Reply to: Acute kidney injury in parturients with severe preeclampsia

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To the Editor:

We would like to appreciate the readers of this journal for their comments on our article [1].

As they mentioned, we did not have a control group, because we have been using hydroxyethyl starch (HES) to almost all cesarean delivery cases including severe preeclampsia over a decade. A prospective study for elucidating the effect of HES on postoperative kidney function of severe preeclampsia comparing with crystalloid would be preferable; however, several difficulties for assessing the outcomes would exist. First of all, as extremely rare incidence of acute kidney injury (AKI) during pregnancy [2], surrogate outcomes instead of the incidence of AKI would be preferable and feasible for conducting a clinical research. Dantzmam and associates reported that optimal surrogate biomarkers for investigating the effect of HES on AKI in perioperative setting have not been detected [3]. In preeclampsia, podocyte injury is considered as a main focus of renal impairment [4], but the association between HES administration and podocyte injury has not been investigated well. Moreover, as we discussed about glomerular filtration rate (GFR) during pregnancy, it did not indicate “estimated” GFR. Since estimated GFR is not reliable in pregnant women, we did not report estimated GFR in the study. Finally, although the main purpose of administering HES instead of crystalloid with fluid restriction is for preventing iatrogenic pulmonary

edema, we have not figured out the clinically reliable and measurable definition of perioperative pulmonary complications. A lung ultrasound assessment has been accumulating the evidence for diagnosing pulmonary edema, especially in emergency medicine [5, 6]. We are considering to shifting the novel diagnostic tool with sharply accurate and clinically feasible assessment in both daily practice and clinical research.

Compliance with ethical standards

Conflict of interest The authors declare that they have no interests to disclose.

References

1. Mazda Y, Tanaka M, Terui K, Nagashima S, Inoue S. Postoperative renal function in parturients with severe preeclampsia who underwent cesarean delivery: a retrospective observational study. *J Anesth*. 2018;32:447–51.
2. Gurrieri C, Garovic VD, Gullo A, Bojanic K, Sprung J, Narr BJ, Weingarten TN. Kidney injury during pregnancy: associated comorbid conditions and outcomes. *Arch Gynecol Obstet*. 2012;286:567–73.
3. Dantzmam T, Hoenicka M, Reinelt H, Liebold A, Gorki H. Influence of 6% hydroxyethyl starch 130/0.2 versus crystalloid solution on structural renal damage makers after coronary artery bypass grafting: a post hoc subgroup analysis of a prospective trial. *J Cardiothorac Vasc Anesth*. 2018;32:205–11.
4. White WM, Garrett AT, Craici IM, Wagner SJ, Fitz-Gibbon PD, Butters KA, Brost BC, Rose CH, Grande JP, Garovic VD. Persistent urinary podocyte loss following preeclampsia may reflect subclinical renal injury. *PLoS One*. 2014;9:e92693.
5. Martindale JL, Noble VE, Liteplo A. Diagnosing pulmonary edema: lung ultrasound versus chest radiography. *Eur J Emerg Med*. 2013;20:356–60.
6. Zieleskiewicz L, Contargyris C, Brun C, Touret M, Vellin A, Antonini F, Muller L, Bretelle F, Martin C, Leone M. Lung ultrasound predicts interstitial syndrome and hemodynamic profile in parturients with severe preeclampsia. *Anesthesiology*. 2014;120:906–14.

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