

Clinical Frailty Score on Admission Predicts 30-Day Survival, Post-operative Complications, and Institutionalization in Patients with Fragility Hip Fractures: A Cohort Study of 1255 Patients

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Purpose: We assessed the value of the Clinical Frailty Scale (CFS) scores in the prediction of adverse outcomes after fragility hip fracture. Our aims were to determine the relationship between the CFS score and 30-day mortality, inpatient complication rate, institutionalization, and length of hospital stay; and to compare the predictive value of the CFS compared to the Nottingham Hip Fracture Score (NHFS), currently the most widely used tool in the UK to predict 30-day mortality after hip fracture.

Methods: Consecutive patients aged greater than 65 years with a fragility hip fracture admitted to one institution were studied. Clinicians estimated CFS scores on admission. Routine audit personnel prospectively collected thorough data sets including demographics and the following outcomes: 30-day survival, in-hospital complications, length of acute hospital stay, and new institutionalization. The relationship between CFS scores and these outcomes was examined graphically and the visual interpretations were tested statistically using Spearman's correlation coefficient. The predictive value of the CFS to predict 30-day mortality was compared to that of the NHFS using receiver operating characteristic curves and area under the curve (AUC) analysis.

Results: We demonstrate significant nonlinear associations between CFS scores and 30-day mortality, the incidence of complications, length of hospital stay, and new institutionalization. The CFS predicted 30-day survival equally as well as the NHFS: CFS (95% confidence interval) AUC 0.631 (0.572, 0.690); NHFS (95% confidence interval) AUC 0.631 (0.571, 0.690).

Conclusion: These findings have immediate value to clinicians, patients, and their families. At the point of being admitted with a hip fracture, the health-care team can use the CFS score to discuss likely prognosis and hence produce more informed care plans. For example, many patients with high CFS scores, who are therefore at higher risk of death, complications, and institutionalization may choose care plans that focus on symptom control rather than life extension. While this work demonstrates the value of the principle of the measurement of frailty, the quantification of frailty remains a matter of considerable debate. The value of the CFS is its utility in that it can be scored rapidly and immediately by a clinician in almost all patients without the need for special equipment.