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GLAUCOMA AS A PROBLEM OF MODERN HELTHCARE

ГЛАУКОМА КАК ПРОБЛЕМА СОВРЕМЕННОГО ЗДРАВООХРАНЕНИЯ

ГЛАУКОМА АЗЫРКЫ САЛАМАТТЫКТЫ САКТООНУН КӨЙГӨЙҮ КАТАРЫ

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GLAUCOMA AS A PROBLEM OF MODERN HELTHCARE

Abstract

Glaucoma is a progressive disease of the vision organ that leads to irreversible blindness. Due to increased intraocular pressure in this disease, retinal cells are destroyed, the optic nerve of the eye atrophies, and visual signals stop entering the brain. A person begins to see worse, peripheral vision is impaired, as a result of which the visibility area is limited. Early diagnosis of glaucoma remains one of the current problems in ophthalmology: more than 50% cases remain undiagnosed. The use of optimal diagnostic methods gives ability to identify patients at an early stage disease, when it is still possible to prevent irreversible changes in vision. Clear clinical assessment in combination with modern diagnostic technologies increases the level of diagnostics and allows choosing the right tactics in patient management.

Keywords: glaucoma, diagnosis, causes, factors, treatment, healthcare.

Глаукома азыркы саламаттыкты сактоонун көйгөйү катары

Аннотация

Глаукома – көрүү органынын артка кайтпас сокурдукка алып келген прогрессивдүү оорусу. Бул ооруда көздүн ички басымынын жогорулашынан улам торчонун клеткалары бузулуп, көздүн көрүү нервдери атрофияланып, көрүү сигналдары мээге кирбей калат. Адам начар көрө баштайт, перифериялык көрүү начарлайт, анын натыйжасында көрүү чөйрөсү чектелет. Глаукоманы эрте диагностикалоо офтальмологиядагы актуалдуу көйгөйлөрдүн бири бойдон калууда: 50%дан ашыгы диагноз коюла элек. Оптималдуу диагностикалык ыкмаларды колдонуу бейтаптарды оорунун алгачкы стадиясында аныктоого мүмкүндүк берет, ал эми көрүүдөгү кайтарылгыс өзгөрүүлөрдүн алдын алууга дагы эле мүмкүн болот. Клиникалык баалоо заманбап диагностикалык технологиялар менен айкалышта диагностиканын деңгээлин жогорулатат жана пациентти башкарууда туура тактиканы тандоого мүмкүндүк берет.

Ачкыч сөздөр: глаукома, диагноз, себептер, факторлор, дарылоо, саламаттыкты сактоо.

Глаукома как проблема современного здравоохранения

Аннотация

Глаукома – прогрессирующее заболевание органа зрения, приводящее к необратимой слепоте. Из-за повышения внутриглазного давления при этом заболевании клетки сетчатки разрушаются, зрительный нерв глаза атрофируется, зрительные сигналы перестают поступать в мозг. Человек начинает хуже видеть, ухудшается периферическое зрение, в результате чего ограничивается зона видимости. Ранняя диагностика глаукомы остается одной из актуальных проблем офтальмологии: более 50% случаев остаются недиагностированными. Использование оптимальных методов диагностики дает возможность выявлять больных на ранней стадии заболевания, когда еще можно предотвратить необратимые изменения зрения. Клиническая оценка в сочетании с современными диагностическими технологиями повышает уровень диагностики и позволяет выбрать правильную тактику ведения пациентов.

Ключевые слова: глаукома, диагноз, причины, факторы, лечение, здравоохранение.

Introduction

In modern socio-economic conditions, glaucoma is one of the important problems of modern healthcare, the significance of which is determined by the fact that occupies one of the leading places among the causes of irreversible vision loss. Numerous studies indicate significant prevalence of glaucoma among the population. According to WHO, the disease is up to 5% of all eye pathology. By 2020, 5.9 million people will be affected and 5.3 million will be blind due to primary glaucoma [1].

The term “glaucoma” comes from the ancient Greek γλαύκωμα that means blue clouding of the eye, mentioned in the records of Homer. Given the interpretation originates from ancient observations, and as a medical diagnosis glaucoma first mentioned in the aphorisms of Hippocrates. Later, from the first half of the nineteenth century, research on the diagnosis of eye diseases was continued at a higher clinical and functional level. It was then that there was a huge leap in understanding of the disease. Glaucoma has become more studied pathology, which meant the condition of adults or elderly patients with four signs: 1) failure of cataract surgery to improve vision; 2) clinical detection of the disease in its terminal stages, 3) specific history, accompanied by harbingers of a serious illness, 4) increased intraocular pressure [2].

