

Melnyk V.O., Palamar B.I.

The importance of cooperation between physician and patient for the effectiveness of surgical care organization in patients with glaucomaBogomolets National Medical University,
Kyiv, Ukraine

Мельник В.О., Паламар Б.І.

Значення співпраці між лікарем і пацієнтом для ефективності організації надання хірургічної допомоги пацієнтам із глаукомоюНаціональний медичний університет
імені О.О. Богомольця, м. Київ, Українаvolo_mel@ukr.net**Introduction**

The organization of medical care for patients with primary open-angle glaucoma (POAG) represents a significant challenge in modern medicine. In 2020, glaucoma affected 76 million people worldwide; approximately 4.5 million had moderate or severe visual impairment, and 3.2 million suffered from irreversible blindness [1]. In 2022, the global incidence rate of open-angle glaucoma was 23.5 per 10,000 person-years among individuals aged 40–79 years, ranging from 5.5 in the 40–44 age group to 64.4 in those aged 75–79 [2].

Primary open-angle glaucoma is a chronic, progressive ocular disease that can potentially lead to irreversible blindness. It causes the loss of retinal nerve fibers and optic nerve damage, resulting in visual field defects, and is associated with intraocular pressure (IOP) elevated beyond the tolerance level. A defining feature of POAG is the normal visualization of the anterior chamber angle of the eye, with increased IOP and advanced age being the main risk factors. Visual impairment is usually preventable with early diagnosis and treatment [3].

The main factors in preventing blindness in glaucoma patients include early detection, initiation of effective treatment upon diagnosis, continuous monitoring of disease progression, and timely transition from ineffective therapeutic methods to more effective ones [4].

The cornerstone of early glaucoma detection lies in the availability of modern diagnostic equipment in healthcare institutions, high levels of ophthalmologists' professional knowledge, and an efficient system of preventive visits for patients at risk of developing glaucoma, which in turn requires adequate public awareness [5]. The use of modern technologies and artificial intelligence in data processing facilitates the detection of glaucoma at its early stages [6].

However, timely detection alone cannot halt the progression of glaucoma. It is essential to achieve a tolerant intraocular pressure level at which the rate of disease progression is minimized [7]. Currently, several

main approaches to glaucoma treatment exist, including hypotensive eye drops, laser treatment, and surgical treatment [8]. These treatment methods are not mutually exclusive and are often applied sequentially, depending on their effectiveness. Therefore, achieving target IOP and compensation of glaucoma critically depends on the timely switch from an exhausted treatment method to a more effective one [9]. Surgical treatment of glaucoma is most often indicated in patients for whom conservative or laser therapy fails to provide effective and sustained IOP reduction to the required levels [10]. It is crucial for ophthalmologists to recognize the necessity of continuous monitoring of visual function in glaucoma patients and the indispensability of surgical methods in cases where they represent the only option to preserve vision.

As a chronic progressive disease, open-angle glaucoma typically follows a long-lasting course measured in years, with patients gradually experiencing vision loss [11]. The use of hypotensive eye drops is a convenient treatment option and generally does not impose a substantial organizational or financial burden on glaucoma patients. Furthermore, prolonged use of eye drops contributes to patient adherence to this method of treatment [12]. In contrast to conservative or laser methods, surgical treatment represents a significant burden for patients both psychologically and financially. The very fact of surgical intervention and the associated risks cause psychological discomfort, even when visual function is relatively preserved [13]. In addition, surgical treatment of glaucoma often requires considerable financial expenditures, which are frequently borne by patients themselves. For this reason, surgery remains unpopular among patients, who tend to prefer alternative treatment options. This often leads to the progression of glaucomatous optic neuropathy and, consequently, irreversible vision loss. Therefore, surgical treatment remains the only alternative in such cases.

The purpose of the present study is to investigate the effectiveness of interaction between ophthalmologists and patients with glaucoma in promoting patient adherence to timely surgical care at the early stages of the disease.

Object, materials and methods

The study consisted of two stages. At the first stage, medical records of 500 patients who underwent surgery for chronic open-angle glaucoma at Visiobud-Plus Clinic LLC between 2021 and 2025 were analyzed. The age of these patients ranged from 46 to 88 years; 312 (62.4%) were women and 188 (37.6%) were men. All selected patients received surgical treatment at the advanced stages of the disease (stages III and IV), when it was no longer possible to achieve satisfactory visual function using other treatment methods. The selection of patients at late stages was important, as the absence of effective physician–patient interaction often leads to delays in receiving necessary high-quality treatment.

