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Criteria for the possibility of recovery of visual acuity after anti-VEGF therapy in patients with macular edema secondary to retinal vein occlusion

Andrey Shchuk[1,3], **Igor Zlobin**[1] and **Tatiana Iureva**[1,2]
[1]S Fyodorov Eye Microsurgery Federal State Institution, Irkutsk, Russia
[2]ISMAPgE – Branch Campus of the FSBEI FPE RMACPE MOH, Russia
[3]Irkutsk State Medical University

84 Patients with macular edema on the background of occlusion of retinal veins were examined; the average age was 60.7±7.5 years. All patients underwent 2 intravitreal injections of 0.5 mg ranibizumab at intervals of 1 month. Further, anti-VEGF therapy was performed in a "pro re nata" regimen. The control group consisted of 30 patients, with visual acuity ≥0.8, average age was 60±6.1 years. Prior to intravitreal injection and one month later before the re-injection the OCT, the ISCEV-based electrophysiological examination were performed, the concentration of cytokines in the aqueous humor (Bio-Plex Protein Assay System, Bio-Rad, USA) was determined using commercial human 27-Plex test systems. Depending on the degree of change in visual acuity 12 months after the first injection of ranibizumab, all patients were divided into 2 groups - with sufficient effect (increased visual acuity by 0.1 and more) and insufficient effect (visual acuity did not improve). A comparative analysis of the initial state of patients of two groups was carried out. 53 patients were in the first group with visual acuity improvement from 0.19 to 0.45. In 32 cases for complete resorption of macular edema, 1.0 ranibizumab injection was required. In the 21st case, persistent macular edema and an increase in retinal ischemia required 2.3 intravitreal injections and followed laser treatment. The second group consisted of 31 patients with an 0.05 initial visual acuity, which was 0.04 after 12 months. During the year, 9.4 intravitreal injections of ranibizumab were performed, which were combined with laser treatment. Comparative analysis of the initial state of patients of the two groups allowed developing the prognostic criteria for the recovery of visual functions. Prognostic criteria for a sufficient clinical effect of anti-VEGF therapy for macular edema in retinal vein occlusion are: 1. The initial area of capillary non-perfusion in the macula according to OCT angiography data is from 0.3 to 1.5 mm2, or no more than 1/4 of the area of the perifoveal zone according to the fluorescent angiography data. 2. The ratio of the amplitude of the ERG b-wave to the norm of 0.7 and above. 3. The ratio of the amplitude of the ERG oscillatory potentials to the norm is more than 0.3. 4. The VEGF level in the aqueous humor is less than 1000 pg/mL. 5. The IL-6 levelin the aqueous humor is less than 150 pg/mL. 6. The MCP-1 level in the aqueous humor is less than 450 pg/mL. Prognostic criteria for the insufficient clinical effect of anti-VEGF therapy for macular edema in retinal vein occlusion are: 1. The initial area of capillary non-perfusion in the macula according to OCT-angiography from 1.8 mm2 and more, or 1/3 of the area of the perifoveal zone and more according to the fluorescent angiography data. 2. The ratio of the amplitude of the ERG b-wave to the norm is less than 0.6. 3. The ratio of the amplitude of the ERG oscillatory potentials to the norm is less than 0.2. 4. The VEGF level in the aqueous humor is more than 1000 pg/mL. 5. The IL-6 level in the aqueous humor is more than 150 pg/mL. 6. The MCP-1 level in the aqueous humor is more than 450 pg/mL.

shishkinamntk@mail.ru