


# Commentary on “Multi-Component Care Bundle in Geriatric Fracture Hip for Reducing Postoperative Delirium”

Geriatric Orthopaedic Surgery  
& Rehabilitation  
Volume 12: 1–2  
© The Author(s) 2021  
Article reuse guidelines:  
[sagepub.com/journals-permissions](https://sagepub.com/journals-permissions)  
DOI: 10.1177/21514593211039300  
[journals.sagepub.com/home/gos](https://journals.sagepub.com/home/gos)  


Liu-Jia-Zi Shao, MD<sup>1</sup>, Fu-Shan Xue, MD<sup>1</sup> , and Kai Su, MD<sup>1</sup>

## Abstract

The letter to the editor suggested several questions regarding the methodology of the recent article by Lam et al who determined effect of multicomponent care bundle on the development of postoperative delirium. This article is published in *Geriatric Orthopaedic Surgery & Rehabilitation*. 2021; 12:21514593211004530. Our concerns included the incomplete preoperative assessment, possible influences of anaesthetic and intraoperative managements on the development of postoperative delirium, bias effect of postoperative analgesia on the primary and secondary findings, and real clinical value of multicomponent care bundle to decrease the risk of postoperative delirium. We believe that clarifying these issues would improve the transparency of this study and interpretation of findings.

## Keywords

postoperative delirium, hip fracture, multi-component care bundle, older patients

Submitted June 26, 2021. Revised July 15, 2021. Accepted July 26, 2021

In an observational study including 154 geriatric patients with hip fracture surgery, Lam et al<sup>1</sup> assessed effect of multicomponent care bundle (MCB) on the development of postoperative delirium (POD) and showed that MCB effectively reduced POD, postoperative dizziness, opioid consumption, and days to start mobilization. Other than the limitations described by the authors in discussion section, however, there are several issues in this article on which we wish to invite the authors to comment.

First, study subjects are geriatric patients undergoing hip fracture surgery, with a mean age of >80 years and the incidence of preoperative delirium was significantly higher in the control group than in the MCB group (16% vs 4%,  $P = .014$ ). However, the readers were not provided with the details of preoperative assessment on neurocognitive function, hearing and vision. Other than preoperative delirium, available evidence indicates that preoperative cognitive impairment, dementia, depression, anxiety, poor hearing, and vision are well-established predisposing

factors for POD in geriatric patients with hip fracture surgery.<sup>2</sup> We are concerned that not taking these preoperative risk factors into account would have biased the findings of this study.

Second, mode of anesthesia was significantly different between groups, but the authors did not provide the details of anesthetic and intraoperative managements. Thus, it is difficult for readers to determine the extents to which anesthetic and intraoperative managements might have influenced on the development of POD. It has been shown that time between admission and surgery, type of surgery,

<sup>1</sup>Department of Anesthesiology, Beijing Friendship Hospital, Capital Medical University, Beijing, People's Republic of China

## Corresponding Author:

Fu-Shan Xue, MD, Department of Anesthesiology, Beijing Friendship Hospital, Capital Medical University, NO. 95 Yong-An Road, Xi-Cheng District, Beijing 100050, People's Republic of China.  
Email: [xuefushan@aliyun.com](mailto:xuefushan@aliyun.com); [fushanxue@outlook.com](mailto:fushanxue@outlook.com)



Creative Commons Non Commercial CC BY-NC: This article is distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 License (<https://creativecommons.org/licenses/by-nc/4.0/>) which permits non-commercial use, reproduction and distribution of the work without further permission provided the original work is attributed as specified on the SAGE and Open Access pages (<https://us.sagepub.com/en-us/nam/open-access-at-sage>).

durations of surgery and anesthesia, intraoperative mass blood loss and blood transfusions, hypoxia, and use of midazolam and vasopressor drugs are significantly associated with an increased risk of POD in geriatric patients with hip fracture surgery.<sup>3,4</sup>

Third, postoperative pain at rest and during movement was measured by numeric rating scale and median postoperative pain scores were comparable in both groups, but protocol of postoperative analgesia was not provided. As POD occurring within 5 days after surgery was assessed, we believe that analgesic effect of ultrasound-guided fascia iliaca block performed by anesthetic team before surgery may not persist throughout the observed period and other analgesic measures may have been given. In available literature, type and number of drugs used for postoperative analgesia have actually been associated with the development of POD after hip fracture surgery.<sup>4,5</sup> In the absence of comparisons of postoperative analgesia protocols and drugs between groups, thus, we argue that findings of this study about postoperative dizziness and opioid consumption must be interpreted with caution as they may have been obtained using incomplete methodology.

Finally, MCB significantly reduced the development of POD and decreased postoperative days to start mobilization, but postoperative medical complications, extended stay in hospital, and length of hospital stay were not significantly different between groups. As POD has been significantly associated with more and worse postoperative adverse outcomes of geriatric patients undergoing hip fracture surgery,<sup>6</sup> the author should reasonably explain this counterintuitive finding why beneficial effect of MCB to decrease the risk of POD

cannot be transformed into the improved outcomes of patients.

#### ORCID iD

Fu-Shan Xue  <https://orcid.org/0000-0002-1028-6036>

#### References

1. Lam DMH, Wang C, Lee AKH, et al. Multi-component care bundle in geriatric fracture hip for reducing postoperative delirium. *Geriatr Orthop Surg Rehabil.* 2021; 12:21514593211004530. doi: [10.1177/21514593211004530](https://doi.org/10.1177/21514593211004530)
2. Rizk P, Morris W, Oladeji P, Huo M. Review of postoperative delirium in geriatric patients undergoing hip surgery. *Geriatr Orthop Surg Rehabil.* 2016;7(2):100-110. doi: [10.1177/2151458516641162](https://doi.org/10.1177/2151458516641162)
3. Schuurmans MJ, Duursma SA, Shortridge-Baggett LM, Clevers GJ, Pel-Littel R. Elderly patients with a hip fracture: The risk for delirium. *Appl Nurs Res.* 2003;16(2):75-84. doi: [10.1016/s0897-1897\(03\)00012-0](https://doi.org/10.1016/s0897-1897(03)00012-0)
4. Neerland BE, Krogseth M, Juliebø V, et al. Perioperative hemodynamics and risk for delirium and new onset dementia in hip fracture patients; A prospective follow-up study. *PLoS One.* 2017;12(7):e0180641. doi: [10.1371/journal.pone.0180641](https://doi.org/10.1371/journal.pone.0180641)
5. Morrison RS, Magaziner J, Gilbert M, et al. Relationship between pain and opioid analgesics on the development of delirium following hip fracture. *J Gerontol A Biol Sci Med Sci.* 2003;58(1):76-81. doi: [10.1093/gerona/58.1.m76](https://doi.org/10.1093/gerona/58.1.m76)
6. Arshi A, Lai WC, Chen JB, Bukata SV, Stavrakis AI, Zeegen EN. Predictors and sequelae of postoperative delirium in geriatric hip fracture patients. *Geriatr Orthop Surg Rehabil.* 2018; 9:2151459318814823. doi: [10.1177/2151459318814823](https://doi.org/10.1177/2151459318814823)