Preoperative Frailty as a Predictor of Postoperative Complications in Non-Cardiac Elective Surgery: A Prospective Analysis

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Introduction: Frailty is a functional syndrome commonly found in elderly individuals, involving a state of reduced physiological reserves and greater vulnerability against stressors. Frailty assessments are being increasingly discussed as tools for an enhanced preoperative risk stratification in this segment of the population. The objective of this analysis was to evaluate the ability of a routine frailty assessment to predict postoperative complications.

Methods: Between June 2016 and March 2017, patients ≥ 65 years of age undergoing elective, non-cardiac surgery in a university hospital were routinely evaluated for frailty, using Fried’s Frailty Phenotype (2001). Patients were classified according to the number of pathological assessments as non-frail (0), pre-frail (1-2) and frail (≥ 3). Postoperative complications used in the National VA Surgical Quality Improvement Program (NSQIP) were obtained via ICD-10 diagnoses. The analysis received approval from data protection officers and the ethics committee (EA1 / 227/16). Adjustments were performed by means of propensity score matching and multivariate logistic regression for age, gender, BMI, ASA, surgical risk, operating department, polypharmacy, and Charlson comorbidity index.

Results: A total of 1,186 patients were included, of which 41.7% (n = 495) were identified as non-frail, 46.9% (n = 556) as pre-frail, and 11.4% (n = 135) as frail. Matching the populations showed that postoperative complications affected 26.7% of non-frail, 40.7% of pre-frail, and 47.4% of frail patients (p = 0.002). After adjusting for confounders, the odds ratio (OR) for developing postoperative complications was 1.778 [95% CI 1.043-3.052; P = 0.035] for the pre-frail, and 2.078 [95% CI 1.212-3.596; P = 0.008] for frail patients. Age had no statistically significant effect on the endpoint.

Conclusion: In this analysis, the incidence of postoperative complications was significantly associated with preoperative frailty. These patients already differ preoperatively. By means of standardized frailty detection in the perioperative setting, patients with increased risk for postoperative complications could be routinely identified, which can allow for adjustments in treatment to reduce risk.