travoprost 0.004% eye drops once daily at bed time, and followed for a period of one year to evaluate for the efficacy of Travoprost 0.004% eye drops in Primary Open Angle Glaucoma.

Results: The intra ocular pressure reduction with the treatment of Travoprost 0.004% is highly effective. There is 0 -80 Per cent (mean 40-50%) drop in pre existing IOP. It is effective in 90% POAG cases.

Conclusions: 0.004% Travoprost eye drops proved to be the effective mono therapy in Primary Open Angle Glaucoma. It also produces ocular side effects.

Introduction :

Glaucoma is the second leading cause for blindness worldwide, The term 'Glaucoma' relates to a group of conditions, which are characterised by progressive optic nerve damage and progressive visual field loss leads to irreversible blindness. The most common types of glaucoma are Primary Open Angle Glaucoma (POAG) and Primary Angle Closure Glaucoma (PACG).

Glaucoma adds a magnitude of 12.3% total blindness, next to cataract.

It has been estimated that the world wide incidence of glaucoma is 60.5 million in 2010, by 2020 there will be approximately 80 million people with glaucoma. 8 million people are bilaterally blind due to glaucoma alone, it is set to rise to over 11 million by 2020 with the increasing prevalence. 90% of the glaucoma cases are from developing world. Every eighth individual aged above 40 years has glaucoma (1). Improvement in screening procedures, prompt diagnosis and effective treatment strategies are mandatory to combat this challenge. (2).

Patients usually present without any symptoms or visual complaints. The variants are Primary Open Angle Glaucoma, Primary Angle Closure Glaucoma, Normal tension glaucoma (NTG) and Ocular Hypertension (OH).

The only proven treatment for glaucoma is lowering of the IOP. There is now substantial evidence from randomized trials that lowering IOP reduces the risk of progression of POAG (Advanced Glaucoma Intervention Study – AGIS (3), Early Manifest Glaucoma Trial – EMGT).(4). and reduces the risk of conversion from OHT to POAG (OHTS, EGPS). This study is evaluating the efficacy and complications of latanoprost in Primary Open Angle Glaucoma.

Travoprost 0.004% eye drops: A Prostaglandin, F2-alpha analog, Increase uveoscleral outflow of aqueous humor, thereby reduces the raised IOP in glaucoma (5).

Formula: C₂₆H₃₅F₃O₆, its chemical structure is Isopropyl (Z)-7-((1R, 2R, 3R, 5S)-3, 5-dihydroxy-2-((3R)-3-hydroxy-5-phenylpentyl)cyclopentyl)-5-heptenoate (6).

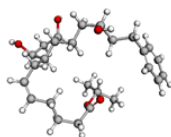


Fig 3: Chemical structure of Travoprost

Travoprost approved for medical use in the United States in 1996. It Controls the intraocular pressure more than 30%. The mechanism of action is induction of metalloproteinases in the ciliary body, which breakdown the extracellular matrix, thereby reducing resistance to outflow through the uveoscleral pathway.(7).

Onset of action: 3-4hr with Peak effect: 8-12hr maximum Duration of action: ≥ 24 hours Biological half-life: 17 minutes, Metabolized in the liver, excretion through Urine.

Inclusion criteria:

Confirmed Primary Open Angle Glaucoma of various severity cases, not treated with any medication are selected in this study.

Material & Methods:

71 cases of 119 eyes of Primary Open Angle Glaucoma (48 bilateral + 23 Unilateral eyes), 39 Male and 32 Female patients are included in this study. The age group varies from 40 – 74 years (12 cases of 40 – 50 years, 21 cases of 50 – 60 years, 33 cases of 60s – 70 years and 5 cases more than 70 years of age) All cases are investigated in the lines of POAG. I.e., Best corrected Visual acuity after evaluating the refractive status, Anterior chamber depth, Pupillary reactions. Giniocopy to assess the angle status, corneal thickness with Anterior segment OCT. Optic disc Evaluation done with +78D lens. Visual field analysis done with Humphry visual field Analyser. IOP recorded with Goldman applanation tonometer.

The raised IOP in POAG before treatment varies from 24 -60 mm of Hg in all the POAG cases, that includes 20 – 30 mm of Hg in 56 eyes, 30 -40 mm of Hg in 46 eyes, 40 – 50 mm of Hg in 10 eyes and more than 50 mm of Hg in 7 eyes..

All 119 eyes with POAG are treated with Travoprost 0.004% (Travoprost with Benzalkonium as preservative) eye drops once daily at bed time. Cases are followed periodically up to a period of one year, to evaluate the efficacy of Travoprost 0.004% eye drops in controlling the raised IOP.

Results:

The therapeutic efficacy of topical Travoprost 0.004% eye drops once daily at bed time noticed with in 4 days after initiation of treatment. There is 30 – 50 % IOP reduction noted in mild to moderate POAG cases . The reduction of IOP 10 – 14 mm of Hg in 52 eyes (Low teens), 15 – 20 mm of Hg in 39 eyes (Mid – high teens).

