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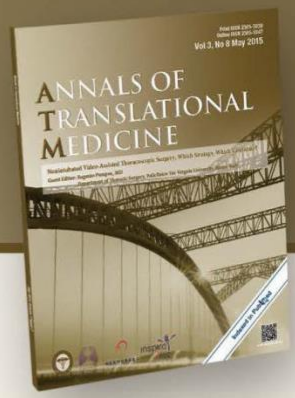

Peer Review File

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Reviewer A:

Comment 1:

The authors of this manuscript presented a very interesting and useful study concerning the effect of obesity in one-stage bilateral total knee arthroplasty (TKA). Based on their statistical results, obese patients suffer from higher complication rates and increased length of stay. These data will provide arthroplasty surgeons valuable information when they determine whether or not to perform one-stage bilateral TKA.

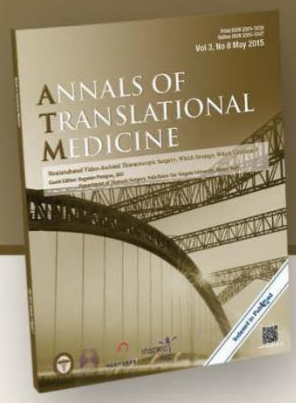
However, several concerns still exist. First, the “Introduction” section is too long and contains some unnecessary description. I suggest the authors re-write and re-organize the whole “Introduction” section, making it concise and closely related to the central topic. Second, in the “Results” section, the authors have made some mistakes when they interpreted the statistical results, e.g.: page 8, line 164, OR: 1.302 does not mean the complication risk is 1.3 times higher. This was the same for page 8 line 157-158. The authors should check carefully to revise these mistakes. Third, to make the manuscript more reader-friendly, I suggest the authors draw some figures instead of tables to show their results.

Reply 1: Thank you for your comments and suggestions. Concerning the “Introduction”, we have made an effort to shorten the section in order to be more succinct and relevant with the rest of the manuscript (see page 3; line 77-96). Regarding the odds ratios, we have modified our tests to avoid the previously-said verbiage (see page 8, lines 190-191 and 196-197). Furthermore, to make the manuscript more reader-friendly, we have included two figures and will have Tables 2 and 3 available in a supplementary appendix (see page 7, lines 184-185). The first figure illustrates the complication proportions each BMI group experienced, while in figure two we provided a forest plot to further describe the risk for complications each obesity cohort experiences when undergoing same-day bilateral total knee arthroplasty.

Changes in the text 1:

- Lines 77-96:

  Obesity has a negative impact on the body in a multitude of ways, including a six-fold increase in risk for knee osteoarthritis (1). As such, many patients with increased body mass indices (BMI) will present to providers with bilateral disease, with some necessitating total knee arthroplasties (TKA) (2). To avoid the



morbidity of multiple operations, same-day bilateral total knee arthroplasty (sd-BTKA) may be an option for these patients, as some find appeal in a single surgery and hospitalization (3,4). Moreover, physicians may acquiesce to the procedure as investigations report decreased cumulative hospital stays and rehabilitation time (5–10). Despite the purported benefits of this procedure, studies have revealed increased risk for negative outcomes with the bilateral operation (9,11–14). As a consequence of the conflicting body of literature, the utility of sd-BTKA continues to generate debate amongst arthroplasty surgeons (15–17).

Over time, the debate regarding sd-BTKA intensified to a level that warranted consensus recommendations in 2013 (18). Among several proposals, the presence of certain comorbidities, such as morbid obesity, were felt to warrant exclusion of individuals from consideration for the operation. This notion is predicated off studies identifying higher BMI patients as having an increased risk for complications when undergoing unilateral TKA (19–25), though several studies have demonstrated a lack of association between poor outcomes and high BMI (26–30). Ultimately, whether high BMI patients should be subjected to the cumulative risk of two unilateral TKAs or the single operation of sd-BTKA remains inconclusive, as no studies have investigated the prospect.

