

40 (47.1%) female patients. The inclusion criteria were patients with HFrEF diagnosed based on ESC (2021) guidelines, age > 18 years and agreement to participate in the study. All patients underwent a comprehensive clinical examination, as well as standard echocardiography. Statistical analysis was performed using the STATISTICA 12.0 software.

Results and discussion. Male patients with HFrEF were younger than females (65 [60; 73] vs 70 [66; 74] years, $p=0.013$). Patients of both groups were comparable in body mass index (30 [25; 33] vs 32 [27; 36], $p=0.503$), and almost a half of patients in each group had obesity (46.6% vs 47.5%, $p=0.939$). Also patients of both groups were comparable in prevalence of coronary artery disease (38 (84.4%) vs 33 (82.5%), $p=0.81$), as well as hypertension (40 (88.9%) vs 31 (77.5%), $p=0.258$) and diabetes mellitus (9 (20%) vs 7 (17.5%), $p=0.58$). Female patients were more likely to have anemia (11 (27.5%) vs 4 (8.9%), $p=0.025$). Male and female patients with HFrEF had no significant differences in the size of left atrium ($p=0.23$), right atrium ($p=0.47$) and LVEF (38 [34; 45] vs 37 [32; 44]%, $p=0.63$), however males had larger both end-diastolic (207 [174; 220] vs 191 [152; 209] mm, $p=0.026$) and end-systolic volume of left ventricle (130 [95; 152] vs 115 [68; 137] mm, $p=0.027$).

Conclusion. Female patients with HFrEF were older and more prone to anemia, while both groups demonstrated high percent of co-morbidities such as obesity and diabetes. There were no significant intergroup differences in echocardiographic parameters, except for the volumes of left ventricle ($p < 0.05$).

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THE IMPACT OF PHYSICAL ACTIVITY ON NEUROPLASTICITY IN PATIENTS WITH PARKINSON'S DISEASE

Khusanova M. J.

Kimyo International University in Tashkent

Научный руководитель: Norbekova M. X.

Introduction. Parkinson's disease (PD) is a progressive neurodegenerative disorder primarily characterized by the degeneration of dopaminergic neurons in the substantia nigra. This results in motor impairments such as tremors, rigidity, and

bradykinesia, with cognitive deficits emerging in later stages. While pharmacological treatments address symptoms, they do not alter the progression of the disease. Recent studies suggest that physical activity may enhance neuroplasticity, offering a non-pharmacological approach to mitigate both motor and cognitive symptoms.

Aim of the study. This review examines the role of various exercise modalities in promoting neuroplasticity and improving the quality of life for patients with PD. The study aims to identify the most effective exercise types and their impact on motor function, cognitive performance, and overall disease management.

Materials and methods. A systematic review of 15 peer-reviewed articles published between 2018 and 2023 was conducted. The selected studies investigated the effects of physical activity on brain-derived neurotrophic factor (BDNF) levels, motor function (measured using the Unified Parkinson's Disease Rating Scale, UPDRS), and cognitive outcomes. Exercise modalities analyzed included aerobic training, resistance exercises, and coordination-based practices, such as yoga and dance therapy.

Results and discussion. Findings indicate that regular physical activity significantly enhances neuroplasticity markers in PD patients. Plasma BDNF levels increased by 20-35%, with variations based on exercise intensity and type. Aerobic exercises yielded the most significant improvements in motor function, reducing UPDRS scores by 15-25%. Coordination-based activities, such as yoga, provided additional cognitive benefits, particularly in memory, attention, and executive functions. These outcomes are attributed to exercise-induced enhancements in neural connectivity and neurotransmitter regulation. Psychological benefits, including reduced anxiety and depression, further contributed to improved quality of life.

Conclusion. Physical activity is a valuable intervention for managing Parkinson's disease by promoting neuroplasticity and alleviating motor and cognitive symptoms. Given its accessibility and diverse benefits, structured exercise programs should be integrated into standard rehabilitation protocols for PD. Future research should focus on the long-term effects of exercise and the development of personalized regimens.

ЛИТЕРАТУРА

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