Causes of glaucoma development

In a healthy eye, a certain pressure is constantly maintained (18-22 mm Hg) due to the balance of fluid inflow and outflow. With glaucoma, this circulation is disrupted, fluid accumulates, and intraocular pressure begins to rise. The optic nerve and other structures of the eye experience increased stress, and the blood supply to the eye is disrupted. As a result, the optic nerve atrophies and visual signals stop reaching the brain. A person begins to see worse, peripheral vision is impaired, as a result of which the area of visibility is limited - and eventually blindness may occur. Glaucoma is an irreversible vision disease. Therefore, it is very important to start treatment on time Degrees of glaucoma: 1) Initial - normal boundaries of the visual field with minor changes, widened recess of the optic nerve head; 2) developed - there are noticeable limitations in vision, narrowing of vision to 10 degrees in the upper and lower sectors, the optic nerve is significantly affected; 3) advanced - concentrically narrowed border of the field, the marginal subtonal excavation of the optic disc is expanded, but does not reach the edge of the disc; 4) terminal - complete loss of vision or preservation of light perception with incorrect projection [3].

Causes of glaucoma

The balance of inflow and outflow of intraocular fluid maintains the pressure inside the healthy eye at approximately between 10 and 20 mmHg. Art. If normal fluid circulation is disrupted, pressure begins to rise. Problems arise with blood circulation in the structures of the eye, the fibers of the optic nerve die, the field of vision gradually narrows, and then the optic nerve may atrophy, and then complete blindness occurs.

Currently, experts cannot say unambiguously for what reasons glaucoma occurs. The appearance of this disease is influenced by factors such as:

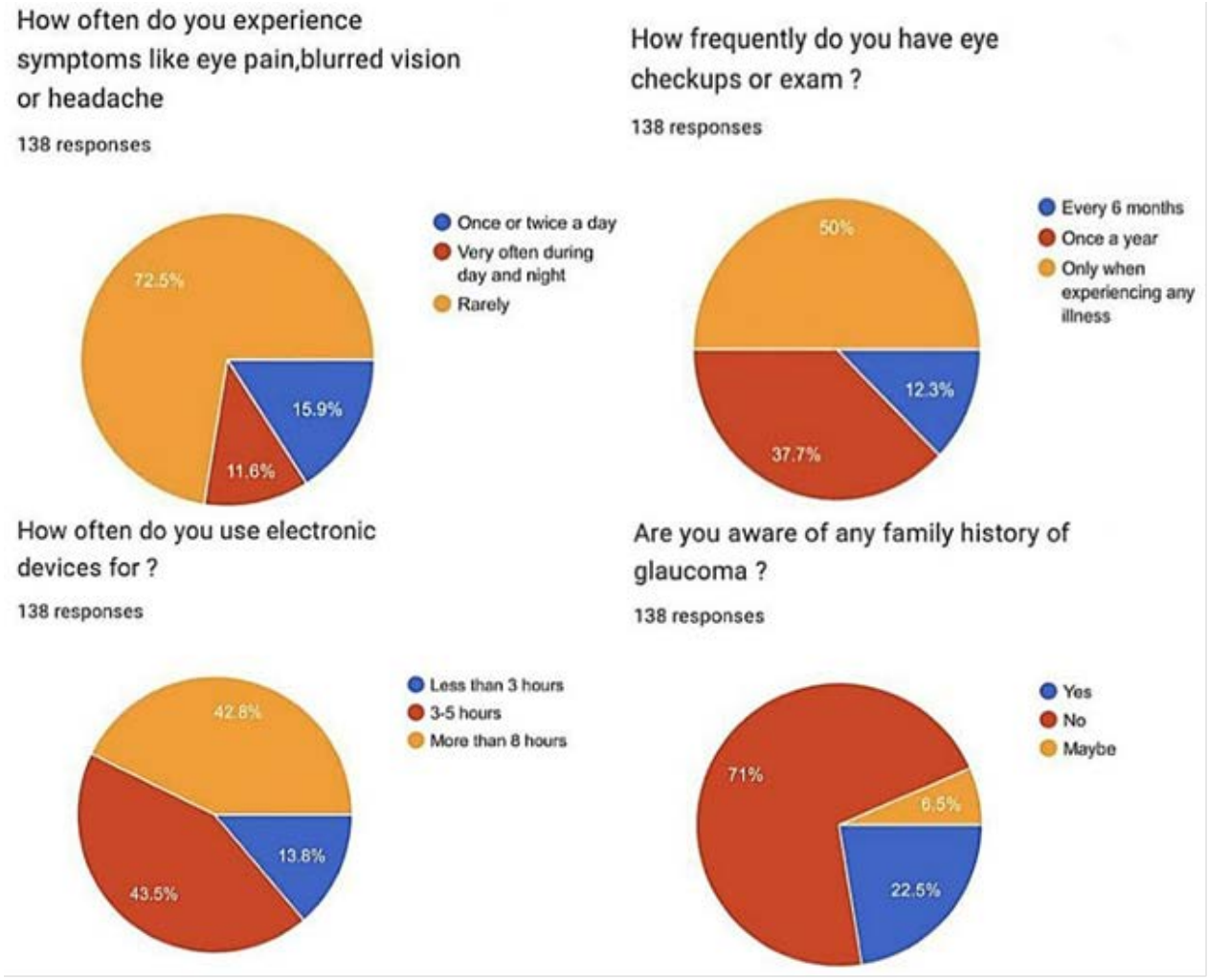
- heredity;

