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Frailty After Cancer Surgery Among Older Adults: A Geriatric Oncology Perspective

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The older adult population has increased over the past several decades in Canada and most other industrialized countries. According to recent Canadian Cancer Statistics, 63% of people diagnosed with cancer in Canada are aged ≥ 65 years, representing approximately 144,000 Canadians.¹ Cancer care is complex, especially in older adults, for whom physicians need to weigh the higher level of comorbidity and age-related impairments, the risk of toxicity and complications with treatment, the prognosis related to cancer, and the remaining life expectancy independent of cancer. A poor understanding of the complexity of older adults could potentially lead to overtreatment or undertreatment; this could lead to poorer outcomes compared with younger patients.²

Some older patients are more prone to complications after cancer treatment; those patients are labelled as *frail*. Frailty is a complex, multidimensional, and cyclical state of diminished physiologic reserve that results in decreased resiliency and adaptive capacity and increased vulnerability to stressors. Multiple studies have shown a higher rate of postoperative complications and mortality among frail older adults in hospitals after oncologic surgery.³ Quality of life is an important matter for most older adults with cancer. A recent prospective study showed the feasibility of preserving quality of life through cancer surgery and the very limited role of chronological age compared with frailty assessments in older adults with cancer.⁴ However, data are missing on important long-term outcomes in this population to guide decision-making regarding cancer treatments. Many older adults share priorities, such as wanting to stay at home, being independent as long as possible, and staying cognitively intact. These outcomes are not well studied in the context of cancer, but knowledge gaps are slowly being addressed.

The article by Hallet et al⁵ in this issue of the journal is a retrospective population-based study in Ontario, Canada, evaluating the association between frailty and remaining alive and at home after cancer surgery among older adults. Among 82,037 patients included, 7.9% were considered frail using the Johns Hopkins Adjusted Clinical Groups frailty marker. This tool identifies 12 clusters of diagnoses within important geriatric domains, including nutrition and weight loss, cognition, mobility and falls, and social impairments, all collected retrospectively from several databases. The outcome of interest was time spent alive and at home after cancer surgery, meaning time until death or admission to a nursing home.

The authors reported that patients with frailty had a significantly lower probability of remaining alive and at home 5 years after cancer surgery: 39.1% compared with 62.5% among those without frailty. After adjusting for multiple demographic and clinical variables, frailty remained associated with an increased risk of not remaining alive and at home after oncologic surgery. Importantly, these findings were consistent across multiple cancer sites. The findings regarding the association between frailty and the primary outcome are not surprising. The increased risk of not remaining alive and at home was the highest from 1 to 3 months after surgery (hazard ratio, 2.00; 95% CI, 1.78–2.24) and remained significantly elevated beyond 1 year.



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The authors were very careful and did not attribute long-term outcomes to the surgery itself, but to the frailty state.

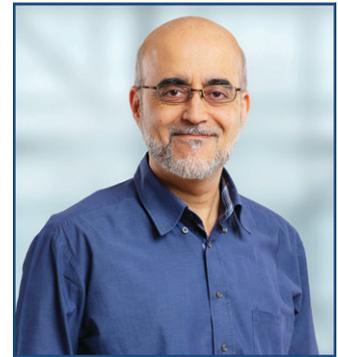
On the bright side, this study addresses an important question about the long-term probability of not living at home after surgery, which is an important matter for older adults who benefit from personalized care.⁶ Also important to highlight is that this study was well constructed and involved a large population that included multiple cancer types from comprehensive databases available in Ontario, Canada. A previous study from this same group with a similar population showed that 5 years after surgical resection for cancer, 20% of patients died of cancer and 16% died of other causes.⁷ These results showed the tremendous potential of data coming from those databases.

However, clarifying the relationship between the surgery episode and an outcome such as being at home and alive up to 5 years later is more difficult. The important question is: does the surgery itself impact this outcome or is it related to the frailty state only? This study did not consider an important confounder, which is being or not being selected for oncologic surgery. Surgeons must consider that, most of the time, surgeries are safe and may not have a detrimental impact on long-term survival. In fact, if the patient recovered well, it is quite the opposite. Surgical intervention is safe and can have a positive impact on older adults with adequate risk stratification.⁶ But this is definitely not the case for vulnerable or frail patients who are at high risk of experiencing complications and death in the postoperative period.

Assessing frailty in a retrospective study can be challenging. Hallet et al⁵ used the Johns Hopkins Adjusted Clinical Groups frailty marker. This tool is supported by a study that showed “moderate success.”⁸ For example, in a previous validation paper,⁹ the sensitivity was 33% and specificity 92% compared to the Fried Frailty phenotype,¹⁰ widely considered a gold standard. Thus, the Hopkins indicator is moderately correlated overall with more widely accepted measures of frailty.⁷ This could explain why the frailty prevalence is lower (7.9%) than expected in the general population.¹¹ This low level of frailty may also be related to a surgical selection bias, meaning that generally only robust patients are considered for surgery. Readers also should consider that frailty measures using administrative health data have limitations and risks of misclassification; thus, drawing conclusions should be done with caution, as the authors point out in their discussion.

The study by Hallet et al⁵ clearly showed the importance of considering frailty as an important factor in evaluating older adults before oncologic surgery. However, we need to keep in mind that the surgery itself may not contribute as much as frailty to the long-term outcomes. Physicians who read the article should not fear frailty from a surgical perspective. They need to ask themselves an important question: what if this patient is not operated on at all? This study is not able to respond to this issue. Another important question is: What would the patient’s chances of being home and alive be if their cancer is allowed to progress without intervention? This question also cannot be answered by this study, and that limits the clinical applicability of the findings. Remaining home and alive is obviously an important goal, but not undergoing surgery at all may mean also not being alive. We agree with the authors that it is important to frame postoperative outcomes from the perspective of what patients value most. This brings us back to the importance of shared consent and discussion goals with the specific vulnerable population.

The study by Hallet et al⁵ has the potential of stimulating further studies that could prospectively evaluate this important long-term outcome with a more thorough geriatric assessment before oncologic surgery and more detailed capture of functional outcomes after surgery. For example, in a prospective study published in 2020 that involved 229 patients before an elective surgery for solid tumors, of those alive at 1 year, 26% were institutionalized, and by 2 years, almost half of the entire cohort (46%) were institutionalized or had died.¹² These authors used the Preoperative



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Risk Estimation for Onco-Geriatric Patients score, which is not extensively validated based on our review of the literature. After being assessed as frail during screening, older adults considered for surgery can benefit from a comprehensive geriatric assessment by optimizing social support, nutritional state, medications, and other factors. Referring patients to a prehabilitation program and using a standardized early recovery after surgery protocol have been found beneficial for multiple postoperative outcomes. Studies like the one by Hallet et al⁵ remind us of the importance of shared decision-making

for older adults considering surgery in their cancer journey and how important it is to screen them for frailty to positively affect their outcomes.

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