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KSES 2026

The 33rd Annual
International Congress of the
Korean Shoulder and
Elbow Society

March
27(Fri) ~ 28(Sat), 2026
BEXCO, Busan, Korea

- Abstract No. : F-0189
- Category : Shoulder
- Detail Category : trauma

The Modified Frailty Index as a Predictor of Postoperative Adverse Outcomes in Elderly Patients Undergoing Surgery for Proximal Humerus Fractures

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Introduction and Background

Frailty, quantified using the modified frailty index (mFI), has been shown to predict adverse outcomes in orthopaedic surgery. However, its specific utility in elderly patients undergoing surgery for proximal humerus fracture (PHF) remains unclear. We evaluated whether higher frailty scores correlated with worse postoperative outcomes in this population to assist in clinical decision-making.

Material and Method

Between 2020 and 2025, we retrospectively reviewed the patients aged 60 years or older who underwent surgical treatment for PHF. The mFI was determined by giving one point for each of following comorbidities: hypertension, diabetes, congestive heart failure, chronic obstructive pulmonary disease, and functionally dependent health status. Patients were divided into two groups according to their mFI scores, and major complications, such as reoperation or mortality, transfusion requirement, intensive care unit (ICU) admission, and hospital length of stay (LOS) were evaluated and compared between two groups.

Results

A total of fourth –five patients were included in this study, of whom 72.7% had an mFI score of less than 2 (non-frail) and 27.3% had a score of 2 or higher (frail). Frail group experienced significantly higher rates of major complications ($P < .001$), blood transfusion requirement ($P = .006$), and ICU admissions ($P = 0.013$) compared to non-frail group. Additionally, the mean LOS was significantly prolonged in the frail group (20.8 vs. 11.9 days; $P = 0.034$).

Conclusions

Frailty is not only associated with longer hospitalizations but also with a significantly increased risk of major complications and higher resource utilization in elderly PHF patients. The mFI is a useful risk stratification tool that may assist in shared decision-making. For patients with an $mFI \geq 2$, non-operative management should be carefully considered; if surgery is pursued, thorough preoperative counseling and meticulous perioperative management are essential to mitigate these elevated risks.