- Lines 184-185: A full synopsis of the raw data can be accessed in the Supplementary Appendix.
- Lines 190-191: Obese patients also demonstrated a slight, yet significant, overall increase in complication risk (OR: 1.107) when compared to non-obese patients ($p<0.001$).
- Lines 196-197: Moreover, morbidly obese patients had a significantly increased overall complication risk (OR: 1.302) when compared to non-obese patients ($p<0.001$).

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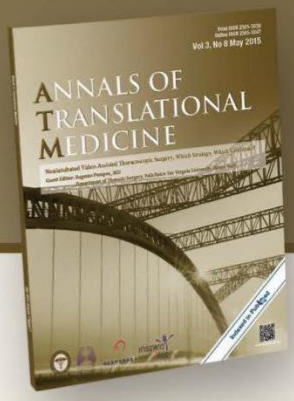
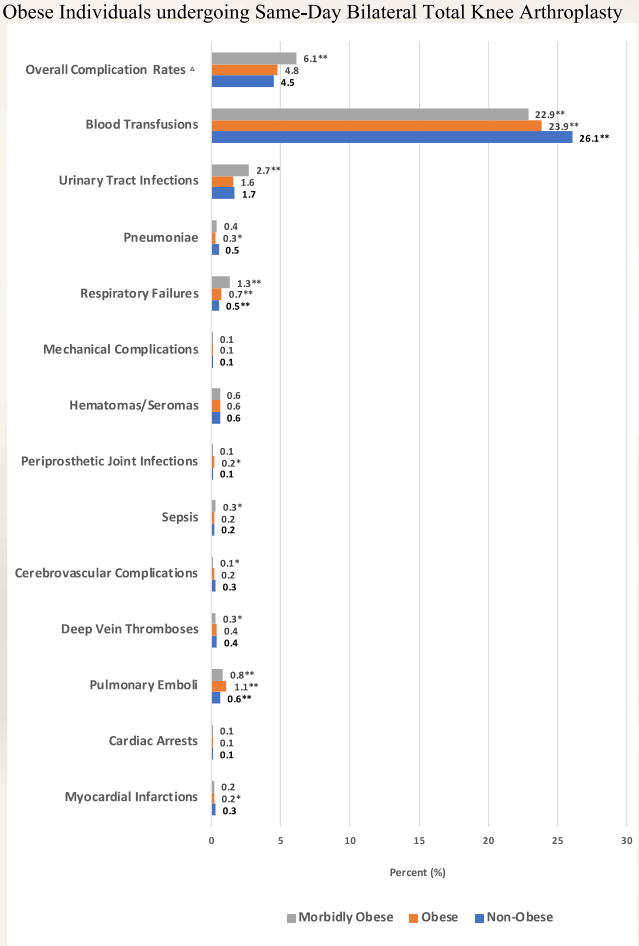


Figure 1. The Proportion of Complications Experienced by Non-Obese, Obese, and Morbidly Obese Individuals undergoing Same-Day Bilateral Total Knee Arthroplasty



▵ Blood Transfusions were not included in the Overall Complication Rate
* Indicates a statistically significant difference compared to only the non-obese cohort
**: Indicates a statistically significant difference compared to other cohorts

- Figure 1:

