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ORIGINAL ARTICLE

Evaluation of the patient-centric principle in the organization of medical care and prevention of open-angle glaucoma progression

Volodymyr O. Melnyk, Borys I. Palamar
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ABSTRACT

Aim: To investigate the patient-centred principle in preventing and providing medical care for open-angle glaucoma.

Materials and Methods: A systematic approach was implemented using a comprehensive set of methods. A self-developed questionnaire was used to collect data. The patient survey was conducted from 1 May 2024 to 30 August 2024. A targeted selection of respondents who underwent surgical treatment for primary open-angle glaucoma from all regions of Ukraine was applied using the main array method (N = 1000).

Results: The study revealed that satisfaction with ophthalmological care was expressed by more than 90% ± 0.95% of respondents (rate per 100 respondents ± standard error). A hereditary predisposition to glaucoma was identified in 20% ± 1.26% of respondents. In more than 80% ± 1.26% of cases, glaucoma was detected by an ophthalmologist, while in more than 17% ± 1.88% of cases, it was identified by a family doctor.

Conclusions: In order to defect glaucoma early and monitor the progression of the disease, there is a need for informational and methodological work with primary care doctors, implementation of algorithms for preventive examinations of patients. Patient awareness regarding the safety and effectiveness of glaucoma surgery affects the timeliness of surgical intervention and vision preservation.

KEY WORDS: patient-centric approach, ophthalmological care, public health

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INTRODUCTION

Health holds exceptional significance in every person's life. The state bears the responsibility for safeguarding and promoting citizens' health [1]. One of the fundamental approaches that the Ministry of Health and the Government consider essential is the patient-centric principle, where the individual (patient) is placed at the center of focus and interest in the healthcare system [2, 3]. Healthcare reform in Ukraine and the development of family medicine based on a holistic approach, which considers physical, mental, and social factors in patient treatment alongside disease diagnosis, contribute to implementing the patient-centric principle [4]. The professionalism of any physician, including ophthalmologists, family doctors, and general practitioners, should encompass qualities such as responsibility, communication skills, humanity, empathy, sensitivity, respect, tact, patience, tolerance, and care.

According to official statistics, an average of 4,500 cases of primary disability due to eye diseases are registered annually in Ukraine, with half of these patients being blind. The total number of blind and visually impaired people in Ukraine exceeds this figure by tenfold. Approximately 5% of people over 40 years of age suffer from glaucoma. Patients increase by about 12% every five years [5]. By 2023, over 200 000 people in Ukraine were diagnosed with glaucoma, with approximately 25 000 new cases identified annually [6]. The forecasts regarding the progression of this issue in the country are bleak. However, global practice shows that blindness can be prevented in 80% of cases.

Glaucoma is the leading cause of irreversible blindness worldwide. According to studies, over 76 million people globally suffered from glaucoma in 2020, up from 60,5 million in 2010. By 2030, the number of people with glaucoma is projected to reach 95,4 million, and by 2040, it will reach 112 million [7, 8].

Primary open-angle glaucoma is the most common form of glaucoma, accounting for between 70% and over 80% of all diagnosed cases. In 2011, there were 2.7 million people aged 40 and older with primary open-angle glaucoma in the United States, and this number is expected to rise to 7.3 million by 2050 [9].

Detecting glaucoma and initiating treatment at early stages lead to significantly better clinical and economic outcomes. Research by the American Academy of Ophthalmology indicates higher expenses for outpatient care in patients with advanced-stage glaucoma compared to those in the early or moderate stages. Medication costs also increase significantly in patients with advanced glaucoma [10]. The progression of this disease is associated with vision loss and a decline in quality of life. Additionally, patients with glaucoma are more prone to falls and fractures compared to individuals without the disease [11, 12].

Known causes of blindness from glaucoma include late-stage detection, ineffective treatment due to therapy

refusal because of the high cost of medications, patient neglect of medical recommendations, and insufficient public awareness about the severity of the disease, which results in a lack of seriousness in addressing it.

Since glaucoma leads to incurable blindness, it is viewed as a critical medical, social, and economic issue. This underscores the importance of studying glaucoma epidemiology, the factors influencing its spread, and preventive methods for both glaucoma itself and its consequence – blindness.