The second stage involved a survey of ophthalmologists and patients using author-designed questionnaires approved by the Ethics Committee of Bogomolets National Medical University (Protocol No. 190, dated December 23, 2024). A total of 1,200 ophthalmologists aged 24–78 years, employed in both public and private healthcare institutions across all regions of Ukraine, participated in the study. Among them, 257 (21.4%) were men and 943 (78.6%) were women, with work experience ranging from 1 to 52 years. The first block of the ophthalmologist questionnaire focused on organizational aspects of managing patients with open-angle glaucoma, specifically the use of clinical protocols and guidelines, including surgical treatment. The second block assessed ophthalmologists' views on factors contributing to glaucoma progression, particularly their understanding of the necessity of surgical treatment.

Additionally, 1,500 patients with a confirmed diagnosis of open-angle glaucoma were surveyed. Their ages ranged from 23 to 84 years; 811 were women (54.1%) and 689 were men (45.9%). Among the respondents, 719 (47.9%) were employed and 751 (50.1%) were not, while 50 individuals (3.3%) had vision-related disabilities. This group was assessed for treatment adherence, particularly to surgical intervention, and for their disease management practices.

A separate analysis was conducted on questionnaires from 673 glaucoma patients who had undergone surgical treatment for primary open-angle glaucoma across all regions of Ukraine. Among these, 362 patients (53.8%) had surgery on one eye, while 311 (46.2%) underwent surgery on both eyes. Surgeries were performed in both private ophthalmology clinics and public ophthalmology centers and departments.

Statistical analysis was performed using the IBM SPSS Statistics software package. Bibliographic, statistical, and analytical methods were applied in the study.

Research Results

The results of the first stage of the study showed that in $42.6 \pm 2.2\%$ of cases, patients were not timely diagnosed with “glaucoma,” which resulted in the absence of necessary treatment and, consequently, the progression

of the disease to advanced stages. In such cases, surgical treatment raised no doubts either for ophthalmologists or for patients. Patients were immediately referred to an ophthalmic surgeon and agreed to undergo surgery.

In $37.3 \pm 2.2\%$ of cases, patients reported a long period (more than 1 year) of follow-up and treatment by an ophthalmologist, noted deterioration of vision during this period, but did not receive recommendations from the physician regarding necessary surgical treatment. In $20.1 \pm 1.8\%$ of cases, patients were offered surgical treatment but refused it for certain subjective reasons.

The assessment of the reasons for patients seeking surgical treatment of glaucoma at advanced stages of the disease showed that in $42.6 \pm 2.2\%$ of cases glaucoma was detected too late; in $37.2 \pm 2.2\%$ of patients, there were no recommendations from the ophthalmologist regarding surgical treatment; and in $20.1 \pm 1.8\%$ of cases, patient mistrust of surgical treatment, lack of confidence in a positive treatment outcome, and, in fact, ignoring the doctor's recommendations were observed.

Among the 1,200 surveyed ophthalmologists, the vast majority (91.1%) had more than 3 years of work experience, and 68.1% had more than ten years of experience. 76.4% of respondents held second, first, or the highest qualification categories, which confirms the substantial clinical experience of the surveyed physicians.

The overwhelming majority of respondents were familiar with modern standards, protocols, and orders regulating the treatment of glaucoma. Thus, the Standard of Medical Care “Glaucoma”, approved by the Order of the Ministry of Health No. 939, was used by 1,057 ($88.1 \pm 0.9\%$) respondents, and the European Glaucoma Society Guidelines were followed by 969 ($80.8 \pm 1.1\%$). Only 39 ophthalmologists ($3.3 \pm 0.5\%$) reported an urgent need for additional recommendations regarding surgical treatment of glaucoma.

The assessment of the use of regulatory documents by ophthalmologists in providing care to glaucoma patients is presented in Table 1.

A key task for ophthalmologists is the prevention of glaucoma progression and, consequently, the development of blindness. The factors that, in the opinion of physicians, most influence glaucoma progression are presented in Table 2. Overall, $71.4 \pm 1.3\%$ of doctors believe that the absence of proper recommendations from the physician is certainly or in most cases a cause of vision deterioration in patients with open-angle glaucoma. However, patient non-adherence to physician recommendations plays a significant role in this process – this is the opinion of $96.1 \pm 0.6\%$ of ophthalmologists. In general, $89.8 \pm 0.9\%$ of doctors consider that the untimely performance of glaucoma surgery to some extent leads to vision deterioration in patients with open-angle glaucoma.

