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Comprehensive Approach to the Treatment of Retinopathy in Malignant Arterial Hypertension: Clinical Data

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Abstract: Malignant arterial hypertension (MAH) is associated with target organ damage, including the retina, leading to the development of hypertensive retinopathy. This condition is characterized by edema, hemorrhages, ischemia, and impairment of the visual analyzer function. A comprehensive approach, including pharmacotherapy, risk factor correction, and retinal monitoring, plays a key role in the treatment of these patients.
Key words: To evaluate the effectiveness of a comprehensive approach in the treatment of hypertensive retinopathy in patients with MAH.

Introduction. Malignant arterial hypertension (MAH) is associated with target organ damage, including the retina, leading to the development of hypertensive retinopathy. This condition is characterized by edema, hemorrhages, ischemia, and impairment of the visual analyzer function. A comprehensive approach, including pharmacotherapy, risk factor correction, and retinal monitoring, plays a key role in the treatment of these patients. To evaluate the effectiveness of a comprehensive approach in the treatment of hypertensive retinopathy in patients with MAH.

Materials and Methods The study included 64 patients (128 eyes) diagnosed with MAH, confirmed clinically and instrumentally. The mean age of the patients was 48.7 ± 6.3 years, with 58% males and 42% females.

Patients were divided into two groups:

- **Group 1 (Main, n=34):** Received comprehensive treatment.
- **Group 2 (Control, n=30):** Received standard antihypertensive therapy.

Comprehensive Treatment Included:

1. **Antihypertensive therapy:** ACE inhibitors, calcium channel blockers.
2. **Microcirculation-improving drugs:** Pentoxifylline (400 mg/day), antiplatelet agents (acetylsalicylic acid 75 mg/day).
3. **Retinoprotective agents:** Lutein and zeaxanthin (10 mg/day), antioxidants.
4. **Intraocular injections of anti-VEGF drugs** (Aflibercept, 2 mg, once a month) for severe macular edema.
5. **Control of comorbid conditions:** Normalization of glucose levels and lipid profile.

Diagnostic Complex Included:

- Ophthalmoscopy
- Optical coherence tomography (OCT)
- Fluorescein angiography (FA)
- Visual acuity assessment (visometry)

Key Effectiveness Criteria:

1. Reduction in central retinal thickness.
2. Improvement in visual acuity.

3. Reduction in ischemic areas and hemorrhages.

Results Clinical Indicators

The mean blood pressure in Group 1 decreased from 210/120 mmHg to 140/90 mmHg within 3 months of therapy. In Group 2, it decreased to 160/100 mmHg.

Retinal Changes Dynamics

Macular Thickness (OCT data):

- **Group 1:** Decrease from 445 ± 32 μm to 332 ± 25 μm after 3 months ($p < 0.001$).
- **Group 2:** Decrease from 438 ± 30 μm to 392 ± 27 μm ($p < 0.05$).

Ischemic Areas (FA data):

- **Group 1:** Reduction by 48.2 ± 7.4%.
- **Group 2:** Reduction by 28.6 ± 5.9%.

Retinal Hemorrhages:

- Complete resolution observed in **62%** of patients in Group 1 and **31%** in Group 2.

Visual Acuity The mean visual acuity in Group 1 improved from **0.42 ± 0.15 to 0.68 ± 0.12** ($p < 0.001$), while in Group 2, the increase was from **0.41 ± 0.14 to 0.54 ± 0.13** ($p < 0.05$).Intraocular injections of anti-VEGF drugs were safe and did not cause serious complications. Three patients (8.8%) in Group 1 experienced transient intraocular pressure elevation.

Discussion The results demonstrated that a comprehensive approach using anti-VEGF drugs, retinoprotectors, and antihypertensive therapy significantly improves functional and structural retinal parameters in patients with MAH. The reduction in macular thickness, decrease in ischemic areas, and restoration of visual acuity confirm the effectiveness of the proposed strategy.

Conclusion A comprehensive approach to the treatment of hypertensive retinopathy in MAH patients significantly improves the functional state of the retina. The use of modern diagnostic and therapeutic methods allows for early detection of pathological changes, minimizing MAH-related visual impairment, and improving patient quality of life.

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