



### Evaluation of the Clinical Efficacy of Lasers in Patients with Diabetic Retinopathy

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**Annotation:** The article analyzes the clinical effectiveness of a laser with a wavelength of 532 nm. in patients with diabetic retinopathy. The relevance of the study is due to the fact that diabetic retinopathy is currently one of the main causes leading to irreversible blindness.

**Relevance.** The pathogenesis of vascular lesions in diabetes mellitus (DM) complicated by diabetic retinopathy (DR) is based on microhemodynamic disorders increased platelet aggregation as DR progresses.

**Purpose of the study -** Evaluation of the clinical effectiveness of treatment of diabetic retinopathy with a laser wavelength of 532 nm.

**Materials and metrics.** A comparative analysis of the results of laser treatment of patients with diabetic retinopathy was carried out, the study was conducted on the basis of the medical and diagnostic center "OOO A.A.Yusupov". A total of 30 patients with a proliferative stage of diabetic retinopathy were examined. All patients received laser coagulation with a 532 nm laser, and a 532 nm Pascal (OPTI Medical) pattern laser was 532 nm used.

**Results.** The results of the study showed that visual acuity remained stable throughout the entire follow-up period. When analyzing visual acuity, an increase in acuity was noted after the first stage of laser coagulation and its preservation by the third stage, and according to the results of dynamic observation, visual acuity with maximum correction for this period did not change and amounted to  $8.85 \pm 0.07$ .

**Conclusion.** Laser coagulation of diabetic retinopathy is highly effective when using pattern lasers with a wavelength of 532 nm.

**Keywords:** Diabetes mellitus, diabetic retinopathy, macular edema, irreversible blindness, vascular lesions.

**Relevance.** The pathogenesis of vascular lesions in diabetes mellitus (DM) complicated by diabetic retinopathy (DR) is based on microhemodynamic disorders [1] increased platelet aggregation as DR progresses [2]. DM is accompanied by dysfunction of the vascular endothelium, which produces a number of vasoactive factors; a violation of the ratio between these factors is accompanied by dysregulation of vascular tone [3,4].

The problem of early diagnosis and treatment of diabetic retinopathy continues to be one of the urgent



problems of modern ophthalmology, due to the late treatment of patients with diabetic retinopathy [5,6].

Currently, laser therapy methods for diabetic retinopathy (retinal coagulation) and vitrectomy are developed and widely used. Each of these methods has its own clearly defined indications, possibilities and contraindications. In some patients, thanks to the above methods of treatment, it is possible to stabilize the process of retinopathy development, but in a significant part, due to various reasons, retinopathy does not stabilize [7].

Therefore, there is currently growing interest in laser devices, in particular with radiation with a wavelength of 532 nm. [8].

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**Materials and metrics.** A comparative analysis of the results of laser treatment of patients with diabetic retinopathy was carried out, the study was conducted on the basis of the medical and diagnostic center "OOO A.A.Yusupov".

A total of 30 patients with a proliferative stage of diabetic retinopathy were examined.

All patients received laser coagulation with a 532 nm laser, and a 532 nm Pascal (OPTI Medical) pattern laser was 532 nm used.

The examination included: anamnesis collection, visometry (according to the Sivtsev table and using the optotype projector) with optimal correction, autorefractometry, perimetry, tonometry (according to Maklakov and contactless tonometry), fundus examination (direct and reverse ophthalmoscopy), OCT (optical coherence tomography), fundus photography.

Statistical processing of the obtained results was carried out using application programs based on generally accepted methods of variational statistics.

### Results and discussion.

The results of the study showed that visual acuity remained stable throughout the entire follow-up period. When analyzing visual acuity, an increase in acuity was noted after the first stage of laser coagulation and its preservation by the third stage, and according to the results of dynamic observation, visual acuity with maximum correction for this period did not change and amounted to  $8.85 \pm 0.07$ . In patients after laser coagulation on the fundus 49, obliteration of newly formed vessels was noted in 49% of cases. In other cases, stabilization of the pathological process and visual functions was observed. There were no complications.

This indicates greater efficiency and a lower risk of increased macular edema and, as a result, a reduced risk of visual impairment when using a 532 nm laser.

### Conclusion.

1. Laser coagulation of diabetic retinopathy is highly effective when using pattern lasers with a wavelength of 532 nm.
2. Treatment of diabetic retinopathy should be comprehensive. The main and most effective treatment for diabetic retinopathy is retinal laser coagulation.

### Literature.

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