An assessment was also conducted of the capabilities of ophthalmologists working in various healthcare institutions regarding their understanding of the necessity to prescribe surgical treatment and to determine the type of surgery required by the patient. The results are

Table 1

Assessment of the use of standards by ophthalmologists regulating the provision of care to glaucoma patients (n = 1200)

№	Question	Distribution of respondents' answers to the question, abs. (P ± m%):
1	Are guidelines or methodological recommendations on glaucoma, including quality standards and instructions for their application, available to you?	Yes – 1123 (93,7 ± 0,7%)
		No – 77 (6,3 ± 0,7%)
2	Are clinical protocols for managing patients with glaucoma developed at the healthcare facility where you work?	Yes – 1072 (89,3 ± 0,9%)
		No – 128 (10,7 ± 0,9%)
3	Do you use clinical protocols for managing patients with glaucoma in your practice?	Yes – 1160 (96,7 ± 0,52%), in particular: – Local protocol – 685 (59.1 ± 1.4%) – Protocol recommended by the Ministry of Health – 796 (68.6 ± 1.36%) – Protocol recommended by WHO – 540 (47.5 ± 1.46%)
		No – 40 (3,4%)
4	Do you use the “Glaucoma” Medical Care Standard, approved by the Ministry of Health Order №939, in your work?	Yes – 1057 (88,1 ± 0,9%), including – Always – 450 (42.6 ± 1.5%) – Often – 447 (42.3 ± 1.5%) – Sometimes – 126 (11.9 ± 1.0%) – Rarely – 21 (1.9 ± 0.4%) – Almost never – 13 (1.2 ± 0.3%)
		No – 143 (11,9 ± 0,9%)
5	Do you use the European Glaucoma Society (EGS) guideline for glaucoma in your practice?	Yes – 969 (80,8 ± 1,1%) – Always – 254 (26.2 ± 1.4%) – Often – 471 (48.6 ± 1.6%) – Sometimes – 176 (18.2 ± 1.2%) – Rarely – 28 (2.9 ± 0.5%) – Almost never – 20 (2.1 ± 0.5%)
		No – 231 (19,3 ± 1,1%)
6	Do you feel the need for developing recommendations for surgical treatment of glaucoma?	– Protocols I use are sufficient – 692 (57.7 ± 1.4%) – Difficult to answer – 165 (13.8 ± 0.9%) – No need – 171 (14.3 ± 1.0%) – Partial need – 133 (11.1 ± 0.9%) – Urgent need – 39 (3.3 ± 0.5%)

Table 2

Assessment of organizational factors that, in the opinion of ophthalmologists, contribute to glaucoma progression (n = 1200)

№	Distribution of respondents' answers to the question, abs. (P ± m%):					
	Definitely yes	Yes	In most cases, yes	No	In most cases, no	Never
1	In your opinion, is the lack of proper recommendations from a physician a cause of vision deterioration in patients with open-angle glaucoma?					
	671 (55.9 ± 1.4%)	141 (11.7 ± 0.9%)	46 (3.8 ± 0.6%)	152 (12.7 ± 0.9%)	180 (15.0 ± 1.0%)	10 (0.8 ± 0.3%)
2	In your opinion, does a patient's non-compliance with physician recommendations lead to vision deterioration in patients with open-angle glaucoma?					
	254 (21.2 ± 1.2%)	723 (60.3 ± 1.4%)	176 (14.7 ± 1.0%)	4 (0.3 ± 0.2%)	36 (3.0 ± 0.5%)	7 (0.6 ± 0.2%)
3	In your opinion, is the untimely performance of surgical treatment a cause of significant vision deterioration in patients with open-angle glaucoma?					
	158 (13.1 ± 0.9%)	532 (44.3 ± 1.4%)	389 (32.4 ± 1.4%)	20 (1.7 ± 0.4%)	98 (8.2 ± 0.8%)	4 (0.3 ± 0.2%)

presented in Table 3. It was found that only 44.5 ± 1.4% of ophthalmologists can accurately determine the need for surgical treatment for a patient, while 14.4 ± 1.0% always refer the patient to a surgeon. Even fewer ophthalmologists (29.7 ± 1.3%) can accurately determine the surgical method required by the patient, and only 25 ± 1.3% of them always rely on the opinion of other specialists.

Analysis of the survey of 1,500 patients with glaucoma showed that only 18 respondents (1.2 ± 0.3%) rated their vision as excellent, and 193 respondents (12.9 ± 0.9%) as good.

In contrast, 63 individuals (4.2 ± 0.5%) had completely lost their vision. Six hundred thirty-four patients (42.3 ± 1.3%) considered their vision poor, and 587 patients (39.3 ± 1.3%) considered it satisfactory. The vast majority of patients – 1,314 (87.6 ± 0.9%) – were aware of what glaucoma is.

The assessment of the impact of patient adherence to treatment on disease progression in glaucoma patients is presented in Table 4.