- individual anatomical features, specific structure of the visual organs in a particular person;
- various pathologies of the cardiovascular, nervous and endocrine systems.

Risk factors for the development of glaucoma include a small volume of the anterior chamber of the eye. This structural feature of the organ of vision is found in some nationalities - Eskimos and residents of East Asia. This anatomical feature is more common in women than in men, so their risk of developing glaucoma is slightly higher [4].

Research methods abd materials

During our research, we have performed a follow up survey in order to know and to make others a little vigilant about glaucoma (Figure 1).



Analysis of the dynamics of the prevalence of morbidity of the eye, its appendages, glaucoma, both among adults and adolescents, and among children under 14 years of age showed an increase indicator in 2015, 2017 and 2018. Share of glaucoma in total eye morbidity and its appendages among adults and adolescents in the years studied averaged 6.4%, among children under 14 years old - 0.2%. Early detection measures need to be strengthened medical examination of patients with glaucoma, as well as conducting information work among population [1].

Research in glaucoma has seen advancements in various areas. Some potential preventive

measures and developments include:

1) Medication and Treatment Advances: New medications and treatment options are being explored to better control intraocular pressure, a key factor in glaucoma progression. Researchers are investigating novel drugs and delivery methods.
2) Genetic Research: Understanding the genetic basis of glaucoma may pave the way for personalized treatments and early detection based on genetic risk factors.
3) Neuroprotection Strategies: Research is focusing on protecting the optic nerve and retinal ganglion cells to prevent their damage in glaucoma. Neuroprotective agents and therapies are being explored.
4) Advanced Imaging Techniques: High-resolution imaging technologies, such as optical coherence tomography (OCT), are improving early detection and monitoring of glaucoma by providing detailed images of the optic nerve and retinal structures.
5) Lifestyle and Environmental Factors: Investigating the influence of lifestyle factors like diet, exercise, and environmental conditions on glaucoma risk may lead to preventive recommendations.

While these advancements are promising, regular eye check-ups, especially for those at risk, remain crucial for early detection and intervention. It's essential to stay informed about emerging research and consult with eye care professionals for personalized guidance.

Conclusion

Early diagnosis aims to detect glaucoma before development of atrophic processes in the nerve fibers of the head optic nerve and retina, as well as ganglion cells retina. Early diagnosis is based on data diagnostic kits taking into account the asymmetric nature clinical and morphofunctional characteristics of paired eyes and risk factors for developing the disease

The use of ophthalmotonosphygmography increases the efficiency of diagnosing glaucoma. This method allows perform synchronous registration (main indicators of the sphygmogram: amplitude of the ocular pulse pressure, systolic increase in pulse volume and evaluate the elasticity of intraocular vessels. At tolerant intraocular pressure, the indicator of elasticity of intraocular vessels is over 1.3 mm^3/mmHg. The importance of research into tolerance pressure has been proven by many researchers. Computer ophthalmotonosphygmography has a high sensitivity of 90.4% and specificity of 97.3%. 37% patients with primary glaucoma with normal values intraocular pressure according to tonosphygmography data showed that ophthalmotonus exceeded the tolerable pressure. This made it possible to change treatment in these patients in a timely manner: intensify drug antihypertensive therapy, perform laser or surgical operations [5].

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