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Review article

The impact of frailty on postoperative outcomes in individuals aged 65 and over undergoing elective surgery for colorectal cancer: A systematic review

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ABSTRACT

Colorectal cancer surgery is frequently performed in the older population. Many older persons have less physiological reserves and are thus more susceptible to adverse postoperative outcomes. Therefore, it seems important to distinguish the fit patients from the more vulnerable or frail. The aim of this review is to examine the evidence regarding the impact of frailty on postoperative outcomes in older patients undergoing surgery for colorectal cancer. A systematic literature search of Medline Ovid was performed focusing on studies that examined the impact of frailty on postoperative outcomes after colorectal surgery in older people aged ≥65 years. The methodological quality of the studies was evaluated using the MINORS quality assessment. Five articles, involving four studies and 486 participants in total, were included. Regardless of varying definitions of frailty and postoperative outcomes, the frail patients had less favourable outcomes in all of the studies. Compared to the non-frail group, the frail group had a higher risk of developing moderate to severe postoperative complications, had longer hospital stays, higher readmission rates, and decreased long-term survival rates. The results of this systematic review suggest the importance of assessing frailty in older persons scheduled for colorectal surgery because frailty is associated with a greater risk of postoperative adverse outcomes. We conclude that, although there is no consensus on the definition of frailty, assessing frailty in colorectal oncology seems important to determine operative risks and benefits and to guide perioperative management.

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1. Introduction

In Europe, colorectal cancer (CRC) is the second most common form of cancer in women and the third most common in men.[1–2] Approximately 60% of new CRC cases are diagnosed in patients older than 65 years of age.[3] The primary treatment of CRC is surgery,[4–5] which means that the relative risk and benefit of a surgical intervention, especially in the older population, should be considered. Despite surgical and anaesthetic advances and improvements in perioperative medical care, adverse postoperative outcomes still remain more common in older people, compared to their younger counterparts.[6] Nowadays, there is a growing consensus that, in addition to standard preoperative testing, it is important to define whether or not an individual is frail.[6–10]

Frailty is a state of vulnerability, characterized by an age-associated decline in physiologic reserve and function across multiple organ systems, leading to increased risk of adverse outcomes.[8,11] Measuring frailty is important to estimate risks and to aid diagnosis and care planning in older patients.[12] By assessing frailty, patients can be assigned to either undergo a standard treatment or a more tailored individual approach.[8,13–15] However, at this moment, there is no consensus definition of frailty, leading to a disparity of criteria to qualify older patients as frail. Several frailty models have been described in the literature. The two main models are[6,8,16] the frailty phenotype (FP), also known as the Fried-criteria,[17] and the frailty index (FI), also known as the deficit accumulation model or the Rockwood index.[18] The first includes scoring the following set of criteria: weight loss, grip strength, self-reported exhaustion, walking speed, and activity level. The latter counts the number of impairments, which can be symptoms, signs, diseases, and disabilities.[19] Both models to define frailty have been widely used for research purposes but are not much used in clinical practice.[11,20]

In daily clinical practice, the usual method to evaluate an older patients' general condition is the evidence-based process of comprehensive geriatric assessment (CGA).[11,16] It is the cornerstone of modern geriatric care[21] and is defined as a multidimensional, interdisciplinary diagnostic process intended to determine an older person's medical, psychosocial, and functional capabilities and limitations in order to develop an overall care plan for treatment and long-term follow-up.[22–23] CGA includes an evaluation of an older individual's functional status, comorbid medical conditions, cognition, psychosocial status, social support, nutritional status, and a review of the patient's medications.[24] It is more than a diagnostic process[21]: besides the detection of unidentified problems, targeted interventions to the detected problems can be applied in order to improve outcomes.[23,25] Moreover, CGA can aid in risk stratification and CGA leads to better estimation of residual life expectancy in the context of competing comorbidities and general health problems.[23] Therefore, the International Society of Geriatric Oncology (SIOG) recommends CGA to guide the development of an oncologic treatment plan in older patients with cancer.[23,26]

Currently, there is evidence that preoperative frailty or deficits in preoperative CGA are related to the occurrence of adverse postoperative outcomes including institutionalization, prolonged length of hospitalization, morbidity, and mortality.[6,27–28] However, data concerning the benefit of assessing frailty in older patients with CRC undergoing colorectal surgery are scarce and only appeared recently.

The aim of this systematic review is to examine the impact of frailty on postoperative outcomes in patients 65 years and older undergoing elective surgery for CRC.

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