

## **RE: Efficacy and Safety of Surgical Interventions for Treating Multilevel Cervical Spondylotic Myelopathy via Anterior Approach: A Network Meta-Analysis by Li et al**

### **TO THE EDITOR:**

Li et al. (1) have conducted the first network meta-analysis (NMA) to compare the effectiveness and safety of anterior cervical discectomy and fusion (ACDF), anterior cervical corpectomy and fusion (ACCF), cervical total disc replacement (CTDR), and hybrid surgery (HS) in the treatment of multilevel cervical spondylotic myelopathy. This is a commendable effort given that the existing literature on the topic has been inconclusive and the topic of ACDF vs CTDR vs HS has been an enduring debate, with surgeon preference and familiarity being the main determinants of choice. However, we noted from the described methods that the studies included were those comprising patients who had multilevel cervical disc degeneration (2-7). This is somewhat contradictory to the title and introduction, which label the article as being on cervical spondylotic myelopathy alone. We suggest that the title be changed to reflect that the article is more broadly on cervical spondylosis patients, a significant proportion of whom may have had radiculopathy without myelopathy.

Limited variables were explored in this NMA and the evaluation of safety and efficacy of the different surgical interventions cannot be sufficiently measured via duration of surgery, neck disability index (NDI), and 'total complications' alone. Other commonly reported factors that contribute to safety and efficacy, such as length of stay (3,4,8), intraoperative blood loss (3,5,7), visual analogue scale (2,3,7), and post-operative range of motion (3,6,7), could also be evaluated to present a more comprehensive view. With regards to the analysis on operative duration, it is difficult to interpret the results as the studies were not stratified according to the number of operated levels (the range included was 2 to 4 levels). This could explain the surprising results that showed ACCF, a more complex and morbid surgery, to be faster than CTDR. The analysis on NDI needs to be interpreted with caution given the heterogeneity of the reporting. Sufficient studies have reported on NDI at the pre-operative, 3-, 6-, 12- and 24- month time period for analysis to be performed at these specific time points. However, the NMA did not include some of these relevant studies (2,6,7,9-12) and although the single follow-up time point included in the analysis was not mentioned, it can be assumed that the heterogenous follow-up months re-

ported in the baseline characteristics table was used for analysis. While we acknowledge that there exists much heterogeneity in the literature with regards to follow-up schedules, with follow-up time ranging between 17 to 87 months (13,14), we recommend that in order to improve the validity of the NMA, some attempt at homogenization for analysis should be made. The NMA found that CTDR had the lowest incidence of complications, followed by ACDF, then HS, then ACCF. The definition of 'total complications' should be explained, as it is challenging to evaluate the safety of these surgical interventions without some context of the acuity and severity of these complications, which could possibly range from paralysis to heterotopic ossification.

We would like to seek clarification from the authors regarding the aforementioned points, as conclusive evidence on this subject may serve well in guiding clinical practice, and we therefore hope to be able to better interpret this 4-way comparative NMA.

Kimberly-Anne Tan, MBBS

University Orthopaedics, Hand and Reconstructive Microsurgery (UOHC), National University Health System, Singapore  
1E Kent Ridge Road, NUHS Tower Block Level 11, Singapore 119228  
E-mail: kimberlyannetan@gmail.com

Brian Zhaojie Chin, MD

University Orthopaedics, Hand and Reconstructive Microsurgery (UOHC), National University Health System, Singapore  
E-mail: brianchinzj@gmail.com

Benjamin Zhaobin Chin, MMed

Department of Anaesthesia, National University Health System, Singapore  
E-mail: benjaminchinzhaobin@gmail.com

Hwee Weng Dennis Hey, MBBS

University Orthopaedics, Hand and Reconstructive Microsurgery (UOHC), National University Health System, Singapore  
E-mail: dennis\_hey@nuhs.edu.sg

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