Reviewer's report

Title: Drug-induced dyskinesia in Parkinson's disease. Should success in clinical management be a function of improvement of motor repertoire rather than amplitude of dyskinesia?

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Reviewer: Nicola Tambasco

Reviewer's report:

General comments:

In this manuscript Daneault et al reported a long discussion on the pathogenesis and evaluation of the dyskinesias in Parkinson's disease. The assessment of drug-induced dyskinesia is always a troublesome dilemma for the clinicians. The authors summarized a very extensive bibliography regarding this interesting topic.

Major Compulsory Revisions:

1) How did the authors conducted their bibliography research, (terms, database…)
2) An important point is that the authors have defined the term signal to noise the ratio between voluntary and involuntary movement. This expression is mediated by another term commonly used about the MRI technique and can be confusing. Consequently, it is good to replace it with another expression.
3) The authors utilized an interesting approach to study the impact of the dyskinesias in patients with PD, but important definitions are missed. What the authors mean by motor repertoire? which measurement must be used to assess voluntary movements? How can the observer assess the different distribution of dyskinesias? For example, if a patient had a marked postural instability and want to make a movement with the right hand, how should the observer indicate in the formula "equation 2"?
4) Moreover, the authors reported that “activities of daily living do not circumscribe the whole motor repertoire deemed necessary by each patient; they merely represent general tasks that provide some functional independence”. Nevertheless, the Parkinson Disease Dyskinesia Scale (PDYS-26) is an interesting and validated scale for quantifying the impact of dyskinesia on activities of daily living in PD and should be more appropriately discussed. Moreover, the dyskinesias in Parkinson’s disease may widely vary during the day depending on different factors (time of drugs assumption, doses, feeding …), how can the observer assess the time variability of dyskinesias?

Minor Essential Revisions:

1) In the second paragraph of the discussion a reference is missing “[15 for
comprehensive reviews of current treatment options, see 42 and ..]

**Quality of written English:** Not suitable for publication unless extensively edited

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests