WEB OF SCIENTIST: INTERNATIONAL SCIENTIFIC RESEARCH JOURNAL
ISSN: 2776-0979, Volume 3, Issue 5, May., 2022

ASSESSMENT OF EFFECTIVENESS IN COMPLEX TREATMENT WITH DIABETIC MACULOPATHY USING PREPARATION VESSEL DUE F AND LASERCOAGULATION

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Summary
Results of the laser treatment in patients with diabetic maculopathy complicated by macular edema have showed that the combined using lasercoagulation and Vessel Due F contributed the resolution of macular edema and allow to enhance of the visual functions.

Keywords: diabetic maculopathy, diabetic retinopathy, Wessel Due F, retinal laser photocoagulation, macular edema.

ОЦЕНКА ЭФФЕКТИВНОСТИ КОМПЛЕКСНОГО ЛЕЧЕНИЯ ДИАБЕТИЧЕСКОЙ МАКУЛОПАТИИ С ПРИМЕНЕНИЕМ ВЕССЕЛ ДУЭ Ф И ЛАЗЕРКОАГУЛЯЦИИ

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Резюме
Комбинированное использование лазерной коагуляции и Вессел Дуэ Ф при диабетической макулопатии позволяет добиться регрессии макулярного отёка и способствует сохранению более высоких зрительных функций.

Ключевые слова: диабетическая макулопатия, диабетическая ретинопатия, Вессел Дуэ Ф, лазеркоагуляция сетчатки, макулярный отёк.

The Relevance of the Problem

According to official data of the World Health Organization (WHO), 3% of the world's population suffers from diabetes mellitus. More than 600 thousand newly detected cases of the disease are registered annually and every 15 years the number of diabetic patients doubles. In total, there are 371 million diabetic patients in the modern world, in 2030, according to forecasts, there will already be about 552 million. Currently, only

in the USA about 15-17 million people have diabetes mellitus, and in Europe there are about 1.5 million such patients. In 1993-96, about 2 million patients were registered in Russia according to the data of the circulation. However, the actual number of patients may differ from the calculated figures, since the early manifestations of insulin-dependent diabetes have insufficiently vivid symptoms.

Calculations based on data from epidemiological studies carried out in Moscow, St. Petersburg and other cities show that a total of one million people in Russia suffer from diabetes mellitus. In recent years, diabetic retinopathy has become one of the leading causes of blindness among the working-age population in economically developed countries. Diabetes ranks 3rd among other causes of permanent visual disability in the United States and Russia. However, the older age group of DM patients is at risk of blindness and needs medical care. For example, in the United States, 20% of the population over the age of 65 have diabetes mellitus.

The initial stages of diabetic retinopathy and macular edema are not accompanied by visual disorders, so patients themselves seek medical help, as a rule, late. This circumstance explains the importance of active detection of ocular complications, which can be carried out only with well-established dispensary work with registered patients with diabetes mellitus.

However, the level of dispensary ophthalmological observation of diabetic patients remains unsatisfactory today even in economically highly developed countries. So, in the United States, about a third of diabetic patients have never undergone an ophthalmological examination, and according to other data, only half have been examined by a different doctor over the past year. The quality of ophthalmological examination also does not always meet the requirements. Serious shortcomings have been identified in the professional training of ophthalmologists, who are often poorly informed about the possibilities of modern methods of treatment of diabetic retinopathy. In accordance with the strategic objectives of healthcare to reduce the incidence of irreversible blindness and low vision, it seems relevant to improve the management system of a patient with diabetes mellitus, improve the functional outcomes of retinal laser coagulation based on modern approaches to the diagnosis and treatment of diabetic retinopathy and macular edema.

The aim of the work is to improve the clinical and functional outcomes of treatment of patients with diabetic maculopathy through the combined use of Wessel Due F and laser coagulation.

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Materials and Methods of Research

From 2020 to 2022, in the Department of eye Diseases of the 1st clinic of the Samarkand State Medical University, we examined 52 patients (104 eyes) with type 2 diabetes mellitus, who were diagnosed with diabetic maculopathy. The distribution of patients by gender was as follows: there were 25 women (48.1%), and 27 men (51.9%). Of these, the 1st group consisted of 16 women, 12 men, the 2nd group consisted of 9 women, 15 men. Depending on the treatment , all patients were divided into 2 groups: Group I (control) - 28 patients (56 eyes) received standard medical treatment, which included parabulbar administration of emoxypine 1% 0.5 ml and dexamethasone 0.5 ml for 10 days, drugs that improve microcirculation (cavinton, bilokan); vasoconstrictors (ascorbic acid); antioxidants (aevit, vit.E); vitamins of group B (B1, B6).