Of particular note is the significant proportion (22.6 ± 1.1%) of patients with existing glaucoma who are not

Table 3

Assessment of ophthalmologists' ability to determine surgical treatment for glaucoma patients (n = 1200)

№	Question	Distribution of respondents' answers to the question, abs. (P ± m%):
1	Can you independently determine the need for surgical treatment in patients with glaucoma?	<ul style="list-style-type: none"> - Yes – 534 (44.5 ± 1.4%) - Can do it more often – 430 (35.8 ± 1.4%) - Can do it rarely – 63 (5.3 ± 0.6%) - Always refer the patient to a surgeon – 173 (14.4 ± 1.0%)
2	Can you independently determine the type of glaucoma surgery required for a patient?	<ul style="list-style-type: none"> - Always can – 356 (29.7 ± 1.3%) - Can do it more often, sometimes rely on another specialist – 544 (45.3 ± 1.4%) - Never independently determine the type of surgery – 300 (25.0 ± 1.3%)

Table 4

Assessment of the impact of patient adherence to treatment on disease progression in glaucoma patients (n = 1500)

№	Question	Distribution of respondents' answers to the question, abs. (P ± m%):
1	Are you under regular dynamic supervision by an ophthalmologist for glaucoma?	<ul style="list-style-type: none"> Yes – 1161 (77.4 ± 1.1%) No – 339 (22.6 ± 1.1%)
2	If yes, at which healthcare facility are you under dynamic supervision for glaucoma? (n = 1161)	<ul style="list-style-type: none"> - Polyclinic – 259 (22.3%) - State specialized healthcare facility – 497 (42.8%) - Private specialized healthcare facility – 405 (34.9%)
3	What factor is the most important for you when choosing a healthcare facility for regular glaucoma supervision? (n = 1161)	<ul style="list-style-type: none"> - Level of professional qualification of facility physicians – 1035 (89.2 ± 0.9%) - Level of diagnostic equipment – 675 (58.1 ± 1.5%) - Convenience of facility location – 333 (28.7 ± 1.3%) - Type of facility ownership – 47 (4.1 ± 0.6%) - Cost of services – 375 (32.3 ± 1.4%)
4	Do you visit an ophthalmologist for glaucoma?	<ul style="list-style-type: none"> Yes – 1302 (86.8 ± 1.1%) No – 198 (13.2 ± 0.8%)
5	If yes, how often do you visit an ophthalmologist for glaucoma? (n = 1302)	<ul style="list-style-type: none"> - Less than once a year – 146 (11.2 ± 0.9%) - On average once a year – 177 (13.6 ± 0.9%) - On average twice a year – 285 (21.9 ± 1.2%) - On average 3–4 times a year – 485 (37.3 ± 1.3%) - On average 5–6 times a year – 142 (10.9 ± 0.9%) - More than 6 times a year – 67 (5.2 ± 0.6%)

under the supervision of an ophthalmologist, and 13.4 ± 0.9% who do not visit an ophthalmologist at all. Among those patients who do attend an ophthalmologist for glaucoma monitoring, more than 11.2 ± 0.9% visit less than once a year, and 21.9 ± 1.2% visit no more than twice a year. The most important factors influencing the choice of healthcare facility for glaucoma monitoring were the professional qualification level of specialists (89.2 ± 0.9%) and the level of technical equipment (58.1 ± 1.5%).

The assessment of patient adherence to prescribed surgical treatment for glaucoma was also important. Among the respondents, 803 (53.5 ± 1.3%) received a recommendation from an ophthalmologist to undergo surgical treatment, while 661 patients (44.1 ± 1.3%) were advised to undergo conservative treatment. Among these, 739 patients (92.0 ± 0.9%) agreed to undergo the recommended type of treatment. The main reasons for doubts regarding surgical treatment were: lack of financial means (19.4 ± 1.5%), having relatively good vision that satisfied the patient (12.5 ± 1.2%), and distrust of surgical methods for glaucoma treatment (6.5 ± 0.9%).

Among patients who had already undergone surgical treatment for glaucoma, the assessment of their adherence to this treatment method is presented in Table 5.

A notable finding is the significant patient adherence to surgery on the second eye following prior surgery on

the first eye – 85.2 ± 1.2% of patients found it easier to undergo the second operation compared to the first. An important role in this is played by the patient's own positive experience, trust in the physician, and trust in the surgical method.

Discussion of the Research Results

Intraocular pressure (IOP) is the only modifiable risk factor for glaucoma progression. The choice of the optimal surgical intervention for glaucoma must be individualized, as it depends on many factors: lack of effectiveness of medication or laser therapy, poor patient adherence to treatment, drug intolerance, severity and type of glaucoma, lens condition, patient age, compliance with medication regimen, ability to attend postoperative visits, response of the other eye to previous glaucoma surgery, availability of appropriate surgical equipment, and physician qualification [13].

For each glaucoma patient, a multimodal approach should be used, and treatment should be adapted to age, socio-economic status, working conditions, income, and education level. To ensure successful IOP control and prevent further disease progression, it is necessary to study individual patient characteristics that may affect adherence to the treatment regimen, rather than merely prescribing medication [14].

