Objective measure of bradykinesia in Parkinsonism by the maximal frequency of standardized, large pronation/supination movements

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Objective
Bradykinesia in Parkinson’s disease (PD) predominates in large movements. Traditional assessments use the UPDRS, a subjective and ordinal tool that does not rate movement scaling (hypermotria). We have measured the maximum frequency of standardized large alternating elbow pronation/supination movements in patients with PD, hypothesizing a negative correlation with the UPDRS III score and with the delay since diagnosis.

Materials/patients and methods
We carried out a retrospective study on a convenience sample of 30 patients with idiopathic PD from Henri Mondor University Hospitals (Créteil, France), all assessed in the clinically defined OFF state by a single rater. Assessment included the maximal frequency of large (180° C) elbow pronation/supination movements (FLM), bilaterally, using a portable tool. Patients were also assessed on UPDRS III and bradykinesia sub-scores (UPDRS IIIb). We explored correlations (Pearson) between FLM and UPDRS III, UPDRS IIIb and time since diagnosis (TSD).

Results
UPDRS III was 20.08 ± 10.0 (mean ± SD), TSD was 9.9 ± 5.2 years and FLM were 0.75 ± 0.27 Hz and 0.94 ± 0.25 on the more and less affected side respectively (strongly correlated with each other, r = 0.80, p < 0.0001). Correlations with UPDRS III scores and time since diagnosis for the more affected arm (resp less affected arm) were as follows FLM-UPDRSIII: r = −0.28; p = 0.15 (r = −0.40; p = 0.04); RLM-UPDRSIIIb, r = −0.48; p = 0.01 (r = −0.36; p = 0.06); FLM-TSD, r = −0.36; p = 0.07 (r = −0.51; p = 0.007).

Discussion/Conclusion
These findings validate the maximal frequency of standardized 180° C pronation/supination movements as a clinical marker of the severity of parkinsonism. Intra- and inter-rater reliability and sensitivity to change of FLM still need to be investigated. FLM is easily usable in the clinical setting and might become a useful tool to optimize the monitoring of treatment effects and patient evolution.

Disclosure of interest
The authors declare that they have no competing interest.

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PO064

Botulinum toxin A for treatment of Pisa syndrome: Towards a decision-making algorithm?

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Objective
Pisa syndrome (PS) is a common abnormal posture of the trunk in Parkinson disease which is defined as a lateral flexion of the spine in the coronal plane and/or scoliosis. Few studies described focal treatment of dystonia of paraspinal muscles, with unpredictable results, while the participation of quadratus lumborum and external oblique homolateral seem to be interesting. The aim of this study is to estimate the effects of treatment by botulinum toxin of trunk muscles dystonia in PS.

Materials/patients and methods
The patients were seen in multidisciplinary program to do morphological imagery of spine and electromyographic examination of quadratus lumborum, external oblique, internal oblique and paraspinal. Only the patients with dystonia in muscle that are in homolateral side were treated by toxin A. The evaluation of the effects of treatment was realized in posteriori on the data of clinical file.

Results
Twenty-six patients were seen from March 2014 to January 2016. Fourteen patients did not present a dystonia of the trunk. Two of them were treated in analgesic purpose among whom, one had beneficial effects. Twelve patients were treated, among whom, 7 in quadratus lumborum, 3 in quadratus lumborum and external oblique and 2 in external oblique. The treatment was effective for 8 of them on the pain and for 6 of them on the slope of spine.

Discussion/Conclusion
Focal dystonia treatment in quadratus lumborum and external oblique seem to be interesting in PS. A treatment with analgesic aim could be processed, at the risk of seeing deteriorating posture because of the weakening of the muscles that retain the fall. Other studies are necessary to specify the algorithm of care of this syndrome, including global rehabilitation program.

Keywords
Parkinson disease; Pisa syndrome; Toxin A

Disclosure of interest
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