

Comments on: Efficacy of inferior vena cava collapsibility index and caval aorta index in predicting the incidence of hypotension after spinal anaesthesia- A prospective, blinded, observational study

Dear Editor,

The article by Lal *et al.*^[1] has explored the role of the inferior vena cava collapsibility index (IVCCI) and the caval aorta index in predicting post-spinal hypotension. We have read the article with interest and want to discuss a few points further.

Firstly, the authors recorded blood pressure till 60 min after the administration of spinal anaesthesia. Even though previous studies have taken a 60 min cut-off to define post-spinal hypotension, this time limit is arbitrary. By 60 min, multiple other factors come into play, such as surgical positioning, blood loss, fluid shift, and surgical stimulus, which can be potential confounding factors. Hypotension till what time can be attributed to spinal anaesthesia is controversial and requires standardisation.

Furthermore, IVCCI and a few other predictors of volume responsiveness in critically ill patients have been extrapolated lately into the peri-operative settings to predict hypotension after both general anaesthesia and spinal anaesthesia.^[2] These parameters are predominantly surrogates of intravascular volume status. They have been used to predict intra-operative hypotension, assuming that a hypovolaemic patient will be further prone to develop hypotension following induction of anaesthesia.^[3] Why predictors of volume responsiveness cannot always predict intra-operative hypotension has remained an unanswered question. Kouz *et al.*^[4] recently used artificial intelligence to explore six mechanisms of intra-operative hypotension under general anaesthesia. Surprisingly, myocardial depression, rather than reduced vascular tone, was their study's most frequent cause of hypotension.

The vasodilatory endotype of hypotension, the predominant mechanism of hypotension after neuraxial blocks, was also one of the two subtypes in their research: vasodilation with increased cardiac index and vasodilation without increased cardiac index. Although the study was conducted among patients receiving general anaesthesia, the results provide valuable insights suggesting that there are multiple mechanisms of intra-operative hypotension. Presumably, that is why indicators of volume responsiveness are not ideal for predicting intra-operative hypotension.

Further research should focus on exploring the predominant endotype of hypotension after induction of both general and spinal anaesthesia because that is usually the most vulnerable period for intra-operative hypotension in general. This will help us in selecting appropriate tools to predict hypotension accordingly.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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Submitted: 22-Jul-2023

Accepted: 06-Sep-2023

Published: 07-Nov-2023

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Access this article online	
Quick response code	Website: https://journals.lww.com/ijaweb
	DOI: 10.4103/ija.ija_697_23

How to cite this article: Chowdhury SR, Datta PK. Comments on: Efficacy of inferior vena cava collapsibility index and caval aorta index in predicting the incidence of hypotension after spinal anaesthesia- A prospective, blinded, observational study. *Indian J Anaesth* 2023;67:1027-8.