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Letter to the Editor

A commentary on "Continuous adductor canal block is a better choice compared to single shot after primary total knee arthroplasty: A meta-analysis of randomized controlled trials" [Int J Surg 2019; Epub ahead of print]

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Dear Editor,

We read with great interest the meta-analysis reported by Wang et al. [1] entitled "Continuous adductor canal block is a better choice compared to single shot after primary total knee arthroplasty: A meta-analysis of randomized controlled trials" published in October 2019 in the *International Journal of Surgery*. In this study, the investigators performed a meta-analysis and concluded that compared with single adductor canal block (SACB), continuous adductor canal block (CACB) provided better analgesia after total knee arthroplasty (TKA). This is a great work that we really appreciate. However, after reading the article carefully, we also found some worthwhile issues that we would like to raise to the investigators.

First, the author mentioned that study heterogeneity was examined statistically by calculating the χ^2 and I^2 statistic, with an $I^2 > 50\%$ indicating the presence of substantial heterogeneity [1]. According to the Cochrane handbook for system reviews, a $P_{\text{heterogeneity}} \leq 0.10$ was determined to indicate significant heterogeneity [2,3]. Both of I^2 and $P_{\text{heterogeneity}}$ should be taken into consideration when identifying and measuring heterogeneity. When there is heterogeneity that cannot readily be explained, one analytical approach is to incorporate it into a random-effects model [4]; Otherwise, the fixed-effects Mantel–Haenszel model is suggested to be employed [5]. However, in this study, all outcomes were pooled on the random-effects model, which might generate bias. The authors should have performed the meta-analysis in strict accordance with the handbook though the conclusion might have been consistent whether a fixed-effect model or a random-effect model had been applied.

Second, sensitivity analysis is a method to test whether the results of meta-analyses are stable. The results were considered to be more credible if there is no significant change in the results after the sensitivity analysis [2]. However, significant changes of statistical results in cumulative opioid consumption were observed when we repeated the sensitivity analyses by excluding Kim et al., 2019 or Turner et al., 2018. Thus, the conclusion that CACB group had a lower cumulative morphine consumption should be interpreted carefully. More RCTs with high quality will be helpful for this issue.

Third, the funnel plot is the most common method of detecting publication bias, as a rule of thumb, tests for funnel plot asymmetry should be used only when there are at least 10 studies included in the meta-analysis [2]. It is unwise to use this method here, because when there are fewer studies the power of the test is too low to distinguish chance from real asymmetry. The Egger's bias test would be more appropriate in this case in the article [2].

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Author contribution

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Not Applicable.

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Zhe Ruan.

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Declaration of competing interest

None.

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