



## LETTER TO EDITOR

# Monitoring perioperative serum albumin can identify anastomotic leakage in colorectal cancer patients with curative intent



### KEYWORDS

Anastomotic leakage;  
Factors;  
Meta-analysis

Dear Editor,

We read the article entitled "Monitoring perioperative serum albumin can identify anastomotic leakage (AL) in colorectal cancer patients with curative intent" by Tadanobu Shimura et al in the Asian Journal of Surgery with great interest.<sup>1</sup> They presented not only the relationship between perioperative serum albumin level and AL, but also discussed some surgical- and tumor-related factors for AL after colorectal resection. However, the patient- and treatment-related factors nearly was not found in the research, which also were considered as key points for AL, such as ASA score, smoking, diabetes, and so on.<sup>2</sup>

Therefore, we conducted a meta-analysis of the available literature to identify the effects of patient- and treatment-factors for AL after colorectal resection. A total of 26 studies met the inclusion criteria, and comprised 50792 cases. Analysis of these data showed that male gender was highly correlated with AL (pooled OR = 1.79, 95%CI:1.67–1.92,  $P < 0.00001$  fixed effect), The rate of AL in high ASA score group was higher than that in low ASA score group (pooled OR = 1.24, 95%CI:1.14–1.36,  $P < 0.00001$  fixed effect), smoking was significantly associated with AL (pooled OR = 2.17, 95%CI:1.40–3.35,  $P = 0.0005$  random effect), diabetes was associated with AL (pooled OR = 1.40, 95%CI:1.09–1.81,  $P = 0.009$  random effect), chemotherapy was significantly associated with AL

(pooled OR = 1.68, 95%CI:1.39–2.04,  $P < 0.00001$  fixed effect), and radiotherapy was associated with AL (pooled OR = 1.44, 95%CI:1.25–1.67,  $P < 0.00001$  fixed effect).

The results can be interpreted as follow: (1) Man, because of the narrower configuration of the pelvis, offer greater technical challenge during pelvic dissection, and subsequent increased risk of AL.<sup>3</sup> However, Tadanobu Shimura et al found that gender were not statistically different between AL and NAL.<sup>1</sup> The reason for this results may be too small sample size included in the analysis; (2) smoking, ASA scores and diabetes have been identified as risk factors for wound healing disturbances which can lead to AL directly, and for a worse outcomes<sup>4</sup>; (3) preoperative chemotherapy and radiotherapy also have been proved to be associated with reducing oxygen delivery to the tissues and decreasing healing as well, while adequate blood flow is a priority during the creation of the AL.<sup>5</sup>

In conclusion, we have analyzed a large number of possible patient-related and treatment-related risk factors for AL in large patient population and concluded that male gender, high ASA score, smoking, and diabetes are significant patient-related risk factors for leakage. Our finding also suggested that neoadjuvant and chemoradiotherapy might be treatment-related risk factors for leakage. Our Meta-analysis offered effective and strong evidence for identifying a subgroup of patients at high risk for leakage. This will

<https://doi.org/10.1016/j.asjsur.2018.10.011>

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be valuable to guide surgeons to decrease the risk of AL. Although good results of one institute in Shimura's article are valuable and provide a useful approach for identifying AL,<sup>1</sup> additional evaluation and comparison of much more variables including patient-and treatment-related factors would suggest more meaningful and reliable results.

### Conflict of interest

The author declares no conflict of interest.

### Acknowledgements

This work was supported by grants from the Natural Science Foundation of China (No. 81660416), the Scientific Research Project of Guangxi Health Commission (No. Z20180739), and the Youth Foundation of People's Hospital of Guangxi Zhuang Autonomous Region (No. QN2018-22).

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16 October 2018