

## NEW DRUGS FOR GLAUCOMA TREATMENT

Skrypnyk A. V. Deryvedmid L. V., Vereitinova V. P.

National University of Pharmacy, Kharkiv, Ukraine

tony.scripnik@yandex.ru

**Rationale.** According to the data from WHO, glaucoma is the main disease, which without timely treatment causes irreversible blindness. Glaucoma incidence rate amounts from 0.01% in the newborns to 3% among persons older than 75 years.

Despite of this high incidence of disease since 1996 and until quite recently not a single new drug for glaucoma treatment appeared at pharmaceutical market.

**Research objective.** Analyze the modern market of pharmaceutical drugs for glaucoma and prospective pharmaceuticals and compare their advantages and drawbacks.

**Materials and methods.** The research was conducted on the basis of information freely available in the Internet.

Mechanisms of action, effectiveness and side effects of drugs for glaucoma treatment were compared.

**Research results.** Drugs for glaucoma treatment are divided into two basic groups – directed to the decrease of production ( $\beta$ -adrenergic blocking agent ( $\beta$ -ABA), carbonic anhydrase inhibitors (KI)) and to the enhancement of drainage (M-cholinomimetic (M-ChM), prostaglandins F $2\alpha$  (PdF $2\alpha$ )).

The newest drugs for glaucoma treatment are clinically studied Rho-kinase inhibitors. Rho-kinase inhibitors selectively act on actinic fibers of intracellular machinery relaxing the trabecular reticulum, which facilitates better outflow of aqueous humor, inhibit noradrenaline carrier decreasing secretion of aqueous humor, and reduce episcleral venous pressure, which facilitates IOP reduction.

Due to combination of different mechanisms of action, Rho-kinase inhibitors may be used in therapy of glaucoma of any kind. During clinical studies it was revealed that the Rho-kinase inhibitors are equally effective at any IOP level at the expense of action on different mechanisms of intraocular pressure regulation, whereas the analogs of F $2\alpha$  prostaglandins possess maximum action only at high IOP.

Rho-kinase inhibitors side effect is in local hyperemia; no systemic response was observed.

**Summary.** The market of medications for glaucoma treatment continues to grow, the studies of a new class of drugs - Rho-kinase inhibitors - possessing combined mechanism of action, high effectiveness and minimum side effects are underway.