How Accurate Is Pulse Pressure Variation as a Predictor of Fluid Responsiveness?

To the Editor:
We read with interest the Perioperative Medicine article “Assessing the Diagnostic Accuracy of Pulse Pressure Variations for the Prediction of Fluid Responsiveness: A ‘Gray Zone’ Approach” by Cannesson et al. and its accompanying editorial: “Insights in a ‘Gray Zone’.”

Fluid responsiveness is based on the proposition that an increase in cardiac output by at least a certain amount may be achieved by a specific bolus of a specified fluid, whereas nonresponders will require other means to increase the cardiac output. There are a number of limitations with this definition. The type of fluid used will have an impact on the amount of expansion of the intravascular compartment. In the study, iso-oncotic colloid was used, but even the volume effect of this will depend on the intravascular compartment. In the study, iso-oncotic colloid was used, but even the volume effect of this will depend on the type of fluid used.

There are several limitations of the study that may make it difficult to apply to a more general population, including the male predominance in the study (75%) and the selection of patients above the upper limit of the gray zone, a knowledge of the cardiac output is extremely useful to make an informed decision on treatment for patients in or below the gray zone and avoid overloading the intrastitial space with fluids. Lichtenstein has suggested that transthoracic ultrasound of the lungs may be useful in the early detection of interstitial syndrome (because of fluid overload, cardiac failure, or increased capillary permeability) by observing a change from A-line predominance to B-line predominance.

There are several limitations of the study that may make it difficult to apply to a more general population, including the male predominance in the study (75%) and the selection of mainly cardiac or abdominal aortic surgery (88%) with only 22% being general surgery.

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References


(accepted for publication December 6, 2011)

The “Gray Zone Approach”: Assessing the Accuracy of Pulse Pressure Variation without Considering the Prevalence?

To the Editor:
We read with great interest the article of Cannesson et al. regarding the accuracy of pulse pressure variation monitoring to predict fluid responsiveness. We applaud the introduction of “misclassification cost” as a novel approach to evaluate the clinical utility of a widely advocated monitoring technique.