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Letter to the Editor

A commentary on "Effect of Parkinson's disease on primary total joint arthroplasty outcomes: A meta-analysis of matched control studies" (Int J Surg 2019; Sep 26;71:124–131. doi: 10.1016/j.ijsu.2019.09.013)

We took great interest to read the article titled "Effect of Parkinson's Disease on Primary Total Joint Arthroplasty Outcomes: A Meta-Analysis of Matched Control Studies" by Huan Min et al. [1] They performed an interesting meta-analysis on observational studies to investigate the perioperative complications and outcomes after total joint arthroplasty (TJA) in patients with Parkinson's Disease (PD). The authors concluded that PD patients were at higher risk of superficial wound infection, dislocation, deep vein thrombosis, long hospital length of stay and high costs when compared to non-PD patients, but PD patients did not have an increased risk of periprosthetic infection and revision. However, this article raised some concerns for us.

The Methodology stated that the literature search was conducted on April 1, 2019. However, an important study published online in May 2018 by Newman et al., [2] which included 31979 PD and 95596 non-PD total knee arthroplasty patients, was missed. This was possibly related to the improper search strategy used in the meta-analysis. A combination of free text words and standardized subject terms (such as MeSH and EMTREE) should be used for searching eligible studies extensively. Search terms such as total joint arthroplasty, TJA, Parkinsonism and PD should also be added. Identifying and pooling eligible studies as many as possible are the keys to improving the quality of a meta-analysis. Seven studies included in this meta-analysis provided insufficient data to perform a subgroup analysis by type of arthroplasty, and including the missed study may help to perform the subgroup analysis.

With such high heterogeneities found in some outcomes (Any surgical complication, $I^2 = 69\%$; Infection, $I^2 = 55\%$; Revision, $I^2 = 82\%$; Length of stay, $I^2 = 75\%$) [3], insufficient subgroup analyses and sensitivity analyses had been performed to find the source of heterogeneity. We suggest that the authors should mention the possible source of heterogeneity in the Discussion. The different study designs (retrospective cohort studies with minimal 65 patients and registry studies with maximal 77561 patients) may contribute to great clinical heterogeneity, thus subgroup analysis needs to be conducted on different study designs. Pooling data of studies with such high heterogeneities may compromise the power of result. Besides, as the authors acknowledged in the Methodology, all outcomes were pooled on the random-effect model. However, in Figure 3C, the Forest plot of DVT between the PD group and the no-PD group after TJA showed that the fixed-effect model was used.

We respectfully appreciate that Huan Min et al. provided us with an important meta-analysis focusing on complications and outcomes in PD patients who underwent TJA which can provide a guide for clinical decision-making. However, more studies with large sample size and good scientific design should be carried out to clarify this issue.

Provenance and peer review

Not Commissioned, internally reviewed.

Data statement

Not applicable.

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