ICU MANAGEMENT & PRACTICE

Study on Abdominal Surgical Patients Investigates Clinical Utility of Masimo PVI®

Masimo has announced the findings of a study recently presented at the World Congress of Anesthesiologists (WCA) in Hong Kong. In the study, researchers at Cairo University in Egypt investigated the clinical utility of a Masimo SET® noninvasive, continuous measurement, PVI®.

In the prospective study of 60 adult patients undergoing major abdominal surgery, Drs. Hafez and Helmy of Cairo University evaluated the performance of Masimo PVI as a non-invasive guide to fluid optimization, as compared to transesophageal doppler. Patients were divided into fluid responders and non-responders, based upon the change in stroke volume due to a bolus response. The baseline value of PVI was significantly higher ($p < 0.05$) in responders compared to non-responders. The authors also noted that a baseline PVI cutoff value of 11 had 96.67% sensitivity and 33.33% specificity for predicting >10% stroke volume increase. They concluded that PVI is "an efficient predictor of fluid responsiveness…in patients undergoing elective major abdominal surgery."[1]

PVI is a measure of the dynamic changes in perfusion index (PI) that occur during the respiratory cycle. In clinical studies, PVI has been shown to help clinicians assess fluid responsiveness in mechanically ventilated patients under general anesthesia during surgery,[2,3,4,5] in the ICU in both adults and children,[6,7] and in septic patients in the early stages of shock in the emergency department. [8] Another study used PVI as part of goal-directed therapy for patients in an enhanced recovery after surgery (ERAS) program who underwent colorectal surgery; the program led to significant reductions in lengths of stay, costs, surgical site infections, fluid administered, as well as improvement in patient satisfaction.[9]

References

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