

Draft Preview of Abstract #550609

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Title: L-dopa and STN stimulation effects on pneumophonic coordination in Parkinsonian dysarthria: intra-oral pressure measurements

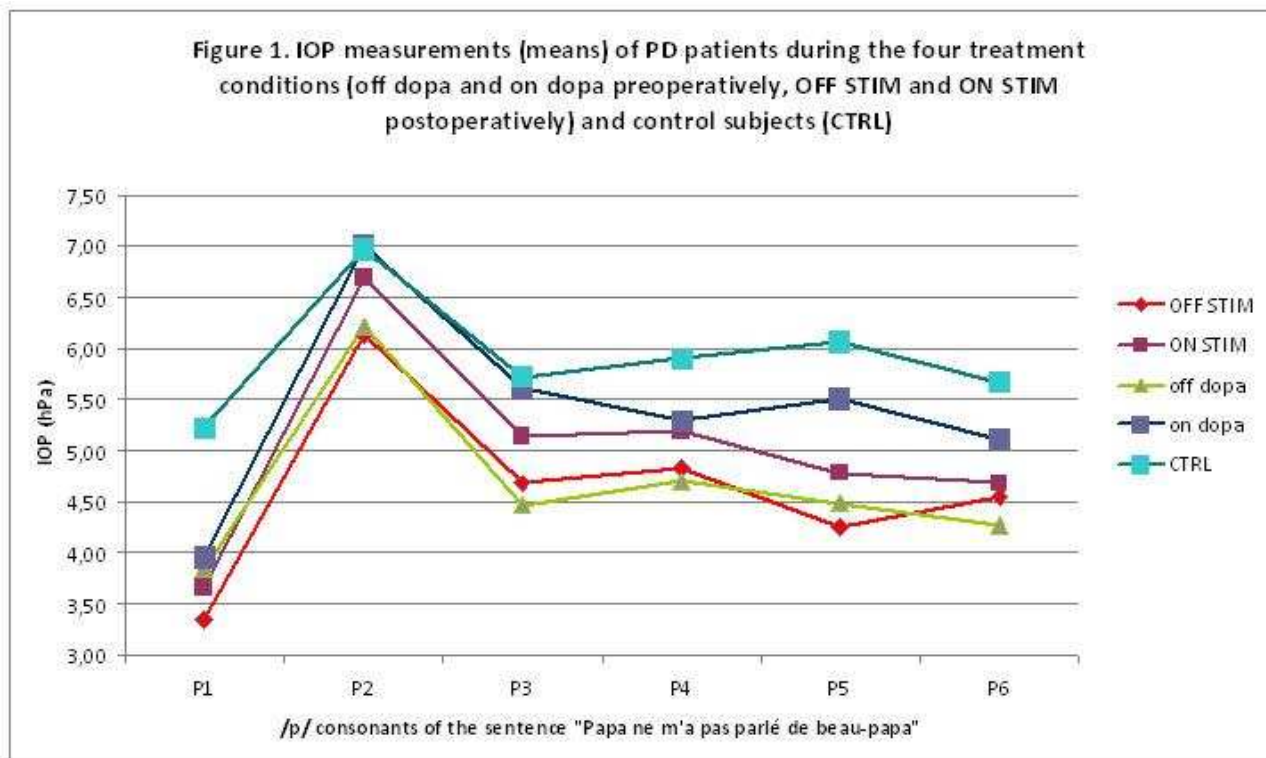
Moustapha Sarr, MD, Serge Pinto, PhD, Jankowski Ludovic, MSc, Purson Alain, MSc, Ghio Alain, PhD, Espesser Robert, PhD, Teston Bernard, PhD and Viallet François, MD, PhD. (Aix-en-Provence, France)

Objective: To evaluate L-dopa and STN stimulation effects on pneumophonic coordination (PC) in Parkinson's disease (PD), by studying the temporal progression of intra-oral pressure (IOP) during the expiratory phase of a sentence production.

Background: Effects of L-dopa and STN stimulation on Parkinsonian dysarthria still remain erratic and challenging for the clinician. As the PC plays a crucial role in the sound pressure level production, then contributing largely to speech intelligibility, it is important to assess this aspect of speech in PD and to quantify the changes that may be expected following treatments.

Methods: Using a dedicated system (EVA2, SQLab, Aix-en-Provence), 24 PD patients were recorded preoperatively on and off L-dopa, as well as postoperatively ON and OFF STN stimulation. IOP on six measurement points (every "p" consonants) during realisation of the French sentence *Papa ne m'a pas parlé de beau-papa* (Daddy did not speak to me about daddy-in-law) was calculated. Fifty control subjects were recorded in parallel in order to define the reference. A linear mixed model was estimated ("R" software, version 2.6.2, <http://www.r-project.org>) for group analyses integrating patient and "p" consonant as random terms and treatment nature (L-dopa vs. STN stimulation) and state (off vs. on) as fixed effects.

Results: UPDRS motor scores and IOP measurements displayed significant differences ($p < 0.05$) between off and on states, either with L-dopa or STN stimulation. Differences between on and off states could not be distinguished from L-dopa and STN stimulation treatments. Regards to IOP measurements, significant differences were found between control subjects and patients OFF stimulation, ON stimulation and off L-dopa. No difference was revealed between controls and patients on L-dopa



Conclusions: L-dopa administration led to patient IOP values closer to controls in comparison with the STN stimulation ON state: this point deserves attention since it confirms the frequent need for treatment combination following surgery. However, the levels of PC improvement by L-dopa preoperatively and STN stimulation postoperatively are not statistically different, highlighting the controversial effect of treatments on axial signs.