TO THE EDITOR

Fragile Hearts: Unveiling the crucial layers of frailty in elderly patients undergoing percutaneous coronary interventions

Running Title: Frailty in Elderly PCI Patients

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Abstract

Wang and Liu's systematic review of frailty among elderly patients undergoing percutaneous coronary intervention (PCI) revealed that patients with frailty have significantly higher risks of all-cause and in-hospital death, major undesirable cardiovascular events, and major haemorrhage. Frailty is associated with adverse events, prolonged hospital stays, increased complications, and elevated mortality risk due to diminished physiological reserves. Integrating frailty into risk assessment tools is crucial, and gait speed has emerged as a key predictor of frailty. Recognizing the impact of frailty leads to personalized and informed decision-making, and frailty assessments should be performed. This holistic approach can inform tailored interventions, thereby optimizing outcomes for this vulnerable population undergoing PCI.

Keywords: Frailty; Elderly; Percutaneous coronary intervention; Outcomes; Risk assessment tools

Core Tip: Elderly frail patients undergoing percutaneous coronary intervention (PCI) have increased risks of mortality and adverse cardiovascular events. It is important to integrate frailty into risk assessment tools. Therefore, this study underscores the importance of comprehensive frailty evaluations to enable informed decision-making.
in PCIs. The findings suggest that tailored interventions should be implemented to optimize outcomes and enhance care quality for this vulnerable population.

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We read with great interest the systematic review by Wang and Liu that examined the influence of frailty on the outcomes of elderly individuals undergoing percutaneous coronary intervention (PCI) [1]. The authors conducted a systematic meta-analysis in accordance with PRISMA guidelines, and the study included 739693 elderly patients undergoing PCI. Compared with non-frail patients, frail patients faced considerably elevated risks of in-hospital death [95% confidence interval (95% CI): 1.90-6.25], all-cause mortality [hazard ratio (HR): 2.08, 95% CI: 1.78-2.43], major adverse cardiovascular events (HR: 2.92, 95% CI: 1.85-4.60), and major haemorrhages (HR: 4.60, 95% CI: 2.89-7.32).

Frailty can significantly impact the outcomes of elderly patients undergoing PCI. Compared with non-frail individuals, frail individuals may experience higher rates of adverse events, longer hospital stays, and increased postoperative complications as well as a higher risk of mortality [2,3]. Frailty is associated with decreased physiological reserves, thus making elderly patients more susceptible to the stresses of PCI and less likely to recover quickly [4,5].

The impact of frailty on PCI outcomes is underscored by the utility of risk assessment tools [6-8]. These tools, which incorporate frailty as a crucial component, aid in estimating the likelihood of adverse outcomes in elderly patients undergoing PCI. Gait speed, a key aspect of frailty assessment, has emerged as an incremental predictor of mortality and major morbidity in the context of cardiac procedures, including PCI [8]. This underlines the importance of adopting a comprehensive approach to frailty assessment that extends beyond chronological age, thus providing a more accurate understanding of vulnerability among patients with frailty.
In current clinical practice, the recognition of frailty's substantial influence on PCI outcomes prompts a shift towards more personalized and informed decision-making. The incorporation of frailty assessment tools into routine practice allows health care professionals to better anticipate and manage the unique challenges faced by elderly patients undergoing PCI \[9\]. This holistic understanding of frailty contributes to the development of tailored intervention strategies aimed at optimizing outcomes and enhancing the overall quality of care for this vulnerable population \[10\].

Recognizing the substantial impact of frailty on the outcomes of elderly patients undergoing PCI provides valuable insights for optimizing care in this vulnerable population. A stepwise approach is essential (see Table 1), starting with a preprocedural assessment that prioritizes a comprehensive evaluation of physical, cognitive, and psychosocial frailty components. Therefore, risk stratification becomes crucial, and frailty status should be incorporated into models for more accurate outcome predictions and informed decision-making during PCI. The development of tailored treatment plans is pivotal and requires adjustments to procedural and postprocedural care strategies based on individual frailty components to optimize patient outcomes.

The multidisciplinary approach is paramount because it emphasizes collaboration among geriatricians, cardiologists, and other specialists to address the complex needs of frail elderly patients, thus enhancing overall patient care and support. Informed decision-making, which is guided by shared discussions with patients and families, becomes central; this process provides clear expectations and considers frailty as a key factor in exploring alternative treatment options. Integrating a comprehensive geriatric assessment with a preprocedural evaluation further aids in understanding the holistic health, functional status, and social support of patients.

Postprocedural care is equally vital, as it focuses on tailored rehabilitation programs to meet the specific needs of frail patients, emphasizing functional recovery and strategies to mitigate frailty-related complications. Education and quality improvement initiatives play a crucial role in raising awareness among health care professionals about the impact of frailty on PCI outcomes. Providing education and
Training enhances the recognition and management of frailty in the cardiology setting, with ongoing assessment and refinement of protocols based on experience.

In conclusion, understanding the significance of frailty in elderly PCI patients is pivotal for advancing patient care. Integrating this knowledge into practice and research enables the development of tailored strategies, thereby leading to improvements in care outcomes. Encouraging and participating in research focused on frailty and PCI outcomes is essential, thus paving the way for interventions specifically addressing frailty in cardiovascular procedures and enhancing overall patient care.
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