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# The American Journal of Surgery

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## Letter to the Editor

# Perioperative blood transfusion and short-term outcomes after major abdominal operations



Dear Editor

We read with great interest the article by Dr. Elwood et al.<sup>1</sup> This retrospective study identified that perioperative blood transfusion was independently associated with an increased risk of morbidity and mortality after most major abdominal operations. Herein, we would like to raise the following comments:

In this study, between patients with and without perioperative blood transfusion, nearly significant differences existed in some aspects of patient characteristics, such as age, body mass index, diabetes, preoperative albumin, ASA class, operative time and operation type (all  $P < 0.001$ ), suggesting an unbalanced enrollment due to these confounding variables between these two groups. Moreover, several characteristics listed above, including body mass index, diabetes and preoperative albumin have already been reported as risk factors for postoperative morbidity and mortality after abdominal operations.<sup>2,3</sup> In fact, propensity score matching (PSM) analysis has been generally used in retrospective observational studies, which enables better balance between groups across all potential risk factors and evaluates the extent of balanced match in a measurable approach.<sup>4,5</sup> Therefore, it is suggested that this method should be used here. Actually, a study published in 2014<sup>6</sup> investigated the similar topic on hepatectomy using this method, and got an opposite conclusion.

In addition, the number of characteristics variables of patient investigated in this study seemed far from enough. For instance, preoperative hemoglobin level, tumor characteristics, and the presence of combining vascular resection were not provided, which actually may have impacts on either the requirement of perioperative blood transfusion or the short-term outcomes after operations. Therefore, the reliability and accuracy of the conclusion in this study deserve further evaluation.

Further more, excision operations of various abdominal organs listed in this study generally should include the tumor resection. However, it was not clearly explained in this study and still put the tumor resection into separate category which may confuse the readers. Thus, more accurate category and elaboration are need in this study.

In summary, minimizing perioperative blood transfusion is a traditional opinion for surgeons to decrease morbidity and mortality after operations. However, perioperative blood transfusion is sometimes inevitable in operations, especially during most major abdominal operations. Several studies published previously on major abdominal surgery, such as cholangiocarcinoma,<sup>6</sup>

and gastric cancer,<sup>7</sup> have demonstrated that perioperative blood transfusion had no impact on their short-term outcomes. The change of traditional opinion relies largely on the use of PSM analysis. Therefore, it was suggested that PSM analysis can be used in the present study for the further confirmation of the real relationship between perioperative blood transfusion and short-term outcomes after most major abdominal operations.

## Conflict of interest disclosures

The authors have declared that no conflict of interests.

## Funding

None.

## Appendix A. Supplementary data

Supplementary data related to this article can be found at <https://doi.org/10.1016/j.amjsurg.2018.03.013>.

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7 March 2018

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