Group II (main) – 24 patients (48 eyes) underwent laser coagulation of the retina according to the lattice type using Wessel Doue F.

The drug Wessel Due F is a natural product isolated from the mucous membrane of the pig's small intestine, which is a natural mixture of glycosaminoglycans. Its pharmacological action is antithrombotic, profibrinolytic, angioprotective, anticoagulant. It is available in the form of a solution for injection and capsules.

All patients underwent the following general ophthalmological examination methods: visiometry, perimetry, ophthalmoscopy, biomicroscopy, electrophysiological examination of the retina, tonometry and echobiometry.

An analysis of the results of traditional conservative therapy revealed that the indicators of initial visual acuity in patients were significantly variable, which indicated a different degree of involvement in the pathological process of the retina.

Dynamics of visual acuity in patients with DMO against the background of traditional conservative therapy (M +-m)

Таблица 1

	Before treatment	After treatment			
		Through 10 days	Through 1 month	Through 3 month	Through 6 month
I group C DM (n=28)	0,145±0,06	0,196 ±0,05*	0,176±±0,05*	0,146±0,05	0,124±0,05*

Table 1 shows that there is a significant increase in visual acuity in the group of patients with DMO who received traditional conservative treatment, despite a significant improvement in vision by the end of treatment, the stability of the process was achieved only for 1 month, and by the end of 3 months it reached the baseline level and by 6 months after treatment, visual acuity was significantly lower than the baseline.

Thus, the use of traditional conservative therapy did not statistically significantly improve visual acuity in patients with DMO, the stability of the process was achieved only within 1 month.

Based on the above, we came to the conclusion that traditional conservative therapy gives a positive outcome in patients with NPDR, whereas its use in patients with preproliferative and proliferative diabetic retinopathy is not only unjustified, but also fraught with complications from the permeability of retinal vessels. During ophthalmoscopy of the ocular in 3 (6.25%) patients before treatment, edema of the eye, which was represented by the indistinctness of its boundaries, pasty tissue.

During conservative therapy, edema resorbed, but in the dynamics of observation, edema began to increase again from 3 months after treatment and by 6 months the number of eyes was 4.1% (4 eyes), the absence of reflex was noted in 5 (10.4%) patients. In the macular area after conservative treatment, the absence of reflex remained only in 4 patients (8.3%), however, after 3, 6 months, the number of eyes after treatment with the absence of macular reflex increased to 8 (8.3%). In the paramacular part of the retina, hemorrhages that occurred in 21 (21.8%) eyes remained after treatment only in 17 (17.7%) eyes, and by 3 and 6 months were again detected only in 18 (18.7%) eyes. Soft exudates observed in 16 (66.6%) patients were resorbed in 1 (2.0%) patient, after 3 months fresh hemorrhages appeared in 1 eye (1.0%), and by 6 months the hemorrhages were not resorbed. Retinal hemorrhages of various forms were found on the periphery of the retina in 21 (43.7%), After treatment, as well as after 3 and 6 months, hemorrhages were not resorbed. Peripheral retinal edema was detected before treatment in 9 (18.7%) patients 3 and 6 months after treatment, improvement in the condition of the peripheral retina was not observed, but on the contrary increased.

Hard and soft exudates on the periphery of the retina were found in 3 (6.25%) patients who did not undergo any changes.

Based on the above, we came to the conclusion that traditional conservative therapy is not only not justified in PDR, but also fraught with the development of complications from the permeability of retinal vessels.

Visual functions: Functional indicators of the state of the organ of vision in the group receiving laser coagulation of the retina with the preparation

Wesseddue F ranged from 0.09 to 0.1.

The dynamics of visual acuity in patients with DM on the background of laser coagulation (M ± m)

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Table 2

I I group C DM (n=24)	Before treatment	After treatment			
		Through 10 days	Through 1 month	Through 3 month	Through 6 month
	0,140±0,05	0,263±0,08	0,318±0,06**	0,327±0,05**	0,333±0,07**

Note: ** - P<0.05 the reliability of the results in relation to the data before treatment.

