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# Resuscitation

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## Letter to the Editor

# Reply to: Optimal timing to measure optic nerve sheath diameter as a prognostic predictor in post-cardiac arrest patients treated with targeted temperature management



To the Editor,

Sedatives may reduce intracranial pressure (ICP) by several mechanisms as your points.<sup>1</sup> First, they reduce cerebral metabolic rate, cerebral blood flow, and cerebral blood volume. Second, sedation reduce agitation which may cause arterial hypertension and increment ICP. Third, sedatives reduce intrathoracic pressure, which can reduce jugular venous outflow and raise ICP.<sup>2</sup> Sedation in traumatic brain injury may reduce both systemic and intracranial hypertension, although one concern with sedative administration is a decrease in systemic blood pressure causing a decrease in cerebral perfusion pressure.<sup>3</sup> A study has shown that dexmedetomidine as sedatives attenuates the increase of optic nerve sheath diameter (ONSD) during robot-assisted laparoscopic prostatectomy, and suggested that intraoperative dexmedetomidine administration may effectively attenuate the ICP increase during pneumoperitoneum in the Trendelenburg position.<sup>4</sup> However, in the acknowledge, there were no studies whether ONSD would correlate with ICP in patients receiving sedatives, or not. In this study, ONSD measured at 24 h after return of spontaneous circulation (ROSC) was correlated with ICP (correlation coefficient, 0.38;  $p=0.02$ ), although this was a study with small sample size.

In addition, sedatives and neuromuscular blockers have been routinely used in post-cardiac arrest patients treated with target temperature management (TTM). A study indicated that early sustained neuromuscular blockade was associated with improved lactate clearance and decreased mortality.<sup>5</sup> Therefore, the value of ICP and ONSD measured using sedatives and neuromuscular blockers might be important for emergency physician in post-cardiac arrest patients treated with TTM. The present study found that 15 (93.75%) of the 16 patients with ONSDs equal to or greater than 5.00 mm at 24 h after ROSC had a poor neurologic outcome. This indicated that it was important to monitor ONSD in post-CA patients underwent TTM at 24 h after ROSC since it had a sensitivity of 83.3% and a specificity of 94.4% in predicting poor neurologic outcomes as well as a cut-off value of 4.90 mm.

Finally, further studies are needed to elucidate the relationship between ICP and ONSD to predict neurological outcome for post-cardiac arrest patients underwent target temperature management.

## Conflict of interest

No.

## Acknowledgements

No.

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