

Study of olfactory function in patients with Parkinson's disease and healthy people

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Aim. Parkinson's disease (PD) is one of the most wide spread neurological disorders. Olfactory dysfunction is stipulated to be the first manifest of PD often preceding the movement disorders. A study of smell perception regardless pathology, or a norm makes itself the problem, since that former has not proper lexicon. In spite of that, a number of attempts are made to implement smell perception data into a diagnostics and clinic practice. We studied the relations between odor sensitivity and Parkinsonism. In particular, Sniffin` sticks test has been used. Materials and Methods. An examination procedure was based on extended olfactory Sniffin` sticks test to determine three parameters: threshold, identification and discrimination. The testee set comprises patients suffering from PD, and conditionally healthy people, for testing verification. Totally, 33 men and 28 women conditionally healthy persons aged from 20 to 79 have been tested. Totally, 34 patients aged from 40 to 76 with PD have been enrolled into the study: 10 men (average age is 63.2 years) and 24 women (average age is 62.6 years). Results and Discussion. We used elastic map technique to cluster and analyze data. To begin with, no clustering has been observed over the data of the first test. To verify the fact, we used K-means technique to check clustering; again, no pattern has been revealed. On the contrary, both the second and the third tests showed rather good performance in discrimination of PD patients from healthy people. To do it, we developed elastic map showing the distribution of the points (corresponding to the testees). Conclusion. Sniffin` sticks test may bring a lot into the early diagnostics and identification of PD. Especially the second and the third tests have high diagnostics value and they could be used in medical practice. Yet, the practical implementation requires more detailed studies.