The main regulatory document for providing care to patients with open-angle glaucoma in Ukraine is the "Glaucoma" Medical Care Standard, approved by the Order of the Ministry of Health of Ukraine No. 959 on May 26, 2023. According to this standard, glaucoma treatment aims to reduce intraocular pressure (IOP) and slow down visual field deterioration. Slowing the progression of the disease positively impacts vision-related quality of life. Surgical methods for glaucoma treatment are used in cases of high pressure that cannot be reduced to target levels through non-surgical procedures. As the target pressure level varies, glaucoma patients require regular assessments of eye and vision function, necessitating ongoing monitoring, control, and adjustments based on their visual function status [2].

At the state level, according to the Law of Ukraine No. 2573, "On the Public Health System," from September 6, 2022, the fight against glaucoma is directed toward health promotion, disease prevention, treatment, and rehabilitation. The most significant emphasis is placed on preventing disease development. Since glaucoma has hereditary characteristics, primary prevention (prevention of its occurrence) is challenging. From a preventive standpoint, the main focus is on secondary prevention to prevent glaucoma progression (early diagnosis and effective treatment) [13].

AIM

The aim of the study was to to investigate the patient-centric principle in preventing and providing medical care for open-angle glaucoma.

MATERIALS AND METHODS

A systematic approach was implemented in this study, utilizing a complex set of methods, including statistical, and sociological methods for data collection, processing, and analysis. The collection of information was carried out by the method of patient of patient questionnaires from May 1, 2024, until August 30, 2024, in healthcare facilities where medical care is provided to patients with glaucoma. A questionnaire, reviewed by the Department of Public Health at the Institute of Public Health and Preventive Medicine, Bogomolets National Medical University, was developed as the research instrument (Appendix). A targeted sample of respondents who had undergone surgical treatment for primary open-angle glaucoma was selected from all regions of Ukraine using the primary array method (N = 1000). Of these, 642 ([hereinafter – rate per 100 respondents ± standard error] 64%±1,52%) were operated in private ophthalmology clinics and 358 (36%±1,52%) in public specialized departments or hospitals. The age range of patients was 21 to 86 years, with 487 (49%±1,58%) male and 513 (51%±1,58%) female respondents.

Depending on the patients' experience with glaucoma, satisfaction with doctor consultations provided in outpatient clinics, private medical facilities, and hospitals was observed. A key indicator of quality consultation was the completeness of responses from the ophthalmologist to patient questions, along with the provision of comprehensive recommendations. The waiting time for the first appointment or examination indicated inefficient organization within healthcare facilities. Waiting times for medical assistance or consultations in healthcare facilities reflect a remnant of the Soviet healthcare system, indicating poor medical care organization. The Ministry of Health of Ukraine's Order No. 586 of February 28, 2020, approved the procedure for referring patients to healthcare facilities and individual entrepreneurs, mandating the recording of referrals in the electronic healthcare system [14].

The study also analyzed satisfaction with ophthalmological care among vulnerable social groups (pensioners, people with disabilities, internally displaced persons, etc.). Questions regarding respondents' self-assessment of their financial status helped identify their perceived place within the social structure and examine how this perception influences various health-related practices (e.g., speed of seeking medical assistance when experiencing vision problems, choice of healthcare facility, decision to undergo surgical treatment for glaucoma). Additionally, responses to financial self-assessment questions allow for the measuring socio-economic inequality in future studies.

Considering the bioethical principle of respect for personal autonomy, quality organization of ophthalmological care includes the right of the patient to choose their healthcare facility and specific doctor. Several questions were aimed at uncovering patient motivations when selecting a doctor and healthcare facility and at investigating the importance of the cost of medical services as a factor in their decision-making process.

Respondents were asked to evaluate the accessibility and quality of ophthalmological care, specifically in the context of glaucoma. Analyzing responses based on the duration of the respondents' illness and whether they were under regular ophthalmological monitoring allowed for identifying groups of respondents with significant experience in ophthalmological care.

To assess the organization of the glaucoma screening and diagnostic system, respondents were asked questions about the circumstances surrounding their disease diagnosis. Primary healthcare organizations are crucial in this context, so a set of questions was formulated to evaluate the level of attention family doctors give to ophthalmological issues.

ETHICS

In this study, the authors adhered to the Ethical Principles for Medical Research Involving Human Subjects, as outlined in the Helsinki Declaration of the World Medical Association (WMA, 1964) and applicable Ukrainian regulations.

A bioethical review of the prepared article was conducted by the Bioethics and Research Ethics Committee of the Bogomolets National Medical University. A positive expert conclusion was obtained (No. 189, November 25).

