RESPONSE TO LETTER

Addressing Limitations and Future Directions in Assessing Risk Factors for Pulmonary Complications after Femur Fracture Surgery in Elderly Patients [Response to Letter]

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Dear editor

We are grateful to Professor Zhongxing Liu et al for insightful comments expressed in the letter to the editor regarding our publication "Incidence and Risk Factors of Pulmonary Complications Following Femur Fracture Surgery in Patients Aged 80 years and Older".¹ We believe that the suggestions will enhance the study's robustness and provide valuable directions for future research. We would like to carefully address each point raised.

Regarding the comorbidity severity assessment, we agree that postoperative complication risks can vary according to the disease severity and treatment, even with the same comorbidities. While the Charlson Comorbidity Index (CCI) is a widely used standardized tool for analyzing the impact of multimorbidity, it was originally developed to predict mortality and is not specifically designed to assess pulmonary complication risks. The CCI considers the severity of certain conditions, such as liver disease, diabetes, and cancer, but it does not address the severity of other comorbidities. Additionally, the specific comorbidity serves as a risk factor.² There are more specified tools for pulmonary complications, such as ARISCAT (Assess Respiratory Risk in Surgical Patients in Catalonia). However, it is designed for all age groups, not specifically targeting the advanced age group.³ Moreover, ARISCAT does not reflect the presence or severity of comorbidities that could significantly impact postoperative lung care and the development of pulmonary complications. We agree that not only the presence of chronic respiratory disease or Parkinson's disease but also the degree of associated respiratory impairment or functional limitation can influence postoperative recovery. Future research should consider these factors to enhance our understanding and improve the prevention of postoperative pulmonary complications.

Concerning venous thromboembolism (VTE) protocols, we collected detailed data on specific anticoagulation medications (predominantly low molecular weight heparin, with some cases of direct oral anticoagulants and low dose unfractionated heparin). However, these data were not included in our manuscript as our primary focus was on evaluating the necessity of pharmacological prophylaxis for very elderly patients. This population faces unique challenges in balancing bleeding and thrombotic risks.⁴ Although the American College of Chest Physicians guidelines suggest using an intermittent pneumatic compression (IPC) device alone for patients with high bleeding risks, there are no specific guidelines tailored to the very elderly population.⁵ In this context, our results are particularly noteworthy, as they suggest IPC devices alone could be a viable option for patients aged 80 years and older, although further validation is warranted.

Regarding preoperative functional status assessments, we agree that baseline functional status is a significant factor in geriatric orthopedic care. The mentioned Barthel Index is particularly valuable as it enables clinicians to quickly assess functional status through ten questions.⁶ However, to our knowledge, research investigating the association between preoperative functional status and pulmonary complications after femur fracture surgery remains limited. Further research would help establish more precise clinical guidelines.

On the topic of perioperative care quality and postoperative rehabilitation, we acknowledge these factors may influence clinical outcomes in patients undergoing femur fracture surgery. However, our study specifically focused on pulmonary complications early after such surgery. Considerations for perioperative care quality and postoperative rehabilitation would be valuable for research examining long-term outcomes following femur fracture surgery. Regarding perioperative care standardization, all patients in our study received standardized care and rehabilitation, although individual patient factors may have led to minor variations.

We sincerely thank Professor Liu et al for comprehensive feedback and attention to our study. Our findings emphasize the importance of identifying risk factors before surgery to prevent pulmonary complications in patients aged 80 years or older. Their thoughtful suggestions will significantly contribute to future research in this vulnerable, expanding demographic.

Disclosure

The authors have no competing interests in this communication.

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https://doi.org/10.2147/CIA.S510335

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