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Postural stability of patients with distal symmetric diabetic polyneuropathy after combined pharmacotherapy with alpha-lipoic acid and benfotiamin, pyridoxine and cyancobalamine

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Background: The maintenance of posture involves complex mechanisms integrating information derived from the visual, vestibular and somatosensory systems. Malfunction of one of these sensory systems leads to disequilibrium. Diabetic polyneuropathy (DPN) is a common complication of diabetes mellitus provoked by a long-term hyperglycemia leading to induced and increased production of free oxygen radicals, which cause disturbance of the sensory afferent and efferent pathways and lead to nerve damage and diminution of postural stability during standing and walking. Alpha-lipoic acid (ALA) is one of the most effective antioxidant kill free radicals that help lower blood sugar levels. The aim of the present study is to assess the postural stability of patients with type 2 diabetes mellitus and DPN after treatment with combined therapy of ALA and benfotiamin, pyridoxine and cyancobalamine together, by static posturography.

Patients & Methods: 60 patients randomly divided in two groups took part in this study. The first group was treatment with 600 mg ALA and the second—with combined therapy. The postural stability was measured in four conditions— stance on stable and on foam surface with open and closed eyes. The displacements of center of foot pressure in both medio-lateral (ML) and anterior-posterior (AP) directions were registered and the mean amplitude and mean velocity of postural sways were analyzed. The assessments were made on the first, 6th and 60th day after the drug therapy.

Results: No patient under therapy with deterioration. Patients with combined therapy showed considerably higher improvement than the other group. The improvements of mean sway velocities were higher than the ones for sway amplitudes in all experimental conditions. The best effect was observed for velocities of postural sways of patients with combined therapy.

Conclusion: Treatment with combined therapy showed stabilizing effect on the posture that leads to improvement of the quality of life of patients with type 2 diabetes mellitus and DPN.

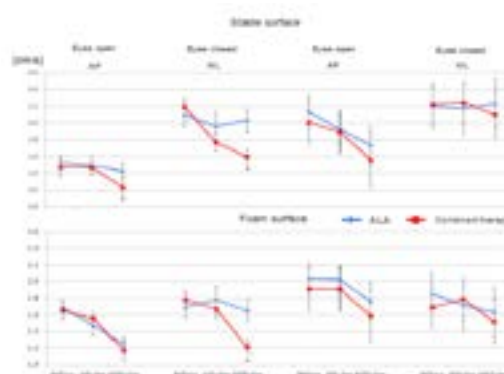


Figure 1: Changes of mean velocity of postural sway in four experimental conditions during treatment with ALA (-) and with combined therapy (-). * -significant difference between both schemes of pharmacotherapy (Mann-Whitney U-test, $p < 0.05$)

Biography

Dorina Petrova is a Neurology Specialist with experience in the Neurotology and Oto-rhino-laryngology. She has wide experience in clinical practice with peripheral and central vestibular diseases. She performs research in fields of early diagnosis of cerebrovascular diseases, prevention and treatment of diseases of the peripheral nervous system as diabetic polyneuropathy, applying of innovative pharmacological and physical methods of diagnostics and treatment.

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