

Anorectal motility

Ano-rectal motility impairment is often observed during Parkinson's disease (PD), generating symptoms as constipation and/or incontinence with impaired quality of life. Subthalamic nuclei (STN) deep brain stimulation (DBS) improves motor symptoms of PD, but its effects on anorectal motility are unknown. This study aimed to assess the effects of STN-DBS on the anorectal motility in PD patients, in a randomized cross-over study.

Sixteen PD patients with bilateral STN-DBS for at least 6 months were included. The anal resting pressure, duration and maximal amplitude of squeeze effort, recto-anal inhibitory reflex, maximal tolerable rectal volume, and anal pressure during defecation effort were measured and compared after STN-DBS was switched OFF and then ON for 2 hours, or vice-versa, in a randomized order.

STN-DBS increased maximal amplitude of anal squeezing pressure (OFF: 85.7 ± 14.5 vs ON: 108.4 ± 21.0 cmH₂O; $P = 0.02$), with no significant difference in the duration ($P = 0.10$). No other significant difference was found between stimulation conditions (OFF vs ON) for anal resting pressure (OFF: 72.5 ± 8.6 cmH₂O vs ON: 71.7 ± 9.0 cmH₂O; $P = 0.24$), recto-anal inhibitory reflex, maximal tolerable rectal volume (OFF: 231 ± 24 mL vs ON: 241 ± 26 mL; $P = 0.68$), or anal pressure during defecation effort with a similar rate of ano-rectal dyssynergia (7/16 and 8/16 with and without STN-DBS, respectively). No order effect (ON-OFF vs OFF-ON) was observed.

STN-DBS increased anal squeezing pressure, but did not modify anorectal dyssynergia in PD patients. This study demonstrated the involvement of STN in the voluntary control of anorectal motility in PD patients ¹⁾.

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Gourcerol G, Maltete D, Chastan N, Welter ML, Leroi AM, Derrey S. Does Bilateral Deep Brain Stimulation of the Subthalamic Nucleus Modify Ano-Rctal Motility in Parkinson's Disease? Results of a Randomized Cross-Over Study. *Neuromodulation*. 2019 Mar 25. doi: 10.1111/ner.12947. [Epub ahead of print] PubMed PMID: 30908813.

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