A576 - Prediction of post-induction hypotension associated with general anesthesia using point-of-care cardiac ultrasound: the value of two dynamic markers of fluid responsiveness

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Introduction:
Hypotension is a common side effect of general anesthesia (GA) and is associated with organ hypoperfusion and poor perioperative outcome [1]. Post-induction hypotension (PIH) is caused by the depressant cardiovascular effect of anesthetic drugs and could be amplified by hypovolemia. The aim of this study was to assess the ability of two echocardiographic fluid responsiveness markers to predict PIH: the inferior vena cava collapsibility index (IVC-CI) and the velocity time integral change (ΔVTI) after passive leg raising.

Methods:
Sixty patients > 50 years of age and scheduled for elective surgery were included. IVC-CI and ΔVTI were measured before GA induction. Anesthesia protocol, fluid infusion and vasopressor administration were standardized in all patients. PIH was defined as a mean arterial pressure (MAP) <65 mmHg or a relative decline from pre-induction value of at least 30% within 12 minutes of GA induction. Receiver operating characteristic (ROC) curve analysis was used. The optimal cut-off was selected to maximize the Youden index (sensitivity + specificity − 1).

Results:
The measurement of IVC-CI and/or ΔVTI were unsuccessful in seven patients (11.6%). PIH occurred in 32 patients (incidence 53 %). The areas under the ROC curves (figure 1) were 0.84 [95% CI: 0.72 – 0.96; p<0.0001] for ΔVTI and 0.67 [95% CI: 0.52 – 0.83; p=0.043] for IVC-CI. The optimal cut-off values were 18% for ΔVTI (sensitivity 75%, specificity 91%) and 25% for IVC-CI (sensitivity 75%, specificity 45%).

Conclusion:
The ΔVTI after passive leg raising was able to predict PIH and performed better than IVC-CI. The use of this marker could help individualize strategies to prevent PIH (pre-induction fluid loading, vasopressors, anesthetic technique and close hemodynamic monitoring).

References:
Receiver operating characteristics (ROC) curves of ΔVTI (continuous line) and IVC-CI (Dashed line) for prediction of post-induction hypotension.