Preliminary Note

The treatment of acute attack of primary angle-closure glaucoma by pilocarpine ocusert system

Yoichi Shimizu

Department of Ophthalmology (Director: Prof. Yoshinori Shimizu), Nippon Medical School

The treatment of acute attack of primary angle-closure glaucoma is carried out by prompt normalization of intraocular pressure, and peripheral iridectomy is performed as a rule. Recently, laser iridotomy has been performed. For reducing the intraocular pressure, miotics, carbonic anhydrase inhibitors and hyperosmotic agents are used. Generally, the instillation of hyperosmotic agents are used in combination with the frequent uses of eye-droppings of pilocarpine. Instead of the frequent uses of eye-droppings, I had an opportunity to use pilocarpine ocusert, and the results are reported hereinafter.

The method was the insertion of pilocarpine ocusert (40 μg/h) at the time of attack after anesthesia with eye-drop when the diagnosis was made the acute attack of primary angle-closure glaucoma. The opposite eye showing the narrow angle was preventively inserted with pilocarpine ocusert (20 μg/h). Then, hyperosmotic agents were administered by instillation or per os. When the attack was slight, carbonic anhydrase inhibitors were orally given. When the attack ceased and inflammation became slight, laser iridotomy was performed while pilocarpine ocusert was inserted.

As a result, by this method, pupillary block was improved in many cases. Miosis continued for several days, and it was possible to perform laser iridotomy. When the miosis effect was weak, replacement was made by a new one. In the case of slight attack, it was improved by only the insertion of pilocarpine ocusert and eye-dropping of β-blocker. In the case of higher intraocular pressure with severe corneal epithelial edema, attention to the cornea should be paid in inserting the ocusert.

Pilocarpine ocusert is used for chronic diseases such as primary open-angle glaucoma, ocular hypertension, and chronic angle-closure glaucoma. Pilocarpine ocusert has the following features:

1) By gradual release of a certain amount of pilocarpine, stable control of intraocular pressure can be obtained for one week.

2) Intraocular pressure can be easily controlled, and frequent eye-dropping is not necessary.

3) Stable lowering of intraocular pressure can be obtained by the amount of 1/4~1/8 of total doses of pilocarpine necessary in conventional method.

Present address: Department of Ophthalmology, Nippon Medical School First Hospital, 3-5-5, Iidabashi, Chiyoda-ku, Tokyo, 102 Japan
4) The occurrence of visual disorder is low compared to the eye-dropping treatment which causes myopia by giving transient excessive doses.

However, side effects can be observed as initial burst phenomenon and transient burst phenomenon. In this initial burst phenomenon, miosis reaches its peak two hours after insertion, and intraocular pressure is at its lowest level in three hours, and about three times higher amount of pilocarpine is released than that of the stationary state. Stable release is obtained for storing pilocarpine in 6~8 hours, and intraocular pressure, pupil diameter and refraction become constant. By this initial burst phenomenon, the use and replacement at bed time is reported to be rational. In this initial burst phenomenon, strong miotic effect is observed, and continuous release is obtained. Thus, higher effect can be seen, and so, by the combined use with hyperosmotic agents, intraocular pressure will be normalized by releasing the pupillary block at the acute attack of primary angle-closure glaucoma.

The way of the frequent eye-droppings of pilocarpine at the treatment of attack, for instance, 5~10 times of 3% pilocarpine every three minutes, followed by six times in every 30 minutes, and once in one-two hours after lowering of intraocular pressure up to the time of operation. While it is difficult to make frequent eye-drops for outpatients at busy clinics and also, eye-drops is difficult for the patients with severe nausea and vomiting. In such cases, pilocarpine ocusert can be used pleasantly without the trouble of frequent eye-droppings. Thus, while inserting this agent, laser iridotomy can be performed, and pain of patient can be reduced.

In conclusion, for the treatment of acute attack of primary angle-closure glaucoma, instead of the frequent eye-droppings of pilocarpine, pilocarpine ocusert (40μg/h) in combined use of hyperosmotic agents is useful for the normalization of intraocular pressure.

References

1) Allane, K., and John, H.: Diagnosis and therapy of the glaucomas, p. 196, Mosby, St. Louis, 1983.

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