

4AP8-7

Accuracy of volumetric and dynamic variables of fluid responsiveness in presence of left ventricular hypertrophy and diastolic dysfunction

Broch O., Renner J., Gruenewald M., Carstens A., Steinfath M., Bein B.
University Schleswig-Holstein, Campus Kiel, Dept of Anaesthesiology & Intensive Care, Kiel, Germany

Objective: Recent studies could demonstrate that goal directed therapy based on dynamic and volumetric variables of fluid responsiveness could reduce morbidity after major surgery [1]. The limitations and the reliability of variables of fluid responsiveness like stroke volume variation (SVV), pulse pressure variation (PPV) and global end-diastolic volume index (GEDVI) have been investigated repeatedly [2]. However, the ability of SVV, PPV and GEDVI to predict percentage changes in stroke volume index (SVI) in presence of left ventricular hypertrophy and diastolic dysfunction is unknown. The aim of the present study was to challenge the predictive power of SVV, PPV and GEDVI in this group of patients.

Methods: After institutional ethics committee approval and informed consent 25 patients scheduled for elective aortic valve replacement were studied after induction of anaesthesia and both during and after passive leg raising (PLR). Each patient was monitored with central venous pressure (CVP), the PiCCO2 monitoring system and transoesophageal echocardiography. Responders were defined to increase their SVITPTD >15% during passive leg raising (PLR). Diastolic dysfunction was evaluated by echocardiography using e:a ratio and mitral flow propagation. To assess the ability of a variable to identify responders and non-responders receiver operator characteristic (ROC) curves were generated.

Results: We observed 13 responders (increase in SVITPTD >15%) after PLR and 12 non-responders (increase in SVITPTD < 15%). ROC-analysis yielded an AUC (95% confidence interval; p-value) of 0.65 (0.39-0.97, p=0.19) for SVV, 0.68 (0.41-0.96, p=0.18) for PPV, 0.62 (0.32-0.87, p=0.47) for GEDVI and 0.55 (0.32-0.87, p=0.51) for CVP.

Conclusion: Dynamic and volumetric variables of fluid responsiveness were not able to predict a percentage increase in stroke volume in patients with diastolic dysfunction.

4AP8-8

A restrictive deferred fluid regimen combined with an adjuvant norepinephrine administration during open radical cystectomy decreases postoperative complication rate and accelerates recovery: results of randomised clinical trial

Wuethrich P, Burkhard FC., Stueber F, Studer U.E.
University Hospital Bern, Dept of Anaesthesiology & Pain Medicine, Bern, Switzerland

Background and Goal of Study: Radical cystectomy is a challenging major urologic procedure including mainly old patients at high risk for early postoperative complications. The impact of intraoperative fluid management on postoperative outcome in patients undergoing open radical cystectomy is poorly assessed. The objective of this study was to determine the influence of a restrictive and deferred intraoperative crystalloid hydration combined with a norepinephrine administration on postoperative complications compared to a more standard crystalloid hydration.

Materials and Methods: *Design, setting and patients:* Double-blind, randomized, clinical trial including 166 patients undergoing pelvic lymph node dissection, open radical cystectomy and urinary diversion at a single major urological centre between November 2009 and September 2012. Exclusion criteria were severe hepatic and renal dysfunction, congestive heart failure and contraindication to epidural analgesia. *Interventions:* Patients were randomly assigned to 1ml/kg/h crystalloid administration until the cystectomy was finished and then 3ml/kg/h until the end of surgery combined with an adjuvant norepinephrine administration (intervention group) or 6ml/kg/h of crystalloid infusion (control group).

Main Outcome Measures: Primary outcome: in-hospital complication rate according to the postoperative morbidity survey. Secondary outcomes: hospitalisation time and 90d mortality rate.

Results and Discussion: Overall in-hospital complications occurred in 43/83 patients (52%) in the intervention group and in 61/83 (73%) in the control group (P=0.006). The rates of gastrointestinal and cardiac complications were significantly lower in the intervention group (5 (6%) vs 31 (37%); P< 0.001 and 17 (20%) vs 39 (48%); P< 0.001), respectively. The number of renal, infectious, pulmonary and thromboembolic complications did not differ between the two groups. The median hospitalisation time was 15d [range: 11-

27] for the intervention group and 17d [11-95] in the control group (P=0.02). The overall 90d mortality was 2.4% (0/83 patients (0%) in the intervention group and 4/83 patients (4.8%) in the control group; P=0.12).

