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AGE-RELATED CHANGES IN SACCADIC EYE MOVEMENTS IN HEALTHY SUBJECTS AND PATIENTS WITH PARKINSON'S DISEASE

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The goals of our study were (1) to estimate age-related changes in characteristics of saccadic eye movements (latency, duration and percentage of multistep saccades) in healthy subjects and patients with Parkinson's disease and (2) to figure out aging dynamics in both subject groups during life-span.

Methods: Electro-oculography was used for of registration saccades. 46 healthy volunteers and 24 patients with Parkinson's disease took part in the study. Healthy subjects were divided into 6 age groups (17-20 years, 21-30 years, 31-40 years, 41-50 years, 51-60 years, 61-75 years), and patients into 3 age groups (41-50 years, 51-60 years, 61-75 years).

Results: In healthy volunteers the mean saccade latency and the percentage of multistep saccades increase significantly after the age of 60. Values of these characteristics in patients with Parkinson's disease significantly exceed the values in the corresponding age groups of healthy subjects. The "disease" factor (MANOVA) has a greater influence on saccade latency and percentage of multistep saccades than the "age" factor. The duration of single saccades depends on age to a smaller extent and does not change in patients with Parkinson's disease.

Conclusion: Saccade characteristics depend upon age in both healthy subjects and patients with Parkinson's disease. According to our data, in patients the pathological neurodegenerative process superimposes on physiological neurodegeneration during normal aging, but still the pathological process plays a greater role in Parkinson's disease development.

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GAIT ANALYSIS IN MYOTONIC DYSTROPHY TYPE 1: A KINEMATIC, KINETIC AND EMG EVALUATION

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Introduction: Steinert myotonic dystrophy (MD) type 1 is an autosomal dominant multisystemic disease characterized by early facial weakness and pronounced distal weakness. Gait and balance disorders increase risk for stumbles and falls in this population.

Material and methods: 10 patients with genetically confirmed MD type 1 and 20 healthy controls underwent clinical evaluation and gait analysis (GA), in terms of kinematic, kinetic and EMG data. All graphs obtained from GA were normalized as % of gait cycle and kinetic data were normalized for individual body weight.

Results: Most of the patients (80%) presented distal muscle groups weaker than proximal one. Velocity, step length and cadence were significantly lower in MD compared to healthy subjects. As concerns kinematics, patients evidenced the pelvic tilt globally in a higher position than the control group and reduced hip extension ability in stance phase and limited range of motion; 60% of the limbs revealed knee hyperextension during midstance and ankle joints showed a quite physiological position at initial contact and higher dorsiflexion during stance phase if compared to controls. Kinetic plots evidenced higher hip power during loading response and lower ankle power generation in terminal stance. The main EMG anomalies were at tibialis anterior and gastrocnemius medialis.

Conclusions: In this study we quantified gait alterations in MD using GA. Our results show that there is no evidence that gait is altered by proximal muscle weakness. GA could be a useful tool to obtain objective and quantitative information in order to guide and verify utility of rehabilitation programs.