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Akademik Zərifə Əliyevanın
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AKTUAL PROBLEMLƏRİ”
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Akademik ZƏRİFƏ ƏLİYEVANIN
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Beynəlxalq elmi-praktik konfransın
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EARLY DIAGNOSIS OF COMPLICATIONS OF OPTIC NERVE NEURITIS IN PATIENTS WITH ANTERIOR UVEITIS

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Introduction

Reduced vision and blindness in inflammatory diseases of the choroid develop more often in young people of working age, which determines the social and economic significance of this problem [1]. According to B.Trusko, up to 30 thousand new cases of blindness due to uveitis are a registered annually, which ranks fifth or sixth among all causes of blindness in the United States [2]. As a result of epidemiological studies, which characterize, of the pathological process, it was found that anterior uveitis is 61%, intermediate – 12.2%, posterior – 14.6%, panuveitis, 9.4%; [3]. It is not possible to establish the etiology of uveitis in 38–40% of cases, diagnostic tests cared out for this purpose, which defines these cases as idiopathic uveitis [4].

Early diagnosis of the development of the inflammatory process in anterior uveitis is extremely important for the timely treatment and prevention of possible complications arising as result of concomitant optic neuritis. However, the diagnosis of optic nerve damage in patients with anterior uveitis is a complicated by such manifestations of inflammation as exudate in the anterior chamber, vitreous humor, in the pupil area, as well as posterior synechiae, making it difficult to study the fundus [5]. In cases where fundus examination is not possible due to the opacity of the orbit can assist in the diagnosis of neuritis in anterior uveitis. Based on our earlier data, we believe that a comparative assessment of the diameter of the optic nerve retrobulbar and at the entrance to the orbit based on the results of computer tomography (CT) of the orbit in the diseased and healthy eye may be promising in this case. As well as features of local blood circulation in the choroid of a diseased and healthy eye [6,7].

Purpose – to determine the possibility of early diagnosis of optic neuritis in patients with anterior uveitis by determining of the diameter of the optic nerve using CT of the orbit.

Material and methods

The study involved 150 patients with idiopathic anterior uveitis who were undergoing research and treatment: 94 men and 56 women, 300 eyes, age from 18 (1 patient) to 83 (1 patient) with the value of median 36.5 years in all patients, the process was unilateral. The studies were carried out with informed consent of patients in accordance with the Declaration of Helsinki. Anterior uveitis was diagnosed according to the international classification of the 43-rd World Health Assembly 1990-2020 based on recommendation Standardization of Uveitis Nomenclature Working Group, what classifies according to anatomical localization, in which the primary site of inflammation occurs, pathomorphology, type of uveitis course, activity of inflammation [8]. The basis of a comprehensive diagnosis, the patients were divided into 2 groups: anterior uveitis and anterior uveitis, complicated by optic neuritis. Visual acuity of patients was determined by the classical method of measuring acuity in subjects with letters optotypic. Best-corrected visual acuity was used. Patients underwent ophthalmoscopy, bio microscopy, intraocular pressure, perimeter (Visual Field Examination manual kinetic testing using a Goldman perimeter) and automated static perimeter (Humphrey). Orbital CT was done on a 16-channel multilayer tomograph Philips Brilliance. We relied on the data of article about the possibilities of CT in studying the optic nerve diameter in traumatic brain injury [9]. CT was chosen because some patients had metal foreign bodies in the form of implants and stents, claustrophobia and diagnosis by MRT is impossible in such cases.

According to CT data, the difference in the diameter of the patient's healthy and diseased eyes was determined. The basic protocol for the diagnosis and treatment of patients with anterior uveitis based on the joint guidelines of the Infectious Diseases Society of America and on Society for Health care Epidemiology of America on the management of patients of various age groups with infection (published in March 2018). As a treatment, patients received antibiotics, non-steroid anti-inflammatory drugs, immune suppressants, corticosteroids, biological modulators of the immune response. The inclusion criteria for the study were: patients with unilateral anterior uveitis (men and women aged 18 and over). Statistical analyses were conducted using Statistic 10.0 (Stat Soft).

