



Tailoring strategies for colorectal cancer screening and treatment based on age in colorectal cancer patients

Eun Jung Park

Division of Colon and Rectal Surgery, Department of Surgery, Gangnam Severance Hospital, Yonsei University College of Medicine, Seoul, Korea

See Articles on Page 244-252

Colorectal cancer remains one of the most commonly encountered cancers, and the second-highest cause of cancer-related mortality worldwide. Although surgical treatments and chemotherapeutic agents have been developed in the modern era, the importance of early cancer screening programs and need for adequate multimodal treatment has also increased. Interestingly, the incidence and clinical manifestations of colorectal cancer differ between younger and older patients. Although overall survival has been prolonged with recent advancements, there has been a noticeable increase in the early onset of colorectal cancer in young patients, aged less than 50 years old [1]. In addition, as life expectancy is gradually prolonged, the incidence of colorectal cancer in elderly colorectal patients has also increased [2]. Therefore, there is a need to develop different treatment strategies based on age-related cancer characteristics and clinical patterns.

In the analysis of global trends between 2008 and 2012, there was an increased incidence of early-onset colorectal cancer. It appears that there is a difference in the clinical manifestations and pathologic characteristics between early-onset and late-onset colorectal cancer. Patients with early-onset colorectal cancer presented with left-sided lesions, more aggressive histopathologic features, and a more advanced stage at the time of diagnosis. In addition, it is well known that genetic mutation disorders contribute to the occurrence of hereditary colorectal cancer in the younger age group. Approximately 16% of patients with early-on-

set colorectal cancer have hereditary colorectal syndromes [3]. However, it is noticeable that nongenetic-related early-onset colorectal cancer also increases with various ranges of pathogenic variants, making it difficult to predict the risk of cancer occurrence. Thus, early screening and diagnosis, using multi-gene panel sequencing, is recommended for young patients at risk of colorectal cancer. South Korea reported the highest incidence (12.9 %) of early-onset cancer, which has been diagnosed in 20 to 49-year-old. This can be attributed to the low rate of colorectal cancer screening programs and increasing Western dietary habits in the younger age group. These data suggest that early screening for cancer is required to prevent the increased occurrence of colorectal cancer in young patients.

Similarly, as life expectancy increases, the incidence of colorectal cancer in older patients also increases. There was a tendency for undertreatment with surgical resection in older patients due to the multiple comorbidities and operative risks. Although the incidence of colorectal cancer in older patients is gradually increasing, the relatively limited curative treatments have resulted in poorer oncologic outcomes in them than in younger patients. However, the International Society of Geriatric Oncology suggested that geriatric evaluation and optimal assessment of older patients to establish fitness to tolerate surgery and adjuvant chemotherapy are mandatory [4]. It has been established that the operative risk under elective conditions is relatively lower than that under emergency conditions. As emergency situations of colorectal cancer can result in high mortality rates, it should be considered to decide between surgical treatment and adjuvant chemotherapy. Sanoff et al. [5] reported that patients over 75 years of age, who underwent curative resection for stage III colorectal cancer, showed survival benefits with adjuvant chemotherapy. Oh et al. [6] also reported similar disease-free survival and cancer-specific survival of older patients aged over 80 years when compared with younger patients. The heterogeneity of the physical abilities and tumor stages in the older patients necessitates an individualized surgical treatment and chemotherapy plan, taking into consideration life expectancy and tumor status. Although there is a lack of trials for metastatic colorectal cancer in elderly patients, palliative chemotherapy can be considered [7]. There-

Received: Jun 5, 2022 • Accepted: Jun 13, 2022

Correspondence to: Eun Jung Park, M.D., Ph.D., FACS

Division of Colon and Rectal Surgery, Department of Surgery, Gangnam Severance Hospital, Yonsei University College of Medicine, 20 Eonju-ro 63-gil, Gangnam-gu, Seoul 06229, Korea

Tel: +82-2-2019-3897, Fax: +82-2-3462-5994

E-mail: camp79@yuhs.ac

ORCID: <https://orcid.org/0000-0002-4559-2690>

© 2022 The Korean Society of Coloproctology

This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<https://creativecommons.org/licenses/by-nc/4.0>) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

fore, personalized and careful treatment strategies to avoid undertreatment are required in elderly patients.