Table 2 shows that as a result, after the use of LC and the drug Wessel Due F, vision improved from 0.140 ± 0.05 to 0.333 ± 0.07, patients of this subgroup noted an improvement in vision after 1 month, after 3 months visual acuity was 0.318 ± 0.06 and 0.327 ± 0.05, respectively, which remained stable by 6 months after obtaining PRK (0.333 hundredths ± 0.07).

Field of view. Changes in the indicators of the total field of vision and the area of central and paracentral cattle during treatment were identical to the indicators of visual acuity.

In patients with the use of LC and the drug Wessel Due F, there is an expansion of the boundaries of the field of vision. The total field of vision increased from 516.7±19.8 to 517.3±27.5 and the indicators of the total field of vision and the area of cattle after LC in patients with various stages of DR (M ±m) continued to persist steadily for up to 6 months. Changes in the area of absolute cattle during treatment were not noted, which, in our opinion, may be due to irreversible changes in retinal tissue.

The ophthalmoscopic picture in patients who underwent laser photocoagulation as a result of LC treatment changed as follows. Partial or complete edema of the optic nerve, expressed in the form of indistinctness of its boundaries from 1 to 4 quadrants, occurred in 18 (50%) cases before treatment. As a result of the treatment, edema of the optic nerve remained in 14 (38.8%) eyes. By the end of 3 and 6 months, the results achieved were maintained.

The variety of changes in the macular region was represented by the absence of a macular reflex in 17 (47.2%)) patients. Macular edema turned out to be quite resistant to LC therapy, only in 8 (11.1%) eyes it underwent resorption by 3 months after treatment and in 9 (12.5%) eyes by 6 months after treatment.

Retinal hemorrhages observed in 14 (19.4%) eyes underwent complete resorption in 6 (8.3%) eyes, and partial resorption in 8 (11.1%) eyes. Subretinal hemorrhages observed in 1 case (2.7%) completely resolved by the end of treatment.

In 23 (63.8%o) patients in the paramacular department, dot and dash-shaped hemorrhages were detected before treatment. During treatment and during the next 6 months, 6 (16.6%) patients had hemorrhages completely resolved. Retinal hemorrhages of various shapes and sizes at the stage of NPDR were detected in 7 (9.7%) eyes, which underwent complete resorption in 4 eyes (5.5%). Thus, as a result of the combined use of laser coagulation and the drug Wessel Due F, patients showed an improvement in visual acuity from 0.140 ± 0.05 to 0.333 ± 0.02, which remained stable by 6 months after receiving treatment. Changes in the total visual field (516.7±19.8) tended to increase by 3 months after treatment (517.3±27.5). The area of relative cattle (30.9±3.87) decreased during treatment and reached 19.2 ±3.85 cu ($p < 0.05$).

But by the end of the 3rd month there was a tendency to increase their area (20.1 ± 2.73) and by the 6th month it reached 26.7 ± 2.39. There were no changes in the area of absolute cattle during treatment. Partial or complete edema of the optic nerve was observed in 14 (19.4%) eyes, the absence of macular reflex was noted in 17 (47.2%) patients who underwent resorption by 3 months in 8 (11.1%) eyes, and in 9 (12.3%) eyes - by 6 months after treatment.

Retinal hemorrhages underwent complete resorption in 6 eyes (8.3%) and partial resorption in 8 eyes (11.1%).

Subretinal hemorrhages observed in 1 case (2.7%) completely resolved by the end of treatment. Dot and dashed hemorrhages in the paramacular region resolved in 6 patients (10.6%).

Thus, the achieved effect after LC persists for more than 6 months, but for faster resorption of subretinal hemorrhages, it is necessary to use methods that enhance the effect of laser coagulation with the use of the drug Wessel Due F.

Conclusions

1. When using traditional conservative therapy for DM, only 11.4% had unreliably improved visual acuity, 6 months after treatment, visual acuity was significantly lower than the initial one.

2. As a result of the combined treatment of DM with laser photocoagulation and the drug Wessel Due F, visual acuity improved, from 0.140 to 0.333, changes in the area of relative and absolute cattle with DM were not noted during treatment, the achieved effect persists for more than 6 months, which indicates stabilization of retinal function.

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