Results and discussion

Analyzing the clinical data of patients taking into account the group of persons with complications of the course of anterior uveitis with optic

neuritis, the following was revealed. Optic neuritis against the background of anterior uveitis occurred in 24% of cases in the observed group (that is, in 36 people out of 150). At the same time the peripheral form of optic neuritis was in 2 people (5.6% of all patients with neuritis), axial - in 3 people (8.3%), transversal - in 31 people (86.1%). In all 114 patients with uveitis without signs of neuritis, the course of the disease was characterized as acute (less than 3 months). When uveitis was complicated by neuritis in 23 cases (63.9%), the process was chronic (lasting more than 12 months). The visual acuity in the healthy eye in the entire group of patients was quite high (from 0.6 to 1.0). On the diseased eye in individuals with uncomplicated uveitis, the same visual acuity was in 89 people, and 25 cases fell within the range from 0.3 to 0.5. With the complication of anterior uveitis by neuritis, high visual acuity was observed in one patient, a decrease in this indicator to 0.3 to 0.5 occurred in 22 people, in the remaining 13 patients, the visual acuity values were reduced to 0.12 to 0.25 (36.1%). Intraocular pressure in all cases was within the normal range, constituting 18.0 – 21.0 mm Hg.

Comparative analysis of the data of measuring the diameter of the optic nerve in sick and patients with anterior uveitis without and with concomitant optic neuritis showed the following. The values of the corresponding indicators in paired eyes with uveitis without and with neuritis do not fluctuate significantly, amounting to 2.2, 4.8 and 0.8% when measured retro bulbar, in the middle section and in the orbital region respectively. As for the diameter of the optic nerve in patients on a diseased and healthy eye, in the presence of anterior uveitis without a confirmed diagnosis of neuritis, there are practically no differences between the corresponding values at any point of measurement. In patients with anterior uveitis complicated by neuritis, the diameter of the optic nerve is larger in diseased eyes by 7.2, 11.5 and 18.3% when measured retro bulbar, in the middle section and in the orbital region, making up 6.43 (0.21) mm, 4.60 (0.33) mm and 4.95 (0.28) mm. The differences between the diseased and the healthy eye in patients with complicated uveitis are significant ($p=0.000$ in all cases). The study made it possible to assess the possibility of optic neuritis in patients with anterior uveitis by the difference in the diameter of the optic nerve in the paired and diseased eye when measured retro bulbar, in the middle section and at the entrance to the orbit with an increase in the studied indicator on the diseased eye. Our results are consistent with the data obtained during ultrasound

examination of optic neuritis in elective and urgent cases, including in children [9-11]. In addition, the established fact of an increase in the volumetric pulse blood filling in patients with anterior uveitis in the diseased eye relative to a paired healthy eye. Especially pronounced in the presence of neuritis, indicates the presence of a vascular reaction in the inflammation focus at the stage of vasospasm, arterial and venous stasis. Which is confirmed by computer data orbital tomography in relation to an increase in the diameter of the optic nerve and can be considered as one of the mechanisms of edema and the development of optic neuritis. Considering that in recent decades there has been a tendency to change the dynamics and outcomes of inflammatory diseases of the choroid, often leading to loss of visual acuity and disability of patients, this line of research is currently relevant and has an important social and economic significance.

Conclusion

The method of coherent tomography showed an increase in the diameter of the optic nerve in diseased eyes in persons with anterior uveitis complicated by optic neuritis by 7.2, 11.5 and 18.3% relative to paired (healthy) eyes when measured retro bulbar, in the middle section and in the orbital region, respectively, while in patients with anterior uveitis without complication, these changes were not detected. The data obtained suggest the possibility of predicting the development of neuritis as a complication in anterior uveitis by detecting an increase in the size of the optic nerve diameter in the diseased eye relative to those in the healthy one. The importance of searching for ways of early detection of optic neuritis in patients with anterior uveitis lies in the possibility of timely treatment, as well as prevention of optic atrophy and chronicity of the pathological process.

