## CONTENTS

### EDITORIAL

5839  Orthopedic manifestations of Li-Fraumeni syndrome: Prevention and treatment of a polymorphic spectrum of malignancies  
*Cenci G, Pace V*

5845  Confocal laser endomicroscopy as a new diagnostic tool for poorly differentiated gastric adenocarcinoma  
*Evola G, Vacante M, Evola FR*

5850  Proteomics for early prenatal screening of gestational diabetes mellitus  
*Wu L, Wang XP, Zhu YX, Tan YP, Li CM*

5854  Paired box proteins as diagnostic biomarkers for endocervical adenocarcinoma  
*Zhou JH, Zhang XN*

5859  Endoscopic ultrasound-guided biliary drainage using electrocautery-enhanced lumen-apposing metal stent for malignant biliary obstruction: A promising procedure  
*Wu SZ*

5863  Cardiac implications in myasthenia gravis  
*Elmati PR, Jagirdhar GSK, Surani S*

### ORIGINAL ARTICLE

#### Case Control Study

5868  Multivariate analysis of oral mucosal ulcers during orthodontic treatment  
*Chang J, Li X*

5877  Impact of web-based positive psychological intervention on emotions, psychological capital, and quality of life in gastric cancer patients on chemotherapy  
*Xin YY, Zhao D*

#### Retrospective Cohort Study

5885  Risk factors and clinical significance of posterior slip of the proximal vertebral body after lower lumbar fusion  
*Zhu JJ, Wang Y, Zheng J, Du SY, Cao L, Yang YM, Zhang QX, Xie DD*

#### Retrospective Study

5893  Predictive value of diaphragm ultrasound for mechanical ventilation outcome in patients with acute exacerbation of chronic obstructive pulmonary disease  
*Qu LL, Zhao WP, Li JP, Zhang W*
### Contents

**Thrice Monthly Volume 12 Number 26 September 16, 2024**

<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>5901</td>
<td>Influence of perinatal factors on full-term low-birth-weight infants and construction of a predictive model</td>
<td>Xu L, Sheng XJ, Gu LP, Yang ZM, Feng ZT, Gu DF, Gao L</td>
</tr>
<tr>
<td>5908</td>
<td>Magnetic resonance imaging-based radiomics model for preoperative assessment of risk stratification in endometrial cancer</td>
<td>Wei ZY, Zhang Z, Zhao DL, Zhao WM, Meng YG</td>
</tr>
<tr>
<td>5922</td>
<td>Application of real-time shear wave elastography to Achilles tendon hardness evaluation in older adults</td>
<td>He X, Wei X, Hou J, Tan W, Luo P</td>
</tr>
<tr>
<td>5930</td>
<td>Study of the intensive care unit activity scale in the early rehabilitation of patients after direct cardiac surgery</td>
<td>Wang L, Lu JY, Ma XX, Ma LO</td>
</tr>
<tr>
<td>5937</td>
<td>Modifiable factors mediating the effects of educational attainment on gestational diabetes mellitus: A two-step Mendelian randomization study</td>
<td>Ma MY, Zhao YS</td>
</tr>
<tr>
<td>5946</td>
<td>Periorbital purpura can be the only initial symptom of primary light chain amyloidosis: A case report</td>
<td>Wang XF, Li T, Yang M, Huang Y</td>
</tr>
<tr>
<td>5960</td>
<td>Stage IV non-small cell lung cancer with multiple metastases to the small intestine leading to intussusception: A case report</td>
<td>Niu QG, Huang MH, Kong WQ, Yu Y</td>
</tr>
<tr>
<td>5974</td>
<td>Organizing pneumonia secondary to pulmonary tuberculosis: A case report</td>
<td>Liu M, Dong XY, Ding ZX, Wang QH, Li DH</td>
</tr>
<tr>
<td>5983</td>
<td>Sclerosing epithelioid fibrosarcoma of the pancreas: A case report</td>
<td>Sun MQ, Guo LN, You Y, Qiu YY, He XD, Han XL</td>
</tr>
</tbody>
</table>
LETTER TO THE EDITOR

5998  Fragile hearts: Unveiling the crucial layers of frailty in elderly patients undergoing percutaneous coronary interventions
      Mitsis A, Myrianthefs M

6001  T lymphocyte proportion in Alzheimer’s disease prognosis
      Willman M, Patel G, Lucke-Wold B
ABOUT COVER
Peer Reviewer of World Journal of Clinical Cases, Ralph Victor Yap, MD, RN, Assistant Professor, Surgeon, Department of Surgery, Cebu Doctors’ University Hospital, Cebu 6000, Philippines. rvyapmd@gmail.com

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

Andreas Mitsis, Michael Myrianthefs

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.

Key Words: Frailty; Elderly; Percutaneous coronary intervention; Outcomes; Risk assessment tools
TO THE EDITOR

We read with great interest the systematic review by Wang and Liu[1] that examined the influence of frailty on the outcomes of elderly individuals undergoing percutaneous coronary intervention (PCI). 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 (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.

<table>
<thead>
<tr>
<th>Steps</th>
<th>Proposed approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>Pre-procedural assessment</td>
</tr>
<tr>
<td>Step 2</td>
<td>Risk stratification</td>
</tr>
<tr>
<td>Step 3</td>
<td>Tailored treatment plan</td>
</tr>
<tr>
<td>Step 4</td>
<td>Multidisciplinary approach</td>
</tr>
<tr>
<td>Step 5</td>
<td>Informed decision-making</td>
</tr>
<tr>
<td>Step 6</td>
<td>Post-procedure care</td>
</tr>
<tr>
<td>Step 7</td>
<td>Comprehensive geriatric assessment</td>
</tr>
<tr>
<td>Step 8</td>
<td>Education and awareness</td>
</tr>
<tr>
<td>Step 9</td>
<td>Quality improvement initiatives</td>
</tr>
</tbody>
</table>

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.

**FOOTNOTES**

**Author contributions:** Mitsis A and Myrianthefs M designed the research study, performed the research, analysed the data, and wrote the manuscript; Mitsis A and Myrianthefs M have read and approved the final manuscript.

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