RESULTS

Among the patients offered surgical glaucoma treatment, 25% ± 1,37% were first-time visitors to an ophthalmologist with vision complaints. These individuals were diagnosed with glaucoma that required immediate surgical intervention. 75% ± 1,37% of patients had been under the observation of an ophthalmologist for an extended period and were receiving non-surgical treatment. 50% ± 1,58% of respondents did not seek an ophthalmologist's help immediately after noticing vision issues, and 16% ± 1,16% reported experiencing vision problems for a year or more before their visit. 100% of respondents cited vision impairment in one or both eyes as their primary complaint.

40% ± 1,55% of patients were referred to an ophthalmologist by a family doctor. In comparison, 97% ± 0,54% of respondents had a declaration with a family doctor, and 66% ± 1,50% had complained of vision problems. In 75% ± 1,37% of cases, the primary criterion for choosing an ophthalmologist was a recommendation from friends or other doctors. In 20% ± 1,26% of cases, patients had no choice regarding the doctor they could consult. All respondents (97% ± 0,54%) could see an ophthalmologist without a long wait. 90% ± 0,95% expressed satisfaction with the consultation and recommendations provided by the doctor, indicating that patients received adequate care regardless of whether it was provided in a public or private healthcare facility.

Regarding awareness, 92% ± 0,86% of respondents confirmed they were informed about glaucoma, while only 20% ± 1,26% knew about pseudoexfoliation syndrome. 20% ± 1,26% of respondents reported a family history of glaucoma. 80% ± 1,26% of respondents had their glaucoma diagnosed by an ophthalmologist, while 17% ± 1,88% were diagnosed by a family doctor.

77% ± 1,33% of patients are regularly monitored by an ophthalmologist, visiting more than once a year, with 60% ± 1,55% attending 2-4 visits annually. For 50% ± 1,58% of patients, surgical treatment for glaucoma was recommended at the initial visit, with 25% ± 1,37% agreeing to it immediately. The remaining patients postponed surgery due to satisfaction with their current vision and fear of surgery (44% ± 1,55%) or financial difficulties (50% ± 1,58%).

Glaucoma surgery was performed on both eyes for 47% ± 1,58% of respondents, with 93% ± 0,81% finding it more accessible to decide on the second operation. The order of the factors, influencing the decision for surgery on the second eye, was as following (Fig. 1):

97% ± 0,54% of respondents reported that their treatment was paid for out-of-pocket.

Regarding accessibility, 34% ± 1,50% of respondents consider glaucoma care to be fully accessible in Ukraine, while 40% ± 1,55% view it as partially accessible. Additionally, 40% ± 1,55% believe that the quality of care is high, and 28% ± 1,42% consider it to be partially high-quality. Only less than 5% ± 1,54% of respondents believe that healthcare funding in Ukraine is sufficient, while over 50% ± 1,58% consider the introduction of health insurance to be appropriate.

DISCUSSION

The population's health status is a key indicator of the socio-economic development of any country and represents a universal value. Within the priorities of healthcare and public health systems, this indicator occupies a critically important position. Additionally, health is of exceptional significance in the lives of every individual, family, and society as a whole. Preserving and promoting the health of the population is a state priority [1].

One of the main factors for classifying open-angle glaucoma as a socially significant disease in Ukraine and globally is the irreversible deterioration and loss of vision, leading to social and economic losses. Visible signs of vision loss in patients appear at advanced and terminal stages (stages