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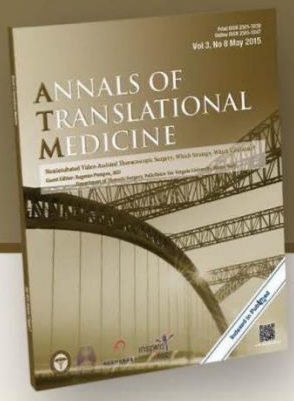
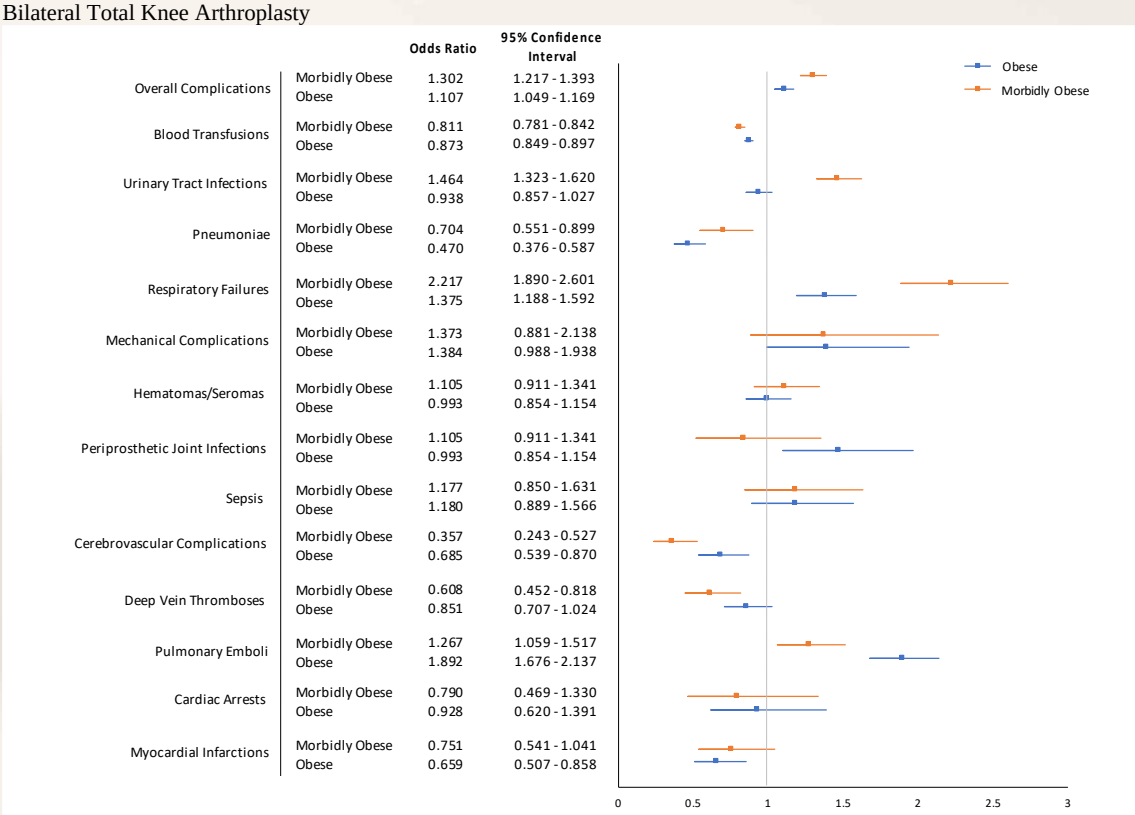


- Figure 2:

Figure 2. The Degree of Risk for Complications Obese and Morbidly Obese Individuals Sustain When Undergoing Same-Day Bilateral Total Knee Arthroplasty



The non-obese cohort served as the reference when evaluating odds ratios.

Reviewer B:

Comment 1:

This article compares the incidence, demographic characteristics, and complications of SD-BTKA among non-obese, obese, and morbidly obese patients in the United States from 2009 to 2016 using the data from the NIS database. As the technique improves, more and more sd-BTKA performed worldwide. This study chose a new angle to investigate the effect of obese on such a procedure. Overall, it is well written and indeed provides some innovative perspective to clinical practice. From my point of view, I suggest accept this manuscript without revision.

Reply 1: Thank you for your comments.

Changes in the text: no changes have been made.

Reviewer C:

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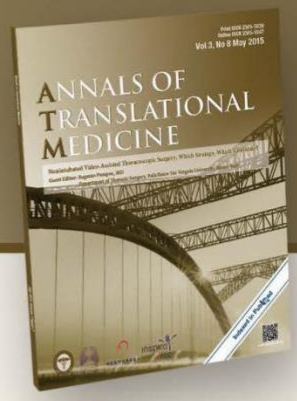

Comment 1:

This study has evaluated the outcomes of obese patients undergoing sd-BTKA when compared to non-obese patients, and included more than 24000 patients to analyze. The results are authentic and convincing.

Reply 1: Thank you for your comments.

Changes in the text: no changes have been made.

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