Inflammatory and nutritional markers in patients with resectable pancreatic cancer

Hae Il Jung

Department of Surgery, Soonchunhyang University Cheonan Hospital, Cheonan, Korea

Article: Clinical significance of C-reactive protein-to-prealbumin ratio in predicting early recurrence in resectable pancreatic cancer **(Kwon CH, et al. Korean J Clin Oncol 2023;19:11–17)**

Pancreatic ductal adenocarcinoma (PDAC) is known to be one of the most aggressive malignancies with a very poor prognosis. Various prognostic factors of PDAC have been widely studied including age, sex, tumor size, regional lymph node and distant metastasis, carbohydrate antigen 19-9, inflammatory markers like C-reactive protein (CRP) and nutritional markers, such as albumin, ferritin, weight loss [1].

Inflammation plays a crucial role in the progression of malignancy. The repetitive tissue injury and resulting inflammation promote cell proliferation and increase the risk of DNA damage, thereby contributing to neoplastic development. Since Virchow first described the interaction between inflammation and malignancy, CRP which is one of the inflammatory indicators has been reported as prognostic factors in various cancers [2]. Additionally, nutritional status such as serum albumin, and prealbumin has been found to be correlated with the prognosis of various malignancies, including pancreatic cancer [1,3,4]. Albumin, the most abundant protein in the human serum, serves as a valuable indicator of nutritional status. It constitutes about 60% of the serum proteins by weight. Its hepatic synthesis is affected by osmotic colloid pressure and inflammatory states, but also, by nutritional status and hormones [5]. In patients with cancer, serum albumin has been found to be an independent prognostic factor for survival in various cancers such as melanoma, colorectal, pancreatic, lung, gastric, and breast cancer [3,5-7]. Furthermore, prealbumin has a shorter half-life which is about 2 to 3 days, and is considered more sensitive and accurate biomarker than albumin. Recent studies have reported that prealbumin is an independent predictor in cancer patients [3].

Recently, the CRP to prealbumin ratio (CPAR), which is an inflammatory and nutritional marker, has been investigated as a potential prognostic indicator in various cancers [6,8]. In this issue of the *Korean Journal of Clinical Oncology*, Kwon et al. [9] demonstrated the utility of CPAR in predicting the prognosis of PDAC. The authors aimed to identify patients who were at high risk of early recurrence in cases of resectable PDAC. Their findings showed that the patients with high CPAR were significantly associated with an increased risk of early recurrence. However, it is important to interpret these results with caution due to the limitations of the study, such as its retrospective design, small sample size, and short follow-up period. Additionally, the study did not provide information on the preoperative treatment of nutritional status and subgroup analysis based on the stage. Despite these limitations, the use of CPAR may have clinical utility in predicting the early recurrence of PDAC. Further large-scale studies are warranted to validate these findings and establish the broader applicability of CPAR as a prognostic marker.

CONFLICT OF INTEREST

Hae Il Jung is an editorial board member of the journal but was not involved in the peer reviewer selection, evaluation, or decision process of this article. No other potential conflicts of interest relevant to this article were reported.

FUNDING

None.

ORCID

Hae Il Jung   https://orcid.org/0000-0003-2502-0086

REFERENCES

1. Xie Q, Wang L, Zheng S. Prognostic and clinicopathological significance of C-reactive protein to albumin ratio in patients with pancreatic cancer: a meta-analysis. Dose Response 2020;18:1559325820931290.
2. Nam YH, Park MS, Lee SM. Preoperative C-reactive protein as a prognostic factor for recurrence after surgical resection of biliary tract cancer. Korean J Clin Oncol 2015;11:101-5.
3. Park YM, Seo HI, Noh BG, Kim S, Hong SB, Lee NK, et al. Clinical impact of serum prealbumin in pancreaticobiliary disease. Korean J Clin Oncol 2022;18:61-5.
4. Qiao W, Leng F, Liu T, Wang X, Wang Y, Chen D, et al. Prognostic value of prealbumin in liver cancer: a systematic review and meta-analysis. Nutr Cancer 2020;72:909-16.
5. Fan Y, Sun Y, Man C, Lang Y. Preoperative serum prealbumin level and adverse prognosis in patients with hepatocellular carcinoma after hepatectomy: a meta- analysis. Front Oncol 2021;11:775425.
6. Huang Z, Cai P, Zhao Y, Niu D, Xu F, Lai Y, et al. Preoperative C-reactive protein to prealbumin ratio is independently associated with prognosis in patients with resectable colorectal cancer. J Surg Oncol 2022;125:1238-50.
7. Kang YH, Park JW, Ryoo SB, Jeong SY, Park KJ. Impact of nutritional screening index on perioperative morbidity after colorectal cancer surgery as a independent predictive factor. Korean J Clin Oncol 2017;13:118-25.
8. Matsunaga T, Miyata H, Sugimura K, Motoori M, Asukai K, Yanagimoto Y, et al. Prognostic significance of C-reactive protein-to-prealbumin ratio in patients with esophageal cancer. Yonago Acta Med 2019;63:8-19.
9. Kwon CH, Seo HI, Kim DU, Han SY, Kim S, Lee NK, et al. Clinical significance of C-reactive protein-to-prealbumin ratio in predicting early recurrence in resectable pancreatic cancer. Korean J Clin Oncol 2023;19:11-7.