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前列腺素衍生物對睫狀體基底膜影響

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Abstract

Purpose: To investigate the long term safety and efficacy of latanoprost for chronic angle-closure glaucoma (CACG).

Patients and methods: The patients in both groups had the intraocular pressures (IOP) in the range of 20 to 35 mmHg after discontinuation of all antiglaucoma medications and the presence of glaucomatous optic neuropathy and/or visual field defects. CACG was defined as the presence of more than 180 degree appositional closed anterior chamber angle and signs of peripheral anterior synechiae on Zeiss indentation gonioscopy. POAG was defined as a normal and open angle on gonioscopic examination. No previous ocular surgery and laser treatment was noted in all patients, except every CACG patient had received laser iridectomy. One drop of 0.005% latanoprost daily was the only treatment for every patient in the 24-month follow up period.

Results: We enrolled 69 CACG patients (Male/Female: 17/52) with the age of 59.4 ± 10.2 y/o. The baseline IOP was 24.3 ± 3.4 mmHg. After 2-year follow up, the IOP was reduced from baseline by 6.6 ± 1.2 mmHg ($27.6 \pm 5.17\%$), and 63.8% had a reduction of IOP from baseline for more than 20%. The percentage of patients whose IOPs after treatment were not lower than baseline was 18.8%. The IOP after 2-yr treatment were significantly reduced from the baseline in both groups, however, there was no difference between CACG and POAG.

Conclusion: 0.005% latanoprost is an effective treatment for IOP reduction in both CACG patients.

Key word: latanoprost, angle-closure glaucoma

Introduction

Glaucoma has been one of the world's leading causes of blindness and is responsible for about 5.2 million blind persons (1, 2). Primary angle-closure glaucoma (PACG) predominates in Asia and comprises as much as 75% to 90% of the population in some areas (3, 4). Because of the large population of East Asia, PACG is a major form and perhaps is the most common form of glaucoma in a global sense (5).

A peripheral iridectomy is usually performed as the first choice of treatment for PACG. However, iridotomy alone does not always sufficient for IOP control and

prevention of further optic nerve damage and visual field progression (6,7). More than half of the PACG cases may need additional medical, laser, or surgical therapies (8, 9).

Latanoprost, a prostaglandin F_{2α} analog has been introduced as an ocular hypotensive agent in patients with open-angle glaucoma or ocular hypertension (10-12). However, only few reports regard the efficacy and safety about the use of latanoprost on chronic angle closure glaucoma patients (13, 14), and the long-term IOP lowering efficacy and safety of latanoprost in CACG is not certain. The purpose of this study was to observe the long-term effect on IOP of latanoprost in patients with PACG and monitor the ocular and systemic safety.

Materials and Methods

We enrolled the patients from the Department of Ophthalmology, National Taiwan University Hospital from June 1998 to October 2001. This project was reviewed and passed by the ethical committee of National Taiwan University Hospital. A signed informed consent was obtained from all patients before enrollment.

Angle-closure glaucoma was defined as glaucomatous optic neuropathy with a compatible visual field change and at least 180 degrees synechial closure by Zeiss indentation gonioscopy. All patients received laser peripheral iridectomy. Patients discontinued all other anti-glaucoma medications except one drop of 0.005% latanoprost once every day in the two- year of follow up. The washout period was 2 weeks for β -blockers and adrenergic agonists, and 1 week for cholinergic agonists and carbonic anhydrase inhibitors.

Exclusion criteria were secondary glaucoma, history of previous ocular surgery, other laser surgery except iridectomy, trauma. Advanced stage of glaucoma with optic nerve head cup to disc ratio more than 0.9, or visual field defect threatening to fixation were excluded. Pregnant or nursing women were also not included in the study.

Patients were followed up on a monthly basis. Examination in each visit included best corrected visual acuity, slit lamp biomicroscopy, IOP

measurement by Goldmann tonometer, fundus examination, and adverse events check up.