Table 5

Assessment of patient adherence to performed surgical treatment of glaucoma (n = 673)

№	Question	Distribution of respondents' answers to the question, abs. (P ± m%):
1	You underwent surgery due to glaucoma	– On one eye – 362 (53.8 ± 1.9%) – On both eyes – 311 (46.2 ± 1.9%)
2	If you had surgery on both eyes, the decision to undergo surgery on the second eye was (n = 311)	– Easier – 265 (85.2 ± 1.2%) – Harder – 18 (5.8 ± 1.3%) – The same – 28 (9.0 ± 1.6%)
3	In your opinion, what is the main factor in deciding to have surgery on the second eye (n = 311)	– Fear of vision loss due to glaucoma progression – 234 (75.2 ± 2.5%) – Positive experience from the first operated eye – 162 (52.1 ± 2.8%) – Trust in the physician – 127 (40.8 ± 2.8%) – Trust in the proposed treatment method – 83 (26.7 ± 2.5%) – Unwillingness to use eye drops – 35 (11.3 ± 1.8%)

However, it must be considered that most glaucoma patients are elderly. They may have physical or cognitive impairments, limited financial resources, and reduced visual acuity, which hinder adherence to the treatment regimen. Therefore, ophthalmologists need to apply a patient-centered approach that simultaneously focuses on both glaucoma and the patient's quality of life. To improve treatment adherence, measures should be implemented, including patient education, use of therapy reminder systems (alarms, text messages), adaptation of therapy to the patient's lifestyle, preservative-free medications to reduce potential side effects, and, most importantly, better interaction between the patient and the physician [15].

To achieve high-quality outcomes in glaucoma treatment and prevent blindness resulting from the disease, effective interaction (compliance) between the ophthalmologist and the patient is crucial [16].

The main links of this interaction are the physician's prescription and the patient's ability to undergo more radical treatment methods for open-angle glaucoma, namely surgical intervention. An indispensable principle of effective and proper treatment is the awareness of specialists regarding the documents regulating the activities of ophthalmologists, which are based on the principles of evidence-based medicine. These include orders from the Ministry of Health, WHO protocols, and professional association and society guidelines, which form the basis for local clinical protocols in healthcare institutions. Conscientious adherence to these documents can ensure effective treatment [17].

Patients often show greater adherence to the familiar method of treatment, which is eye drop administration, as it does not involve additional stress factors associated with surgical treatment, such as the risk of complications, the need for assistance after surgery, or significant financial costs [18]. The transition from conservative glaucoma treatment to surgical intervention is an important element in treatment and in preventing disease progression [19]. Even minimally invasive surgical procedures (canaloplasty, trabeculectomy) can normalize intraocular pressure, relieve patients from the need for eye drops, avoid their side effects,

and generally improve quality of life. Such procedures can be offered even to younger patients, who can thus postpone the need for more complex interventions [20].

Prospects for further research

Future research prospects are related to studying the involvement of family physicians in encouraging glaucoma patients to adhere to treatment.

Conclusions

The absence of interaction between the ophthalmologist and the glaucoma patient is, in 42.6% of cases, the reason for delayed provision of necessary surgical care, leading to irreversible vision loss. Organizing effective interaction between the ophthalmologist and the glaucoma patient is the key to successful treatment of glaucoma, as well as to preventing vision deterioration and irreversible blindness.

A central component of this interaction is the patient's precise adherence to the treatment recommended by the physician, which is confirmed by the opinion of 96.2% of surveyed ophthalmologists. 89.8% of respondents believe that timely surgical treatment of glaucoma ensures the preservation of vision, yet only 44.5% of ophthalmologists can accurately determine the patient's need for surgery, and only 29.7% can specify the type of required procedure. It was found that the physician's knowledge and high qualification are a key factor in choice for 89.2% of glaucoma patients.

Therefore, deepening ophthalmologists' knowledge in modern organizational and technical principles of providing surgical care for glaucoma, popularizing surgical methods at professional congresses and conferences, developing corresponding methodological recommendations endorsed by Ministry of Health orders and local clinical protocols, along with increasing patient awareness regarding the safety and effectiveness of surgical treatment, will significantly enhance patient trust in surgical methods for glaucoma and substantially reduce the risk of vision loss.

Bibliography

1. Bou Ghanem GO, Wareham LK, Calkins DJ. Addressing neurodegeneration in glaucoma: Mechanisms, challenges, and treatments. *Prog Retin Eye Res.* 2024 May;100:101261. DOI: 10.1016/j.preteyeres.2024.101261. Epub 2024 Mar 26. PMID: 38527623.