ÖN ÜVEİTİ OLAN PASİYENTLƏRDƏ GÖRMƏ SİNİRİ NEVRİTİNİN FƏSADLARININ ERKƏN DİAQNOSTİKASI

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XÜLASƏ

Məqsəd – kompyuter tomoqrafiya (KT) vasitəsilə görmə sinirinin diametrinin təyini ilə ön uveiti olan pasiyentlərdə görmə siniri nevrinin erkən diaqnostikasının mümkünlüyünü müəyyən etmək.

Material və metodlar

Tədqiqata birtərəfli ön idiopatik uveiti olan 150 pasiyentin müayinə və müalicəsinin nəticələri daxil edilmişdir: 94 kişi və 56 qadın (300 göz), 18 (1 pasiyent) yaşdan 83 yaşa qədər (1 pasiyent). Ön uveit diaqnozu Ümumdünya Səhiyyə Təşkilatının 43-cü Beynəlxalq Təsnifatına uyğun olaraq qoyulmuşdur [8]. Lazımi tədqiqatlar görmə sinirinin diametrinin öyrənilməsi ilə göz yuvasının KT ilə tamamlanmışdır. Tədqiqata birtərəfli ön uveiti olan pasiyentlər daxil edilmişdir. Statistik təhlil Statistic 10.0 (StatSoft) proqramından istifadə etməklə aparılmışdır.

Nəticə

Bütün pasiyentlər iki qrupa bölünmüşdür: I qrup ön uveiti olan pasiyentlər; II qrup – görmə sinirinin nevriti ilə fəsadlaşmış ön uveit. Tədqiqatlar göstərmişdir ki, ön uveit ilə əlaqəli görmə sinirinin nevriti 24% hallarda (yəni 150 nəfərdən 36-da) mövcud olmuşdur. Optik nevritin periferik forması 2 nəfərdə (bütün nevriti olan pasiyentlərin 5,6%-i), aksional – 3 nəfərdə (8,3%), eninə – 31 nəfərdə (86,1%) müşahidə edilmişdir. Nevrit əlamətləri olmayan üveitli 114 pasiyentin hamısında xəstəliyin gedişi kəskin (3 aydan az) kimi xarakterizə edilmişdir. Uveit nevritlə ağırlaşdıqda, 23 halda (63,9%) proses xroniki xarakter daşıyır (12 aydan çox davam edir). Sağlam gözdə görmə itiliyi yüksək olmuşdur (0,6-dan 1,0-a qədər); uveitlə ağırlaşmamış gözdə – 89-da eyni, 25-də – 0,3-dən 0,5-ə qədər; ön uveitin nevritlə ağırlaşması hallarında – 1 pasiyentdə yüksək, 22-də – 0,3-0,5-ə, 13-də – 0,12-0,25-ə (36,1%) azalmışdır. Bütün hallarda GDT normal səviyyədə (18.0 - 21.0 mm c.s.) olmuşdur.

Retrobulbar ölçülmə zamanı orta şöbədə və orbital nahiyədə görmə sinirinin diametrinin nevritlə ağırlaşan ön uveitli gözlərlə müqayisədə əhəmiyyətli fərq aşkar edilmişdir, burada görmə sinirinin diametri zədələnmiş gözlərdə 7,2%, 11,5% və 18,3 % artmış, sağlam gözlə müqayisədə müvafiq olaraq 6,43 (0,21) mm, 4,60 (0,33) mm və 4,95 (0,28) mm təşkil etmişdir (bütün hallarda $p=0,000$).

Ön uveiti olan pasiyentlərdə sağlam gözlə müqayisədə qanın həcmli nəbz dolğunluğunun artması faktı müəyyən edilmişdir.

Yekun

Ön uveitli gözlərdə görmə sinirinin diametrinin artması, prosesin ağırlaşması kimi nevritin inkişafının mümkünlüyünü göstərir. Ön uveiti olan pasiyentlərdə vaxtında müalicənin aparılması, həmçinin görmə siniri atrofiyasının və patoloji prosesin xronik xarakter almasının qarşısını almaq üçün, görmə siniri nevritinin erkən aşkarlanması yollarının axtarışının vacibdir.

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