Editorial

Ann Coloproctol 2021;37(3):129-130
https://doi.org/10.3393/ac.2021.00493.0070

Annals of Coloproctology
pISSN 2287-9714 eISSN 2287-9722
www.coloproctol.org

Carcinoembryonic Antigen, the Most Accessible Test for Predicting Colorectal Cancer Prognosis: Exploring Alternative Roles

Sanghee Kang

Division of Colon and Rectal Surgery, Department of Surgery, Korea University Guro Hospital, Korea University College of Medicine, Seoul, Korea

See Articles on Page 179-185

A tumor marker, which is produced by cancer tissues or surrounding cells, expresses information regarding the current state of cancer. Tumor markers can be used to predict cancer malignancy, prognosis, and treatment response, which is essential for cancer treatment. In particular, given the various modalities utilized for cancer treatment, the role of tumor markers becomes critical. Notably, the accurate prediction of therapeutic effects using tumor markers allows one to measure the usefulness of the modality and make a future treatment plan.

Carcinoembryonic antigen (CEA), one of the most widely used serum biomarkers for colorectal cancer, is not only easily accessible through serum but also has already been confirmed to be useful [1]. In patients with newly diagnosed colorectal cancer, elevated CEA before surgery indicates a poor prognosis. Moreover, failure of the increased CEA after surgery to normalize could indicate the possibility of residual cancer and the requirement of additional treatment. Continuous assessment of serum CEA levels after surgery can also help to detect recurrence.

On the other hand, CEA has some limitations in colorectal cancer. First, the diagnostic power of CEA to detect early-stage colorectal cancer has remained low. A meta-analysis showed that CEA had a sensitivity of only 46% in colorectal cancer, as well as a specificity of 89%, which is not particularly high [2]. This raises doubts regarding the usefulness of CEA, which drives the need for identifying alternative tests for circulating DNA and blood-based microRNAs. Nonetheless, CEA still undoubtedly remains a non-expensive and readily available approach for diagnosing colorectal cancer.

However, most of the existing studies on CEA have focused on colorectal cancer surgery and chemotherapy instead of neoadjuvant chemoradiotherapy (nCRT). In advanced rectal cancer, nCRT has become an essential treatment modality that should be provided before surgery. Given that the effects of radiation appear in very diverse categories, predicting the effects of treatment remains difficult. This makes the prediction crucial for the appropriate treatment for rectal cancer. Although some studies have suggested the usefulness of CEA for predicting treatment effects after surgery with nCRT, studies on this are still lacking [3-5]. As such, more studies on this matter will certainly help clinicians establish treatment plans for rectal cancer.

The present study suggests that CEA plays a particularly meaningful role in predicting prognosis after nCRT in patients with rectal cancer [6]. As discussed in the limitations of the present study, it is unfortunate that the relationship between tumor response after nCRT and CEA level could not be studied. However, the present study offers valuable insights into the treatment and follow-up of rectal cancer, notwithstanding the limitations. We believe that this alternative role of CEA in patients receiving nCRT will inspire and help many clinicians care for patients with rectal cancer.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

REFERENCES

1. Konishi T, Shimada Y, Hsu M, Tufts L, Jimenez-Rodriguez R, Cercek A, et al. Association of preoperative and postoperative se-

Received: Jun 21, 2021 • Accepted: Jun 28, 2021
Correspondence to: Sanghee Kang, M.D.
Division of Colon and Rectal Surgery, Department of Surgery, Korea University Guro Hospital, 148 Gurodong-ro, Guro-gu, Seoul 08308, Korea
Tel: +82-2-2626-1147, Fax: +82-2-2626-1148
E-mail: kasaha1@korea.ac.kr
ORCID: https://orcid.org/0000-0002-6097-8831

rum carcinoembryonic antigen and colon cancer outcome. JAMA Oncol 2018;4:309-15.
2. Liu Z, Zhang Y, Niu Y, Li K, Liu X, Chen H, et al. A systematic review and meta-analysis of diagnostic and prognostic serum biomarkers of colorectal cancer. PLoS One 2014;9:e103910.
3. Perez RO, São Julião GP, Habr-Gama A, Kiss D, Proscurshim I, Campos FG, et al. The role of carcinoembriogenic antigen in predicting response and survival to neoadjuvant chemoradiotherapy for distal rectal cancer. Dis Colon Rectum 2009;52:1137-43.
4. Jang NY, Kang SB, Kim DW, Kim JH, Lee KW, Kim IA, et al. The role of carcinoembryonic antigen after neoadjuvant chemoradiotherapy in patients with rectal cancer. Dis Colon Rectum 2011;54:245-52.
5. Kim CW, Yu CS, Yang SS, Kim KH, Yoon YS, Yoon SN, et al. Clinical significance of pre- to post-chemoradiotherapy s-CEA reduction ratio in rectal cancer patients treated with preoperative chemoradiotherapy and curative resection. Ann Surg Oncol 2011;18:3271-7.
6. Joo JI, Lim SW, Oh BY. Prognostic impact of carcinoembryonic antigen levels in rectal cancer patients who had received neoadjuvant chemoradiotherapy. Ann Coloproctol 2021;37:179-85.