2. Shan S, Wu J, Cao J, Feng Y, Zhou J, Luo Z, Song P, Rudan I; Global Health Epidemiology Research Group (GHERG). Global incidence and risk factors for glaucoma: A systematic review and meta-analysis of prospective studies. *J Glob Health*. 2024 Nov 8;14:04252. DOI: 10.7189/jogh.14.04252. PMID: 39513294; PMCID: PMC11544525.
3. Burton MJ, Ramke J, Marques AP, et al. The lancet global health commission on global eye health: vision beyond 2020. *Lancet Glob Health*. Apr 2021;9(4):e485–e551. DOI: 10.1016/S2214-109X(2030488-5
4. Li R, Zhang K, Lu Z, Mou D, Wang J, Li H, Fan S, Wang N, Liu H. Cost-utility analysis of commonly used anti-glaucoma interventions for mild-to-moderate primary open-angle glaucoma patients in rural and urban China. *BMJ Open*. 2023 Sep 6;13(9):e073219. DOI: 10.1136/bmjopen-2023-073219. PMID: 37673456; PMCID: PMC10496665.
5. Stein JD, Khawaja AP, Weizer JS. Glaucoma in Adults-Screening, Diagnosis, and Management: A Review. *JAMA*. 2021 Jan 12;325(2):164–174. DOI: 10.1001/jama.2020.21899. PMID: 33433580.
6. Ji Y, Chen N, Liu S, Yan Z, Qian H, Zhu S, Zhang J, Wang M, Jiang Q, Yang W. Research Progress of Artificial Intelligence Image Analysis in Systemic Disease-Related Ophthalmopathy. *Dis Markers*. 2022 Jun 24;2022:3406890. DOI: 10.1155/2022/3406890. PMID: 35783011; PMCID: PMC9249504.
7. Asrani SG, McGlumphy EJ, Al-Aswad LA, Chaya CJ, Lin S, Musch DC, Pitha I, Robin AL, Wiroszko B, Johnson TV. The relationship between intraocular pressure and glaucoma: An evolving concept. *Prog Retin Eye Res*. 2024 Nov;103:101303. DOI: 10.1016/j.preteyeres.2024.101303. Epub 2024 Sep 19. PMID: 39303763.
8. Sunaric Megevand G, Bron AM. Personalising surgical treatments for glaucoma patients. *Prog Retin Eye Res*. 2021 Mar;81:100879. DOI: 10.1016/j.preteyeres.2020.100879. Epub 2020 Jun 18. PMID: 32562883.
9. Azuara-Blanco A, Carlisle A, O'Donnell M, Jayaram H, Gazzard G, Larkin DFP, Wickham L, Lois N. Design and Conduct of Randomized Clinical Trials Evaluating Surgical Innovations in Ophthalmology: A Systematic Review. *Am J Ophthalmol*. 2023 Apr;248:164–175. DOI: 10.1016/j.ajo.2022.12.010. Epub 2022 Dec 22. PMID: 36565904.
10. Lim R. The surgical management of glaucoma: A review. *Clin Exp Ophthalmol*. 2022 Mar;50(2):213–231. DOI: 10.1111/ceo.14028. Epub 2022 Jan 17. PMID: 35037376.
11. De Francesco T, Bacharach J, Smith O, Shah M. Early diagnostics and interventional glaucoma. *Ther Adv Ophthalmol*. 2024 Oct 13;16:25158414241287431. DOI: 10.1177/25158414241287431. PMID: 39421852; PMCID: PMC11483761.
12. Mohan N, Chakrabarti A, Nazm N, Mehta R, Edward DP. Newer advances in medical management of glaucoma. *Indian J Ophthalmol*. 2022 Jun;70(6):1920–1930. DOI: 10.4103/ijo.IJO_2239_21. PMID: 35647957; PMCID: PMC9359258.
13. Razeghinejad R, Katz L Jay. Chapter 33 – Section summary: determination of the ideal patient–surgeon–procedure match. *The Science of Glaucoma Management*. Academic Press. 2023;367–369. DOI: 10.1016/B978-0-323-88442-6.00028-5.
14. Tripathi S, Trivedi K, Bhagat P. Compliance in glaucoma management: Challenges decoded – A review. *Glob J Cataract Surg Res Ophthalmol*. 2023;2:59–68. DOI: 10.25259/GJCSRO_23_2023.
15. Zaharia AC, Dumitrescu OM, Radu M, Rogoz RE. Adherence to Therapy in Glaucoma Treatment-A Review. *J Pers Med*. 2022 Mar 22;12(4):514. DOI: 10.3390/jpm12040514. PMID: 35455630; PMCID: PMC9032050.
16. Al-Timimi Z, Sarkar S, Nand S, Skalicky SE, Sandhu S, Dunn H, Keay L. Meaningful Patient Partnerships: A Qualitative Study of Patient Perspectives and Shared Decision-Making Regarding Glaucoma Surgery. *Ophthalmol Glaucoma*. 2025 Apr 18:S2589–4196(25)00073-0. DOI: 10.1016/j.ogla.2025.04.006. Epub ahead of print. PMID: 40254062.
17. Funke C, Ristvedt D, Yadgarov A, Micheletti J. Interventional glaucoma consensus treatment protocol. *Expert Rev. Ophthalmol*. 2025 Feb;20(2):79–87. DOI: 10.1080/17469899.2025.2465330.
18. Bedrood S, Berdahl J, Sheybani A, Singh IP. Alternatives to Topical Glaucoma Medication for Glaucoma Management. *Clin Ophthalmol*. 2023 Dec 14;17:3899–3913. DOI: 10.2147/OPTH.S439457. PMID: 38111854; PMCID: PMC10726774.
19. Janz NK, Wren PA, Guire KE, Musch DC, Gillespie BW, Lichter PR; Collaborative Initial Glaucoma Treatment Study. Fear of blindness in the Collaborative Initial Glaucoma Treatment Study: patterns and correlates over time. *Ophthalmology*. 2007 Dec;114(12):2213–20. DOI: 10.1016/j.ophtha.2007.02.014. Epub 2007 May 9. PMID: 17490746.
20. Pastore MR, Milan S, Agolini R, Egidi L, Agostini T, Belfanti L, Cirigliano G, Tognetto D. How Could Medical and Surgical Treatment Affect the Quality of Life in Glaucoma Patients? A Cross-Sectional Study. *J Clin Med*. 2022 Dec 8;11(24):7301. DOI: 10.3390/jcm11247301. PMID: 36555917; PMCID: PMC9784022.

