

XI World Congress on
Parkinson's Disease and
Related Disorders



Milan, Italy

6-9 December 2015

MILAN 2015
XI World Congress
www.abc.it/april2015

OP 2.50.30

THE EFFECT OF BILATERAL SUB-THALAMIC NUCLEUS DEEP BRAIN STIMULATION (STN-DBS) ON PROSODY OF SPEECH OF PARKINSON'S DISEASE

Fatemeh Majdinasab¹, Seyed Amir hassan Habibi², Elnaz Ghorbani¹, Maryam Khoddami¹

¹Department of Speech Therapy, Tehran University of Medical Sciences, Tehran - Iran, Islamic Republic.

²Department of Neurology, Movement Disorder Clinic Rasool Akram hospital, Iran University of Medical Sciences, Tehran - Iran, Islamic Republic.

Objectives: The golden standard method to improve motor function of Parkinson's disease (PD) is bilateral sub-thalamic nucleus deep brain stimulation (STN-DBS), but its effect on speech is still questionable. To investigate impact of this approach on both main part of prosody (perception and expression) of Farsi speaking PD.

Methods: Thirteen PD (6 females) with 14.53 ± 3.23 years of duration of disease and 4 ± 3.39 years after surgery, and 8 normal control group evaluated. Severity and motor performance of PD assessed by Unified Parkinson's Disease Rating Scale part-III (UPDRS-III) and Persian Profiling Elements of Prosody in Speech-Communication (PPEPS-C) used to survey both part of perception and expression of prosody in all prosody subscales (affect, focus, chunking, turn-end, ...). All of evaluation were done in the "on" state of levodopa medication and stimulation.

Results: No significant difference observed between prosody of patients and control (in total score of perception and expression and all prosody subscales. No correlation seen between severity (motor performance) and duration of disease with perception and expression of prosody (total score and all prosody subscales). There was positive relation between expression and perception of prosody in PD ($p=0.000$) and significant relationship between all of prosody subscales except affect and turn-end.

Conclusions: It seems that bilateral STN-DBS may improve prosody in PD patients. Prosody of speech influenced by linguistic factors and different motor control system from other motor performance.

References

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