To the Editor,

We thoroughly enjoyed reading the interesting article “Ultrasound evaluation of inferior vena cava compression in tilted and supine term parturients” by Gagné et al. who assessed the postural changes of the inferior vena cava collapsibility index (IVCCI) by point-of-care ultrasound in term pregnant women undergoing Cesarean delivery. They report that the IVCCI, previously described to increase with hypovolemia, is significantly higher in the supine position compared with the 15° left lateral position at baseline, an effect that was no longer detectable after the induction of spinal anesthesia and infusion of phenylephrine.

These results are in line with recent findings from randomized controlled trials investigating the lack of efficacy of the 15° left lateral tilt at reducing maternal hypotension or affecting fetal acid base status, further supporting the paradigm shift to finally abandon the practice of lateral tilt in obstetric anesthesia. Nevertheless, the authors’ conclusion of recommending inferior vena cava (IVC) examinations as a potentially useful tool in detecting patients more sensitive to position is debatable.

First, given the substantial alterations in the last trimester due to physiologic changes, the validity of IVC-derived hemodynamic assessments based on IVC-derived parameters may be unreliable. The direct impact of the growing uterus regularly increases the central venous pressure to a level of 20–30 mm Hg in the supine position at term. Second, our current conceptual understanding of IVC compression and supine hypotension in pregnancy has significantly evolved from recent magnetic resonance imaging findings, indicating a crucial role of the azygos system for circulatory maintenance during pregnancy. To compensate for the near occlusion in almost all women at term, the blood flow in the azygos vein increases by up to 220% in the supine position. Nevertheless, the capacity of this mechanism depends on the anatomical variability of the collateral system, thereby explaining why most pregnant women are asymptomatic in the supine position. However, a few who present with lesser increases in azygos blood flow may show the characteristic symptoms of IVC compression.

In conclusion, methods of IVC assessment might become unreliable in women at term because of physiologic changes during pregnancy, a fact that might explain why Gagné and colleagues were unable to correlate pre-spinal supine IVCCI measurements to the vasopressor requirements during surgery.

Disclosures None. 
Funding statement None.
Letter commenting on “Ultrasound evaluation of inferior vena cava compression in tilted and supine term parturients. Can J Anesth 2021; DOI: https://doi.org/10.1007/s12630-021-02051-w.”

References

1. Gagné MP, Richebé P, Loubert C, et al. Ultrasound evaluation of inferior vena cava compression in tilted and supine term parturients. Can J Anesth 2021; DOI: https://doi.org/10.1007/s12630-021-02051-w.
2. Liu T, Zou S, Guo L, et al. Effect of different positions during surgical preparation with combined spinal-epidural anesthesia for elective cesarean delivery: a randomized controlled trial. Anesth Analg 2020, DOI: https://doi.org/10.1213/ane.0000000000005320.
3. Scott DB. Inferior vena caval occlusion in late pregnancy and its importance in anaesthesia. Br J Anaesth 1968; 40: 120-8.
4. Humphries A, Mirjalili SA, Tarr GP, Thompson JM, Stone P. The effect of supine positioning on maternal hemodynamics during late pregnancy. J Matern Neonatal Med 2019; 32: 3923-30.
5. Humphries A, Mirjalili SA, Tarr GP, Thompson JM, Stone P. Hemodynamic changes in women with symptoms of supine hypotensive syndrome. Acta Obstet Gynecol Scand 2020; 99: 631-6.

Publisher’s Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.