Purpose: to investigate the effectiveness of interaction between ophthalmologists and glaucoma patients in promoting patient adherence to necessary surgical care at early stages of the disease.

Materials and methods. Medical records of 500 patients with stage 3–4 glaucoma and survey data from 1,200 ophthalmologists and 1,500 patients were analyzed using social-hygienic, medical-statistical, and sociological methods to identify reasons for late surgical referrals.

Results. The reasons for patients seeking surgical treatment at advanced stages of glaucoma were identified: in $42.6 \pm 2.2\%$ of cases, the disease was diagnosed too late; in $37.3 \pm 2.2\%$ of patients, ophthalmologists had not provided recommendations regarding surgical intervention; and in $20.1 \pm 1.8\%$ of cases, patients expressed distrust toward surgical treatment. The vast majority of surveyed physicians ($96.7 \pm 0.5\%$) are well-versed in current guidelines governing glaucoma management and apply them in clinical practice. However, only $44.5 \pm 1.4\%$ are able to accurately determine the necessity of surgical treatment for a patient, and only $29.7 \pm 1.3\%$ can select the appropriate type of surgical procedure. For $89.2 \pm 0.9\%$ of patients, the decisive factor in choosing a treatment method is the professional qualification of the physician. Furthermore, $85.2 \pm 1.2\%$ of patients are more willing to undergo surgery in the fellow eye due to a positive prior experience.

Conclusions. Patient adherence to surgical treatment depends on effective communication by the ophthalmologist. Enhancing physician knowledge and patient awareness of surgical safety and efficacy can improve trust in surgical management and reduce the risk of vision loss.

Key words: glaucoma, surgical care, physician–patient collaboration, treatment adherence, healthcare organization, treatment effectiveness.

Мета – дослідити ефективність взаємодії лікарів-офтальмологів і пацієнтів із глаукомою для стимулювання прихильності пацієнтів щодо отримання необхідної хірургічної допомоги на ранніх стадіях захворювання.

Матеріали та методи. Для визначення причин пізнього звернення пацієнтів з глаукомою 3–4 стадій, які були прооперовані в ТОВ «Клініка Візіобуд-Плюс» протягом 2021–2025 років. Також матеріалами дослідження слугували дані опитування 1200 лікарів-офтальмологів та 1500 пацієнтів із глаукомою державних і приватних закладів охорони здоров'я в усіх областях України за допомогою власно розроблених анкет. У роботі використані соціально-гігієнічний, медико-статистичний, соціологічний методи.

Результати. Аналіз опитування пацієнтів з глаукомою довів, що поганим свій зір вважають (42,3 ± 1,3 %, задовільним – 39,3 ± 1,3 % пацієнтів. Переважна більшість з них (87,6 ± 0,9 %) знає, що таке глаукома. Але значна питома вага пацієнтів (22,6 ± 1,1 %) із глаукомою не перебувають під наглядом лікаря-офтальмолога, 13,4 ± 0,9 % взагалі не відвідують офтальмолога. З тих пацієнтів, що відвідують лікаря-офтальмолога з метою контролю глаукоми, понад 11,2 ± 0,9 % відвідують рідше ніж 1 раз на рік, і 21,9 ± 1,2 % – не частіше ніж 2 рази на рік.