Lee et al. [8] retrospectively analyzed 4,326 colorectal cancer patients by age in South Korea between 2006 and 2019. According to their results, colorectal cancer occurred in patients aged 60 years, with rectal cancer occurring frequently. However, the incidence and clinical manifestations differed according to age. The incidence of total proctocolectomy was higher in the younger patients with colorectal cancer than in older patients. Conversely, higher rates of comorbidities and postoperative complications were observed in older patients with lower rates of adjuvant chemotherapy. The histopathologic features showed higher rates of right-sided colon cancer and advanced stages in older patients. Although there was a lack of time-trend analysis by age of colorectal cancer patients in this study, these results suggested that adequate surgical treatment with adjuvant chemotherapy should be considered in older patients after optimal geriatric assessment. Additionally, there is a need for individualized treatment strategies by age for patients with colorectal cancer.

Given the wide spectrum of colorectal cancer by age, it is necessary to plan colorectal cancer screening programs and treatment strategies individually. The increasing incidence of colorectal cancer in young individuals requires the use of personalized genetic counseling and early cancer screening programs. In addition, the increasing incidence in older patients suggests that our society needs to prepare an optimal national geriatric assessment system to avoid undertreatment and ensure a better quality of life.

CONFLICT OF INTEREST

No potential conflicts of interest relevant to this article were reported.

FUNDING

None.

REFERENCES

1. Arnold M, Sierra MS, Laversanne M, Soerjomataram I, Jemal A, Bray F. Global patterns and trends in colorectal cancer incidence and mortality. *Gut* 2017;66:683-91.
2. Calip GS, Meropol NJ, Weinberg DS. Colorectal cancer incidence among adults younger than 50 years—understanding findings from observational studies of lower gastrointestinal endoscopy. *JAMA Oncol* 2022 May 5 [Epub]. <https://doi.org/10.1001/jamaoncol.2022.0863>
3. Pearlman R, Frankel WL, Swanson B, Zhao W, Yilmaz A, Miller K, et al. Prevalence and spectrum of germline cancer susceptibility gene mutations among patients with early-onset colorectal cancer. *JAMA Oncol* 2017;3:464-71.
4. Papamichael D, Audisio RA, Glimelius B, de Gramont A, Glynne-Jones R, Haller D, et al. Treatment of colorectal cancer in older patients: International Society of Geriatric Oncology (SIOG) consensus recommendations 2013. *Ann Oncol* 2015;26:463-76.
5. Sanoff HK, Carpenter WR, Stürmer T, Goldberg RM, Martin CE, Fine JP, et al. Effect of adjuvant chemotherapy on survival of patients with stage III colon cancer diagnosed after age 75 years. *J Clin Oncol* 2012;30:2624-34.
6. Oh BY, Huh JW, Kim HC, Park YA, Cho YB, Yun SH, et al. Oncologic outcome of colorectal cancer patients over age 80: a propensity score-matched analysis. *Int J Colorectal Dis* 2018;33:1011-8.
7. Aparicio T, Desramé J, Lecomte T, Mitry E, Belloc J, Etienney I, et al. Oxaliplatin- or irinotecan-based chemotherapy for metastatic colorectal cancer in the elderly. *Br J Cancer* 2003;89:1439-44.
8. Lee TH, Choo JM, Kim JS, Shin SH, Kim JS, Baek SJ, et al. Characteristics and outcomes of colorectal cancer surgery by age in a tertiary center in Korea: a retrospective review. *Ann Coloproctol* 2021;38:244-52.