



AB104. SOH23ABS_155. The statistical fragility of the management options for reverse shoulder arthroplasty: a systematic review of randomized control trial with fragility analysis

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Background: Reverse shoulder arthroplasty (RSA) is used in the treatment of traumatic and arthritic pathologies, with expanding clinical indications and as a result there has been an increase in clinical research on the topic. The purpose of this study was to examine the statistical fragility of randomized control trials (RCTs) reporting outcomes from RSA.

Methods: A systematic search was undertaken to find RCTs investigating RSA. The fragility index (FI) was calculated using Fisher's exact test, by sequentially altering the number of events until there was a reversal of significance. The fragility quotient (FQ) was calculated by dividing the FI by the trial population. Each trial was assigned an overall FI and FQ calculated as the median result of its reported findings.

Results: Overall, 19 RCTS warranted inclusion in the review, representing 1,146 patients, of which 41.2% were male, with a mean age of 74.2±4.3 years and mean follow up of 22.1±9.9 months. The median RCT population was 59 patients, with a median of 9 patients lost to follow up (LTFU). The median FI was 4.5, and median FQ was 0.083,

indicating more patients did not complete the trial than the number of outcomes which would have to change to reverse the finding of significance.

Conclusions: This review found that the RCT evidence for RSA management may be vulnerable to statistical fragility, with a handful of events required to reverse a finding of significance.

Keywords: Shoulder arthroplasty; reverse shoulder arthroplasty (RSA); randomized control trial (RCT); fragility analysis; systematic review

Acknowledgments

Funding: None.

Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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doi: 10.21037/map-23-ab104

Cite this abstract as: Doyle T, Hurley E, Davey M, Klifto C, Mullett H. AB104. SOH23ABS_155. The statistical fragility of the management options for reverse shoulder arthroplasty: a systematic review of randomized control trial with fragility analysis. *Mesentery Peritoneum* 2023;7:AB104.