Conclusion: In patients undergoing open radical cystectomy, an intraoperative restrictive deferred crystalloid administration combined with an adjuvant administration of norepinephrine reduces the postoperative complication rate, accelerates recovery and shortens the hospitalisation time.

4AP8-9

Comparison of peripheral to central venous pressure in postoperative cardiac surgery patients

Santos J., Ferreira H., Marques C., Marques M., Santos V., Vilela H.
Hospital de Santa Maria, Dept of Anaesthesiology, Lisbon, Portugal

Background and Goal of Study: Central venous catheters are associated with potential complications including arterial puncture, pneumothorax and development of infection. Peripheral venous pressure (PVP) through a peripheral venous catheter is technically easier and safer and has been suggested as an alternative to central venous pressure (CVP).^{1,2} We prospectively compared CVP and PVP in postoperative cardiac surgery patients at the intensive care unit.

Materials and Methods: Thirty-seven postoperative cardiac surgery patients were enrolled in the study. CVP and PVP were recorded simultaneously at random points in time. The data pairs were analyzed for correlation (Spearman's rank correlation), linear regression and agreement (Bland and Altman analysis corrected for repeated measurements). Values of P < 0.05 were considered statistically significant.

Results and Discussion: Ninety-one paired recordings of CVP and PVP were collected. The mean CVP (SD; range) was 9.1 mmHg (4.1; 4.0 to 21.0) and the mean PVP was 11.5 mmHg (4.9; 4.0 to 26.0) (P < 0.0005). Overall there was a strong positive correlation between PVP and CVP (r = 0.879; P < 0.0001). The linear regression equation showed that CVP = 0.71PVP + 0.88 (r² = 0.736; P < 0.0001). The mean (SD) bias (PVP-CVP) was 2.4 (2.5) mmHg (P < 0.0001). Lower and upper limits of agreement (LOA) were -2.5 and 7.3 mmHg, respectively. Four of 91 points were outside the LOA. PVP showed a strong correlation with CVP although there was a statistically significant bias and relatively large LOA.

Conclusion(s): We conclude that although the two methods cannot be used interchangeably, PVP may be considered as a noninvasive alternative to CVP in postoperative cardiac surgery patients.

References:

- Intensive Care Med. 2004 Apr; 30(4): 627-32.
- Anaesth Intensive Care. 2003 Feb; 31(1): 34-9.

4AP8-10

Haemodynamic changes in morbidly obese patients undergoing laparoscopic bariatric surgery

Milne A., Linzner J., Sanyal J., Patel S., Dunsire F, Ali W.
Kings College Hospital, Dept of Anaesthesiology, London, United Kingdom

Background: The prevalence of morbid obesity has reached 1% in the UK and laproscopic bariatric surgery has become increasingly common. Although the adverse haemodynamic effects of a pneumoperitoneum are well characterised, there is currently conflicting evidence as to its impact on bariatric patients^{1,2}.

We sought to determine the effects of pneumoperitoneum (PP) and reverse trendelenburg positioning (RT) on the haemodynamic parameters (HDP) of morbidly obese patients undergoing laproscopic bariatric surgery.

Methods: The demographics of 7 morbidly obese patients undergoing laproscopic bariatric surgery were recorded and intraoperative HDPs measured using LiDCORapid. Heart rate (HR), stroke volume index (SVI), systemic vascular resistance index (SVRI), stroke volume variability (SVV) and cardiac index (CI) were measured post-induction (t1), after abdominal insufflation (t2) and after reverse trendelenburg positioning (t3). Changes in HDPs were compared to baseline (t1) using the paired t-test.

Results: Unless otherwise stated, values are mean (SD).

Age	41.7 (9.8)
Gender (%[n])	85 (6) Female
ASA Grade (Mode [Range])	2 (2)
BMI	49.6 (9.1)

[Table 1: Patient Demographics]