

NEW HYPOTHESIS OF CORRELATION OF OLFACTORY DYSFUNCTION AND INTENSITY OF TREMOR

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Neurological disorders it's a problem for a number of people worldwide. Parkinson's disease (PD) and essential tremor (ET) are among them. Tremor is the common symptom both for PD (rest tremor) and ET (postural-kinetic tremor). Olfactory dysfunction is stipulated to be the first manifest of PD preceding the movement disorders. It happens due to the neurodegenerative process starting in olfactory bulbs. Currently available data on the olfactory function in ET are insufficient and some of them are contradictory. Hence, our aim was to obtain tremor data of PD and ET patients and the data of their olfactory function to verify our scientific hypothesis on the inverse relation between tremor manifestation and olfactory function decay: milder tremor accompanied with worse smell perception, and vice versa.

We had three groups of patients: PD, ET and healthy people. An examination procedure of olfactory function was based on extended olfactory Sniffin` sticks test. For tremor testing we used wireless device to monitor electrophysiological signals. We used an elastic map technique to cluster and analyze all data.

Combination of tremor data and smell perception provides clear and apparent distinction of PD patients from ET ones. Proven inverse relation between tremor level and olfactory function decay is the most sounding result of our work. Indeed, ET patients showed better olfactory function results accompanied by stronger tremor, as compared to PD patients.

The presented results could be implemented for early differential diagnostics of PD, ET, as well as for the improvement of individual therapy for such patients.

