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LETTER TO THE EDITOR

Reply to the letter by Guoying Wang

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To the Editor:

We sincerely appreciate the interest in our study, "The effects of frailty on opioid consumption after total knee arthroplasty," [1] and thank the authors for their thoughtful comments [2]. Our study aimed to highlight the impact of frailty on postoperative opioid use, providing valuable insights into pain management in elderly patients. We acknowledge the important points raised and welcome the opportunity to address them, as they contribute to a more comprehensive understanding of this complex issue. Below, we provide our responses to the key concerns and suggestions outlined in their letter.

First, our study focused on opioid consumption within the first 24 h postoperatively, as this period represents the most critical phase of acute pain management and standardized analgesic protocols in our institution. While we acknowledge that long-term opioid use and its implications for chronic pain are crucial topics, our study was not designed to evaluate prolonged opioid dependency. However, previous studies have demonstrated that early postoperative opioid consumption can be associated with long-term opioid dependence and disability, particularly in frail and elderly populations [3]. Future research with extended follow-up periods is needed to assess the long-term consequences of opioid use in this vulnerable group.

Furthermore, frailty has been identified as a significant predictor of delayed recovery and an increased risk of developing chronic postsurgical pain [4]. The physiological and psychological stress associated with frailty may contribute to altered pain processing and prolonged opioid requirements [5]. We agree that future studies should investigate the interplay between frailty, opioid consumption, and chronic pain development to optimize perioperative pain management strategies for elderly patients.

Secondly, the selection of the FRAIL scale was made due to its practicality, ease of use, and the availability of its Turkish validation in the perioperative setting. While more comprehensive instruments such as the Frailty Index or the Clinical Frailty Scale may provide a broader assessment, they require extensive data collection, which may not always be feasible in a busy clinical environment. However, we acknowledge that frailty is a dynamic condition, and future research incorporating serial frailty assessments throughout the perioperative period could offer a more comprehensive understanding of its impact on postoperative outcomes, including pain perception and opioid requirements [6]. Although the FRAIL scale may not offer as extensive an evaluation as some other tools, its effectiveness in assessing 30-day mortality, 6-month mortality, postoperative complications, and postoperative delirium has been highlighted in a meta-analysis published in 2023 [7].

Third, we agree that frail patients tend to require more opioids for effective pain management, which aligns with our hypothesis. Given their reduced physiological reserves, frail individuals may experience more severe pain and thus need higher opioid doses to achieve similar pain scores as non-frail patients. While we agree with the authors that psychological factors like anxiety and catastrophizing likely influence pain perception, these factors cannot be separated from the overall pain experience, as emphasized by the biopsychosocial model [8]. A more detailed analysis of psychological factors using validated tools could provide deeper insights into the observed results and improve pain management strategies for frail patients.

Finally, we appreciate the reviewer's insightful comment regarding the potential adverse effects of higher opioid doses in frail and geriatric populations. Indeed, the risks of respiratory depression, cognitive dysfunction, and gastrointestinal complications are significant concerns in this vulnerable group. Recent studies have highlighted that older adults are particularly susceptible to opioid-induced respiratory

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depression due to age-related changes in pharmacokinetics and pharmacodynamics, such as reduced renal clearance and increased brain sensitivity to opioids [9]. To address these concerns, future studies should incorporate a comprehensive assessment of opioid-related side effects, including dose-dependent risks and strategies for mitigation. We agree that a detailed evaluation of these risks is crucial to ensure the safe and appropriate use of opioids in frail and elderly patients.

In conclusion, we thank the commenters for their valuable feedback, which highlights important areas for further exploration. Addressing these limitations in future studies will undoubtedly enhance the clinical applicability of our findings and contribute to a deeper understanding of the relationship between frailty, pain management, and postoperative outcomes. We look forward to continued research in this field to improve care for frail patients undergoing total knee arthroplasty.

Data availability There are no data obtained for this report.

References

1. Sargin M, Degirmencioglu S, Uluer MS, Cicekci F, Kara İ. The effects of frailty on opioid consumption after total knee arthroplasty. J Anesth. 2025;39(1):49–55.
2. Wang G, Shi W, Du Y, Xie L. Key issues in frailty and postoperative opioid consumption. J Anesth. 2025. https://doi.org/10.1007/s00540-025-03456-3.
3. Brummett CM, Waljee JF, Goesling J, Moser S, Lin P, Englesbe MJ, Bohnert ASB, Kheterpal S, Nallamothu BK. New persistent opioid use after minor and major surgical procedures in US Adults. JAMA Surg. 2017;152(6): e170504.
4. Jin Y, Tang S, Wang W, Zhang W, Hou Y, Jiao Y, Hou B, Ma Z. Preoperative frailty predicts postoperative pain after total knee arthroplasty in older patients: a prospective observational study. Eur Geriatr Med. 2024;15(3):657–65.
5. Sharifzadeh Y, Kao MC, Sturgeon JA, Rico TJ, Mackey S, Darnall BD. Pain catastrophizing moderates relationships between pain intensity and opioid prescription: nonlinear sex differences revealed using a learning health system. Anesthesiology. 2017;127(1):136–46.
6. Robertson DA, Savva GM, Kenny RA. Frailty and cognitive impairment–a review of the evidence and causal mechanisms. Ageing Res Rev. 2013;12(4):840–51.
7. Gong S, Qian D, Riazi S, Chung F, Englesakis M, Li Q, Huszti E, Wong J. Association Between the FRAIL Scale and Postoperative Complications in Older Surgical Patients: A Systematic Review and Meta-Analysis. Anesth Analg. 2023;136(2):251–61.
8. Gatchel RJ, Peng YB, Peters ML, Fuchs PN, Turk DC. The biopsychosocial approach to chronic pain: scientific advances and future directions. Psychol Bull. 2007;133(4):581–624.
9. American Geriatrics Society Panel on Pharmacological Management of Persistent Pain in Older Persons. Pharmacological management of persistent pain in older persons. J Am Geriatr Soc. 2009;57(8):1331–46.