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EDITED AND REVIEWED BY  
Francesco Giovino, *Agostino Gemelli University Polyclinic (IRCCS), Italy*

\*CORRESPONDENCE  
Cosimo Sperti  
✉ [csperti@libero.it](mailto:csperti@libero.it)

RECEIVED 17 May 2023  
ACCEPTED 06 June 2023  
PUBLISHED 13 June 2023

CITATION  
Sperti C, Moletta L and Berth F (2023)  
Editorial: Surgical oncology in the elderly:  
the state of the art and future challenges.  
*Front. Oncol.* 13:1224278.  
doi: 10.3389/fonc.2023.1224278

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# Editorial: Surgical oncology in the elderly: the state of the art and future challenges

Cosimo Sperti<sup>1\*</sup>, Lucia Moletta<sup>2</sup> and Felix Berth<sup>3</sup>

<sup>1</sup>Department of Surgery, Oncology and Gastroenterology, Hepato-Bilio-Pancreatic (HPB) Unit, University of Padua, Padua, Italy, <sup>2</sup>Department of Surgery, Oncology and Gastroenterology, 1<sup>st</sup> Surgical Clinic, University of Padua, Padua, Italy, <sup>3</sup>Mainz University, Johannes Gutenberg Universität Mainz, Mainz, Germany

## KEYWORDS

surgical oncology, elderly, esophageal cancer, gastric cancer, pancreatic cancer, colorectal cancer

## Editorial on the Research Topic

[Surgical oncology in the elderly: the state of the art and future challenges](#)

The number of old patients with cancer is increasing since population ageing is a common event throughout the world. It is estimated that the number of persons aged 80 years or over increase more than threefold between 2017 and 2050, rising from 137 million to 425 million (1). So, more elderly patients with cancer requiring a surgical evaluation are expected in clinical practice. However, surgical oncology in the elderly presents several problems. Undoubtedly, the decline in physiological systems and the presence of comorbidities have an impact in the surgical management of cancer patients together with the tolerance to oncological treatments (2). Moreover, we are lacking clear evidence-based informations about this topic because only small subset of geriatric cancer patients has been included into clinical trials (3).

The surgical management of elderly patients with cancer is still a challenge and frequently troubles the surgeon. The current problem is the preoperative assessment of elderly patients and the search for prognostic factors suggestive for frailty or other factors influencing perioperative outcome (4). The role of age as prognostic index in old patients undergoing surgical treatment shows contrasting results. Some studies reported age as an independent prognostic factor for morbidity and mortality after surgery, while other Authors have suggested that elderly patients with healthy conditions are candidate for surgical resection with the same surgical risk of younger patients (5, 6).

Another problem is the feasibility of multimodality therapy (neoadjuvant or adjuvant therapy) in such elderly patients. Toxicity of chemotherapy and/or radiotherapy regimens may be increased in geriatric patients and limited physiological reserve make difficult to complete oncological treatments (7). Finally, the role of minimally invasive surgical resections in the elderly remains to be assessed (8).

Within this Research Topic, the manuscript by [Hu et al.](#) reports a successful laparoscopic resection of two malignancies (left hepatectomy and total hysterectomy) in a 75-year-old woman with intrahepatic cholangiocarcinoma and endometrial cancer, emphasizing that laparoscopic complex operation may be offered to elderly, well-selected patients.

The work of [Jin et al.](#) focused on the impact of malnutrition on outcome after major surgical procedures for cancer. The Authors showed that Protein-Energy Malnutrition (PEM) was associated with increased risk of mortality, major complications, higher total cost, and longer length of stay.

The paper by [Zhang et al.](#) analyzed the local treatment of ductal carcinoma *in situ* (DCIS), including breast surgery, axillary lymph node (ALN) surgery, and radiotherapy in different subgroups of aged patients. Associations with clinicopathological findings and outcome after surgery were evaluated. Age and tumor size were independent factors influencing the breast and ALN surgery. Compared with patients aging 60-69, octogenarian patients underwent more breast conserving surgery (BCS) and less ALN surgery. Age was the only factor associated with the radiotherapy decision after BCS in elderly patients with DCIS.

[Gallina et al.](#) reported their experience of robotic pulmonary lobectomy in a population of 103 patients older than 75 years. Thirty-five patients reported postoperative complications without mortality. The factors that could predict the complication rate were the predicted postoperative FEV1 and the nodal disease. The Authors outlined that the predicted postoperative FEV1 and the preoperative staging should be carefully evaluated in order to improve postoperative outcome.

The value of minimally invasive surgery in elderly patients has been reported by [Capovilla et al.](#) In two high-volume centers from Italy and Germany, 160 patients older than 75 years underwent open (n=102), laparoscopic (MIE; n=249) or robotic (RAMIE; n=34) esophagectomy. Among elderly patients MIE/RAMIE were significantly associated with a lower overall morbidity, less pulmonary complications and a shorter hospital stay.