Results

We had 56 angle-closure glaucoma patients completed the two years of follow up. The female was dominant. The mean age was 59.4 ± 10.2 year-old with the range from 41 to 80. The baseline IOP was 24.3 ± 3.4 mmHg. The mean defect in the VF exam was 3.7 dB.

The treatment reached its max effect in the first week and the IOP reduced from baseline for about 27.6%. The IOP has raised slightly and gradually in the course of follow up, however, it still remained significantly reduced as compared to the baseline.

The patients were divided according to the IOP lowering magnitude. About 60% of patients their IOP can be lowered for 20% from the baseline. If we defined IOP higher than the baseline as inadequate response, we will have 18.8% in the patients were non-responder.

The major reasons for patients to withdraw from the study were inadequate response, poor compliance, intolerable to the treatment. We also noted 2 cases of uveitis in the patients. Thirteen patients were withdrawn from the study due to IOP higher than baseline. One patient had visual field progression, and was withdrawn from the study despite good IOP reduction from the baseline.

The major adverse event was conjunctival hyperemia. It occurred in almost half of the patients. Others included iris color change, eyelid skin discoloration, and hypertrichosis. These usually can be noted within the first 6 months of treatment.

Discussion

The action mechanism of latanoprost in CACG is still not clear. It probably can still gain the access to the ciliary body via the open parts of the angles. Kim

and Weinreb showed there is also increased permeability of human sclera exposed to various PGs in organ culture. This increased permeability is accompanied by increased expression of matrix metalloproteinase.

Two cases had uveitis after the latanoprost treatment. The first one was a 63 y/o female, occurred 5 days after treatment and rushed to our emergency service. The second case was a 57 year old male. Uveitis was noted 3 weeks after treatment by the doctor. Symptoms resolved 2 weeks after application of topical steroid and discontinuation of latanoprost.

PGF2a is capable of inducing DNA replication and stimulation of cell division and growth in vitro. Though the relationship between uveitis and use of latanoprost is still not clear, In CACG patients we have to be careful, especially in those patients with all angles closed and difficult to tell whether there was a past history of uveitis or not.

In several reports about the HSV dermatitis in patients using latanoprost. They observed the time to reactivation after treatment is idiosyncratic and very hard to predict.

In conclusion, Latanoprost is effective in reducing IOP in CACG patients after 24 months follow up. In CACG, the IOP lowering effect is compatible with that in POAG. The IOP lowering effect of latanoprost probably is not related to the degree of angle closure. However, we have to be alert to detect recurrent uveitis in every visit, especially in the patients with closed angles.

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Table 1 Basic data of the patients

Angle-closure glaucoma patients	
No. of eyes	56
Age(mean±SD)(range)	59.4±10.2 (41-80)
Sex (M/F)	(10/46)
Axial length (mm)	22.5±1.3
IOP(mmHg)	24.3 ± 3.4
VF MD(dB)	-3.7 ± 5.8
Follow up period (months)	24

Table 2 Intraocular pressure change after treatment

Intraocular pressure (mmHg)	
Baseline	24.3±3.4
1 wk	16.9±5.1**
1 m	17.2±4.1**
6 m	17.2±2.9**
12 m	17.3±3.9**
24m	17.6±3.5**

Table 3 Reasons of withdrawal from the study

	0-6 m	>6-12 m	>12-18 m	>18-24 m
No of patients	88	59	56	56
Inadequate response	13	1	0	0
Poor compliance	10	2	0	0
Intolerance	4	0	0	0
Recurrent uveitis	2	0	0	0

Table 4 Percentage of patients in different IOP reduction

% of IOP reduction	%(No) of patients
≥ 40%	13.0(9)
≥ 30%	27.5(19)
≥ 20%	63.8(44)
≥ 10%	69.6(48)
≥ 0%	81.2(56)
IOP ≥ baseline	100.0(69)

Table 5 Adverse events

Adverse event	%(No) of patients
Blurred vision	7.9(7)
Intractable pain	4.5(4)
Conj. hyperemia	42.0(37)
Iris color change	0.0(0)
Eyelids skin discoloration	23.9(21)
Hypertrichosis	28.4(25)