A291 - Assessing the response to a fluid challenge with LiDCOplus: does it augment decision making?

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Introduction:
Fluid responsiveness in ICU patients can be assessed using changes in pulse rate and blood pressure following administration of a fluid bolus, assisted if necessary by cardiac output (CO) monitors such as the LiDCOplus. This uses pulse contour analysis to estimate stroke volume (SV), with >10% change in SV following a fluid challenge (FC) signifying overall benefit. There is no evidence that the use of CO monitoring improves patient outcomes and it is unclear if it improves clinical decision making.

Methods:
A LiDCOplus monitor was set up with the screen covered. A 250ml FC was administered over 2 minutes. The heart rate, systolic and mean arterial pressures were recorded before and after the FC. The clinician administering the FC was asked to decide if the patient was fluid responsive. Following this decision, the SV change was revealed and the clinician asked again to assess fluid responsiveness.

Results:
Forty-five fluid challenges were studied. Use of the LiDCO changed the decision made on 7 occasions. In three patients (7%), this change in decision was appropriate and either corrected a misinterpretation of the haemodynamic data or represented a patient whose only marker of fluid responsiveness was a SV change. In four patients (9%), the LiDCO changed the decision inappropriately from a correct interpretation of the haemodynamic data. In six patients (13%) the SV change was ignored when it should have changed the initial decision. In the remaining 32 patients (71%) the decision made with the haemodynamic data was in agreement with the SV change and unchanged by revealing the LiDCO data.

Conclusion:
The use of LiDCO monitoring only appropriately changed the decision made with information from basic haemodynamic monitoring in 7% of patients. This augmentation of decision making was only seen in patients whose basic haemodynamic parameters did not respond to fluid. It changed a correct decision inappropriately in 9%. Overall, no improvement in the assessment of fluid responsiveness was seen.
Summary of Fluid Responsiveness Decisions and Effect of LiDCOplus