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LETTER

Comments on the paper "Efficacies of globus pallidus stimulation and subthalamic nucleus stimulation for advanced Parkinson's disease: a meta-analysis of randomized controlled trials"

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Dear editor

We read with interest the article by Tan et al,[1] in which they meta-analyzed data of randomized controlled trials to compare subthalamic and pallidal deep brain stimulation for Parkinson's disease (PD). Although the topic is interesting and important, we found three serious statistical errors in the article.

First, in their analysis (eg, Figures 3 and 4), the authors considered the end point data and not the mean change from baseline, and therefore they ignored the baseline values. Instead, the authors should have calculated the mean change from baseline in both the groups and pooled it in the meta-analysis. By considering the end point data, they generated misleading effect estimates on the level of individual studies and on the level of overall pooled effect estimates. For example, in the study by Odekerken et al,[2] the end points of unified Parkinson's disease rating scale (UPDRS) motor examination (off phase) for the internal globus pallidus (GPi) and subthalamic nucleus (STN) groups were 32.4 and 24.1, respectively, while the mean changes from baseline were 11.4 and 20.3, respectively. By considering the end point value, the effect size of this study will favor the GPi group, but in fact, it favors the STN group, as interpreted by the trial investigators themselves (Table 3 in Odekerken et al[2]).

Second, in their analysis (eg, Figure 3, the subgroup of 6 months), the authors pooled Zahodne et al's[3] and Okun et al's[4] studies that describe data from the COMPARE NIH trial.[5] Therefore, the pooling of these studies in the same meta-analysis model will double the weight of patients of the COMPARE trial, leading to imprecise effect estimates. In addition, the Weaver et al's,[6] Rocchi et al's,[7] and Follett et al's[8] studies describe the same study (CSP 468 study); therefore, the weight of this population was tripled in the analysis. Instead of performing the analysis this way, in the case of multiple reports that described the same patients, the authors should have selected only one report for the analysis (eg, the most complete dataset or the most recent report). We found that the authors pooled these duplicate reports together in the same forest plots of their meta-analysis. Therefore, these effect estimates are not accurate.

Third, the authors reversed the labels of the forest plots of UPDRS III (Figures 3 and 4). The UPDRS score is a reliable score of four parts: the first part describes mental functions, the second part describes activities of daily life, the third part

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describes the motor functions, and the fourth part represents the complications. Clinically, a lower score on the UPDRS means PD symptom improvement. A better group is the group that achieves considerable reduction in UPDRS scores.

The authors reversed the right/left labels, implying that the better group will have smaller effect size, and this is not correct. However, we think that the authors committed this mistake based on the pooling of end point data and not the mean change from baseline, which was not correct (as mentioned before).

We advise the editor to retract this article because the analysis data, pooled effect estimates, and the interpretation are not correct, and therefore the evidence concluded from this meta-analysis might be misleading.

Disclosure

The authors report no conflicts of interest in this communication.

References

1. Tan ZG, Zhou Q, Huang T, Jiang Y. Efficacies of globus pallidus stimulation and subthalamic nucleus stimulation for advanced Parkinson's disease: a meta-analysis of randomized controlled trials. *Clin Interv Aging*. 2016;11:777–786.
2. Odekerken VJ, van Laar T, Staal MJ, et al. Subthalamic nucleus versus globus pallidus bilateral deep brain stimulation for advanced Parkinson's disease (NSTAPS study): a randomised controlled trial. *Lancet Neurol*. 2013;12(1):37–44.
3. Zahodne LB, Okun MS, Foote KD, et al. Greater improvement in quality of life following unilateral deep brain stimulation surgery in the globus pallidus as compared to the subthalamic nucleus. *J Neurol*. 2009;256(8):1321–1329.
4. Okun MS, Wu SS, Fayad S, et al. Acute and chronic mood and apathy outcomes from a randomized study of unilateral STN and GPi DBS. *PLoS One*. 2014;9(12):e114140.
5. Okun MS, Fernandez HH, Wu SS, et al. Cognition and mood in Parkinson's disease in subthalamic nucleus versus globus pallidus interna deep brain stimulation: the COMPARE trial. *Ann Neurol*. 2009;65(5):586–595.
6. Weaver FM, Follett KA, Stern M, et al. Randomized trial of deep brain stimulation for Parkinson disease: thirty-six-month outcomes. *Neurology*. 2012;79(1):55–65.
7. Rocchi L, Carlson-Kuhta P, Chiari L, Burchiel KJ, Hogarth P, Horak FB. Effects of deep brain stimulation in the subthalamic nucleus or globus pallidus internus on step initiation in Parkinson disease: laboratory investigation. *J Neurosurg*. 2012;117(6):1141–1149.
8. Follett KA, Weaver FM, Stern M, et al. Pallidal versus subthalamic deep-brain stimulation for Parkinson's disease. *N Engl J Med*. 2010; 362(22):2077–2091.