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Research Article

COMPARATIVE ANALYSIS OF HEMODYNAMIC PARAMETERS AGAINST THE BACKGROUND OF COMPLEX TREATMENT OF GLAUCOMATOUS OPTIC NEUROPATHY BY ENDONASAL ELECTROPHORESIS

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ABSTRACT

Glaucoma is "a chronic progressive optic neuropathy that combines a group of diseases with characteristic morphological changes in the optic nerve head (excavation) and retinal nerve fiber layer in the absence of other ophthalmic pathology" (European Glaucoma Society Terminology and Guidelines for Glaucoma 2017) (1,2).

KEYWORDS

Medical, laser and surgical methods, Statistical processing, morphological changes.

INTRODUCTION

Aim of the study: To evaluate the effectiveness of endonasal electrophoresis in the complex therapy of glaucomatous optic neuropathy based on the dynamics of hemodynamic parameters.

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MATERIALS AND RESEARCH METHODS

Under clinical observation there were 80 (116 eyes) patients with glaucomatous optic neuropathy (GON) aged 40 to 78 years, of which 44 (55%) were women, 36 (45%) were men, with an established diagnosis of POAG and PACG II or Stage III under conditions of IOP compensation (21.3±3.2). IOP compensation was achieved by medical, laser and surgical methods. Depending on the treatment, the following representative groups were identified: control, I main and II main. The control, which included 20 patients, of which the number of men 12 (15%), and women 8 (10%), Patients in this group received conventional therapy. I main, which includes 30 patients, the number of men was 16 (20%), the number of women was also 14 (17.5%). The patients of this group, in addition to traditional therapy and Sol Retinalamini -2 ml No. 10, received Sol. Tanacani - 1 ml by endonasal electrophoresis on a galvanization apparatus Flow 1. II main, which includes 30 patients, the number of men was 16 (20%), the number of women was also 14 (17.5%). Patients in addition to traditional therapy and Sol Retinalamini -2 ml No. 10, endonasal electrophoresis, Statistical processing of the obtained data was carried out on a personal computer using the program "Statistica 8.0". The study was conducted with the informed consent of the observed patients.

RESULTS AND DISCUSSIONS

A decrease in the initial values of hemodynamic parameters occurred in all examined patients, which was confirmed by ultrasound Doppler mapping of the CAS and SCCA. Thus, the initial values of Vmax and Vmin CAS in all the studied groups were within 11.5 and 4.5 cm/s, and the resistance index varied from 0.63 to 0.66. On the 10th day after the treatment in all groups, positive dynamics were noted in varying degrees of severity, for example, in the control group, Vmax increased to 14.73, and Vmin to 5.54, which was almost 1.3 times higher than the initial values, and the index resistance decreased from 0.63 to 0.62, however, by the 6th month of observation, all indicators almost did not differ from the initial ones. The initial indicators of SCCA in the control group did not differ much from those of the CAS, and in dynamics there was a tendency to decrease in RI by 0.01 and amounted to 0.64. In the main group I, there was a significant improvement in the hemodynamic parameters of both the CAS and the SCCA, especially the maximum systolic blood flow velocity, which was maximum already on the 10th day of the examination 19.58 cm/s in the CAS ($p \leq 0.01$) and 18.90 cm/s c in SCCA ($p \leq 0.05$), which undoubtedly confirms the improvement in blood supply due to the drug "Tanakan", however, starting from the 3rd month, these indicators tended to slightly decrease, and by the 6th month, these indicators almost did not differ from the baseline. It should be noted that a marked decrease in the resistance index was observed more in SCCA than in CAS from 0.66 to 0.57. In the II main group, almost identical significant dynamics was observed, followed by a decrease by the 6th month, however, a decrease in the resistance index in the CAS was observed more significantly than in the I main group.

The VEP indicators during treatment in all three groups differed in amplitude and latency, so in the control and main group I, these indicators in dynamics did not differ much from the baseline indicators and had low statistical significance, while significant differences were observed already on the 10th day of observation during the second main group, which amounted to 10.1 μV, and the duration of the nerve impulse was reduced by 88.9 ms ($p \leq 0.05$) and which was associated with a positive effect after receiving transcutaneous electrical stimulation.

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CONCLUSIONS

The use of endonasal electrophoresis with the drug "Tanakan" in combination with transcutaneous electrical stimulation in the complex treatment of GON significantly ($p \leq 0.01$) improves hemodynamic parameters according to Doppler ultrasound data.

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