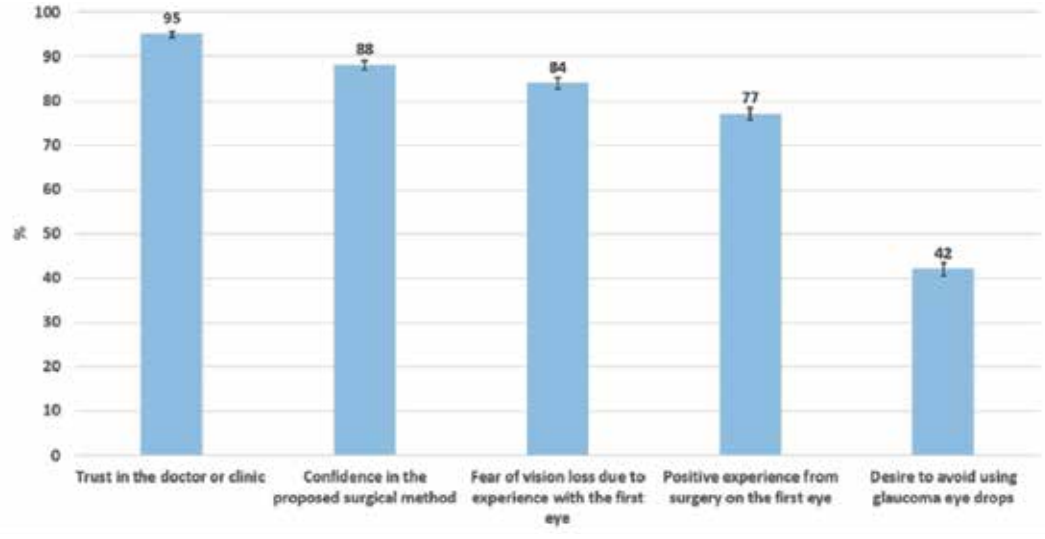


Fig. 1. The factors, influencing the decision for surgery on the second eye.

3-4), while, at the early stages, individuals may overlook significant limitations in visual function. However, the sooner treatment begins, the greater the likelihood of preserving the optic nerve and maintaining stable visual functions. Therefore, early diagnosis of glaucoma is of utmost importance.

In this study, it is noteworthy that only 17% ± 1,88% of cases were diagnosed by family doctors directly, and only 40% ± 1,55% of respondents were referred to an ophthalmologist by their family doctor, despite 66% ± 1,50% of patients reporting vision complaints to their family doctor. These results suggest a lack of awareness among family doctors regarding glaucoma development and the organization of care for this disease, which negatively impacts the timely diagnosis of glaucoma.

Despite 100% of patients experiencing vision deterioration, 50% ± 1,58% did not immediately seek an ophthalmologist, thereby remaining with undiagnosed disease. Regarding surgical treatment for glaucoma, only 25% ± 1,37% of respondents agreed to this method during the initial visit, citing fear of surgery, satisfaction with their current vision, and financial difficulties as reasons for their hesitation. However, among patients who were recommended surgical treatment for the second eye after surgery on the first eye, 93% ± 0,81% agreed to the procedure immediately.

These results highlight patients' low awareness and understanding of the risks of vision loss due to glaucoma in the early stages of the disease. However, preserving vision at the initial stages of the disease and preventing disease progression is a priority for the public health system. Patients' attitudes towards their treatment change significantly when they have a prior experience and outcome in the form of a well-functioning eye with preserved vision.

In addressing health-related challenges, the global community emphasizes the need for a comprehensive approach that involves cross-sectoral collaboration, strengthening of healthcare systems, integration of various medical and non-medical services, strategic management, a nationwide approach, societal engagement, a forward-looking vision, innovation, reliance on evidence-based practices, inclusivity, collective action, adaptability, evaluation, and accountability [14]. The public health system (PHS) should demonstrate this comprehensive approach. According to the Law of Ukraine No. 2573, PHS aims to promote health, prevent diseases, improve quality of life, and increase the lifespan of Ukrainians. The primary function of PHS is disease prevention. Thus, in light of modern challenges, the country's healthcare system faces the key task of providing the most effective medical care within existing resources and achieving the highest possible level of medical assistance and services [1], including ophthalmological care.

PROSPECTS FOR FURTHER RESEARCH

Early detection of glaucoma and the prevention of disease progression and blindness remain scientific challenges that require further research. The ongoing healthcare reform and the development of the public health system in Ukraine introduce new aspects to the organization of this work, revealing new challenges and influencing factors.

Given the self-assessment questions regarding financial status and respondents' answers, it will be possible in future research to measure socio-economic inequality using specialized scales.

Further analysis of the correlation between disease progression and the duration of respondents' illness, as well as whether they are under continuous observation, will help identify groups with significant ophthalmological care experience and groups of patients who have not been under specialist supervision. This will enable the study of factors that negatively impact glaucoma prevention and the timeliness of receiving ophthalmological care.

CONCLUSIONS

The prevalence of glaucoma in Ukraine and worldwide continues to rise.

There is a need for informational and methodological support for primary care physicians (family doctors, general practitioners) to identify patients with vision complaints and refer them promptly to ophthalmologists for early glaucoma detection and monitoring of disease progression.

It is essential to develop and actively implement screening algorithms for at-risk patients to enable early diagnosis and timely treatment of glaucoma.

Patient awareness regarding the safety and effectiveness of surgical treatment for glaucoma influences the timeliness of surgical intervention and vision preservation.

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CONFLICT OF INTEREST
The Authors declare no conflict of interest

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