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PROSPECTIVE ANALYSIS OF STN DBS IN PARKINSON'S DISEASE: MOTOR AND NON-MOTOR SYMPTOMS EVOLUTION LINK TO ELECTRODES LOCALIZATION

I. de Chazeron[1,2], *B. Pereira*[3], *F. Durif*[2,4], *P.-M. Llorca*[1,2], *I. Chéreau-Boudet*[1,2]

[1]Psychiatry B, CHU Clermont-Ferrand, [2]EA 7280, Univ Clermont 1, UFR Medecine, [3]Biostatistics Unit, DRCI, [4]Neurology A, CHU Clermont-Ferrand, Clermont-Ferrand, France

Even if evidence suggests that Deep Brain Stimulation (DBS) of the Subthalamic Nucleus (STN) provides a beneficial clinical effect in Parkinson's disease (PD) for up to 10 years there are also several potential risks among them psychiatrics complications.
The aim of this study was to identify the patient-related, medicosurgical, and psychosocial factors that influence PD patient's evolution in STN DBS.
Method: We investigate, in 36 STN DBS PD patients, depression, anxiety and mania at baseline, 3-mounth post-surgery and 6-mounth post-surgery. At baseline, demographic data and clinical characteristics (duration of disease, PD medication, past psychiatric history were also collected. Scores at motor section of the unified Parkinson disease rating scale and PD medication were evaluated at baseline, 3-mounth post-surgery and 6-mounth post-surgery. A multivariate analysis and a factorial discriminant analysis (FDA) were considered to study differences between surgical outcomes considering an adjustment on disease duration.
Results: Thirty six patients with Parkinson's disease treated with STN-DBS were analyzed considering stimulating electrodes localization ('in', 'frontier', 'out' of STN).
Concerning the pre-surgical parameters, no configuration was found.
Considering only 3-mounth post-surgery parameters (electrodes localization, motor scores, psychiatric data, PD medication) patients differ according to surgical positioning: 'frontier'/'out' and 'in' but the best separation between the 3 groups of localization was obtain including pre-surgical post-surgery parameters. This segregation was maintained at 6-mounth post-surgery.
Conclusions: Our work provides preliminary answer to the question of impact of the exact electrode position on neuropsychological side effects of STN-DBS and enhances the importance of combining pychiatrico-neuro-surgical data.

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