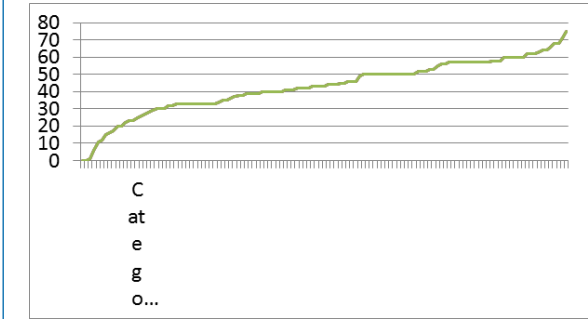


Table.1.Percentage - reduction of IOP varies 0-80%

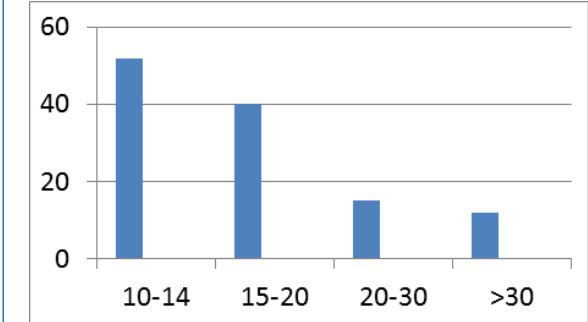


Table .2 Number of eyes Vs IOP reduction in mm of Hg

Half of the POAG cases responded up to 50% drop in IOP.

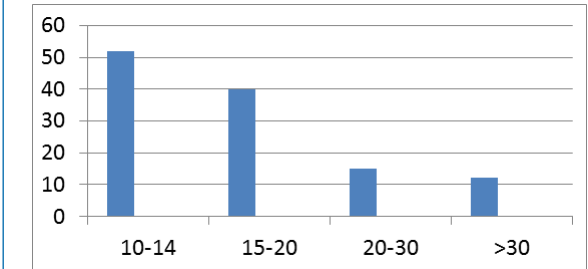


Table .3. Complications of Travoprost eye drops

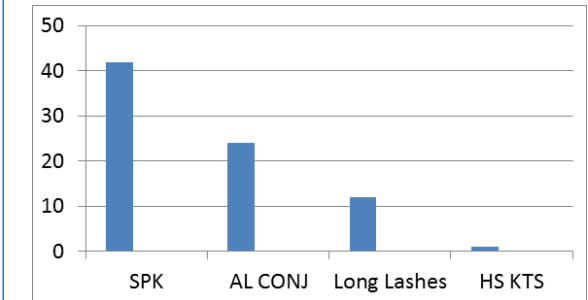


Table 4: Complications of Travoprost eye drops.

We observed some complications of topical Travoprost 0.004% eye drops initial part of the treatment. Most commonly the Burning sensation and conjunctival hyperaemia in 42% of cases,

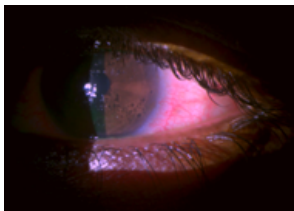


Fig:2: Conjunctival hyperaemia

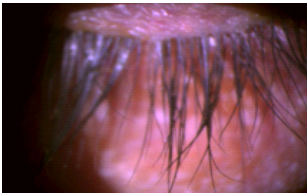


Fig: 3.Hypertrichosis (Elongated lashes)

Superficial Punctate keratitis in 35%,

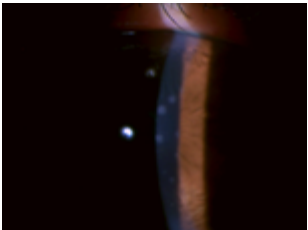


Fig: 4: Superficial punctate keratitis

Allergic conjunctivitis in 24%, long eye lashes in 12%, Exacerbation of herpes keratitis in 1 case.

Conclusions:

In our study Travoprost 0.004% eye drops are very effective in the management of POAG as Mono therapy . it controls the raised IOP up to 80% (52% as low teens, 39% high teens) as mono therapy alone in Primary Open angle Glaucoma.

Discussion:

Glaucoma is a silent thief of vision as its symptom free, progressive loss of vision ultimately leads to irreversible blindness. The incidence is on the raise because of new screening process, advanced diagnostic tools and increased life expectancy. Effective management is mandatory to avoid impending blindness. Medical management is the first step of management for glaucoma. Travoprost 0.004% eye drops, a Prostaglandin F2-alpha analogue is promising as a Mono therapy with compliance, in spite of minor ocular complications. Travoprost 0.004% eye drops are effective with promising reduction of IOP up to 30%. In our study the IOP reduction is up to 52% from the base line especially in mild to moderate POAG. The intra ocular pressure reduction with the treatment of Travoprost 0.004% eye drops is highly effective. Travoprost 0.004% eye drops are effective in 90% POAG cases in reduction of IOP and controlling the disease process.

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