Встановлено відсутність якісної взаємодії між лікарем-офтальмологом і пацієнтом із відкритокутовою глаукомою, а також причини звернення пацієнтів із приводу хірургічного лікування глаукоми на пізніх стадіях захворювання: у 42,6 ± 2,2 % пацієнтів глаукома була виявлена занадто пізно, у 37,2 ± 2,2 % пацієнтів були відсутні рекомендації лікаря-офтальмолога щодо хірургічного лікування, у 20,1 ± 1,8 % випадків мала місце недовіра пацієнта до хірургічного лікування або відсутність необхідної мотивації.

Переважає більшість опитаних лікарів (96,7 ± 0,5 %) обізнані із сучасними вітчизняними та міжнародними стандартами, протоколами й наказами, що регламентують лікування глаукоми, та використовують їх на практиці. При цьому лише 44,5 ± 1,4 % можуть точно визначити необхідність хірургічного лікування пацієнта, 29,7 ± 1,3 % – метод хірургічного лікування, необхідний пацієнту. Необхідність глибоких знань лікарів-офтальмологів, у тому числі щодо хірургічного лікування глаукоми, є дуже важливою, адже 89,2 ± 0,9 % пацієнтів визначальним у виборі і закладу охорони здоров'я, і методу лікування вважають рівень професійної кваліфікації лікаря. Прихильність пацієнтів до хірургічного лікування глаукоми залежить від позитивного досвіду ефективної операції на одному оці, 85,2 ± 1,2 % пацієнтів легше погоджуються на операцію на парному оці. Понад 96,2 ± 0,6 % лікарів-офтальмологів вважають виконання пацієнтом їх призначень запорукою збереження зору. Прихильність пацієнта до лікування залежить від спроможності лікаря-офтальмолога донести необхідність хірургічного лікування.

Висновки. Комплаєнс між лікарем-офтальмологом і пацієнтом потрібен для забезпечення успішного контролю внутрішньоочного тиску та подальшого прогресування захворювання. Для покращення дотримання режиму лікування пацієнтами потрібно їх навчати, застосовувати системи нагадування про терапію, адаптувати терапію до способу життя пацієнта. Вибір оптимального хірургічного втручання за наявності глаукоми має бути індивідуальним. Для кожного пацієнта потрібно використати мультимодальний і пацієнторієнтований підходи; адаптувати лікування до віку, соціально-економічного статусу, умов праці, рівнів статків та освіти пацієнта.

Відсутність якісної взаємодії між лікарем і пацієнтом є причиною пізнього звернення для хірургічного лікування з приводу глаукоми. Тому її організація буде запорукою ефективного її лікування та профілактики погіршення зору з подальшим розвитком безповоротної сліпоти. Основною ланкою цієї взаємодії є чітке виконання пацієнтом рекомендованого лікарем лікування. Головним принципом взаємодії між лікарем і пацієнтом є своєчасність рекомендацій лікаря щодо проведення хірургічного лікування та своєчасність виконання операції, що базується на довірі пацієнтів до цього методу лікування. Для кожного пацієнта з глаукомою потрібно використати мультимодальний підхід та адаптувати лікування до віку, соціально-економічного статусу, умов праці, рівнів статків та освіти пацієнта. Упровадження організаційних принципів надання хірургічної допомоги пацієнтам із глаукомою дасть змогу суттєво знизити інвалідизацію пацієнтів унаслідок цього захворювання.

Ключові слова: глаукома, хірургічна допомога, співпраця лікаря й пацієнта, прихильність до лікування, організація медичної допомоги, ефективність лікування.

Conflict of interest: absent.

Конфлікт інтересів: відсутній.

Information about the authors

Melnyk Volodymyr Oleksiiovych – Candidate of Medical Sciences, Doctoral Candidate at the Department of Public Health of the Bogomolets National Medical University; Taras Shevchenko Blvd., 13, Kyiv, Ukraine, 01601.
vol_mel@ukr.net, ORCID ID: 0009-0001-4177-4702 ^{A, B, C, D}

Palamar Borys Ivanovych – Doctor of Medical Sciences, Professor at the Department of Public Health of the Bogomolets National Medical University; Taras Shevchenko Blvd., 13, Kyiv, Ukraine, 01601.
palamar.bi@ukr.net, ORCID ID: 0000-0003-2510-0713 ^{E, F}

Стаття надійшла до редакції 18.09.2025

Дата першого рішення 02.12.2025

Стаття подана до друку 30.12.2025