[Xu et al.](#) evaluated the effect of surgery for gallbladder cancer in elderly patients (> 70 years). Patients with surgery had significantly longer overall survival (OS) and cancer-specific survival (CSS) than those without surgery, especially patients aged 70-84 years old. An age >85 years was significantly associated with poor OS and CSS.

The morbidity and mortality after gastrectomy for gastric or distal esophageal cancer in patients aged >75 years in Germany, are presented in the work of [Berlet et al.](#) In a total of 67389 gastrectomized patients, the rate of patients aged 75 years or older was 51.4%. The hospital mortality of elderly patients was significantly higher, as well as the general complications and the need for resuscitation. Systematic D2 dissection, peritonectomy and hyperthermic intraperitoneal chemotherapy were less frequently performed in older patients compared to the younger counterpart.

The paper by [Bao et al.](#) evaluated 144 patients who underwent surgical resection following nCRT for mid-low rectal cancer. The correlations between BMI and radiologic fat parameters with pathologic response and survival were investigated, without showing any difference in terms of OS and disease-free survival. Age did not correlate with pathologic response or survival.

Correlation between age and postoperative outcome in colorectal cancer patients was investigated by ([Turri et al.](#)) In a large cohort of 1482 patients operated for colorectal cancer, postoperative mortality was low in octogenarians (3.2%). OS decreased with advancing age. Although the results of surgery in elderly patients were acceptable, OS is strongly dependent on age. Compared to younger patients, mortality in older people was frequently due to competing causes rather than to cancer-related managements.

In order to better identify the prognostic factors in elderly operated for colorectal cancer, [Mao and Lan](#) performed a systematic review and meta-analysis on the prognostic value of the Geriatric Nutritional Risk Index (GNRI). The study included ten reports for a total of 3802 patients. Meta-analysis showed a significant poor overall survival (and disease-free survival) and higher risk of complications in patients with low GNRI. When a subgroup analysis based on age was performed, the results did not change.

In conclusion, all contributions to this Research Topic suggest that major cancer surgery may be safe and feasible in elderly patients, but the risk of postoperative complications undoubtedly exists and worries surgeons and oncologists. Despite oncological outcome appears not influenced by patients' age, we have few informations about the quality of life of these patients. Future studies are needed to identify simple indicators to stratify patients for more precise surgical risk and formulate personalized treatment plans.

## Author contributions

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

## Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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## References

1. United Nations, Department of Economic and Social Affairs, Population Division. In: *World population ageing 2017 – highlights (ST/ESA/SER.A/397)*.
2. Maltser S, Cristian A, Silver JK, Morris GS, Stout NL. A focused review of safety considerations in cancer rehabilitation. *PM R* (2017) 9(9S2):S415–28. doi: 10.1016/j.pmrj.2017.08.403
3. Sedrak MS, Freedman RA, Cohen HJ, Muss HB, Jatoi A, Klepin HD, et al. Older adult participation in cancer clinical trials: a systematic review of barriers and interventions. *CA Cancer J Clin* (2021) 71(1):78–92. doi: 10.3322/caac.21638
4. Rothman MD, Leo-Summers L, Gill TM. Prognostic significance of potential frailty criteria. *J Am Geriatr Soc* (2008) 56(12):2211–16. doi: 10.1111/j.1532-5415.2008.02008.x
5. Taylor JC, Iversen LH, Burke D, Finan PJ, Howell S, Pedersen L, et al. Influence of age on surgical treatment and postoperative outcomes of patients with colorectal cancer in Denmark and Yorkshire, England. *Colorectal Dis* (2021) 23(12):3152–61. doi: 10.1111/codi.15910
6. Cheng YX, Liu XY, Kang B, Tao W, Wei ZQ, Peng D. Comparison of surgical and oncologic outcomes in very elderly patients ( $\geq 80$  years old) and elderly (65–79 years old) colorectal cancer patients: a propensity score matching. *BMC Gastroenterol* (2022) 22(1):205. doi: 10.1186/s12876-022-02277-y
7. Feliu J, Jiménez-Munárriz B, Basterretxea L, Paredero I, Llabrés E, Antonio-Rebollo M, et al. Predicting chemotherapy toxicity in older patients with cancer: a multicenter prospective study. *Oncologist*. (2020) 25(10):e1516–24. doi: 10.1634/theoncologist.2019-0701
8. Ngu JC, Kuo LJ, Teo NZ. Minimally invasive surgery in the geriatric patient with colon cancer. *J Gastrointest Oncol* (2020) 11(3):540–4. doi: 10.21037/jgo.2020.02.02