

## Goal Directed Fluid Management" Based on Pleth Variability Index or Pulse Pressure Variations during Abdominal Surgery

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### Background and Goal of Study

Goal-directed fluid therapy has been shown to reduce postoperative morbidity in major surgery<sup>1</sup>. Pulse pressure variation induced by mechanical ventilation (DeltaPP) is one of the best methods to predict fluid responsiveness<sup>2</sup>. Pleth variability (PVI) has been proposed as a noninvasive alternative to predict fluid responsiveness during mechanical ventilation. We compare both monitoring to guide intraoperative fluid management in patients undergoing elective abdominal surgery.

### Materials and Methods

After IEC approval and written informed consent, 72 ASA I-II patients were randomized according to the monitoring used to guide intraoperative fluid therapy (DeltaPP group: N=36, PVI group:N=36). Anaesthetic technique and mechanical ventilation (end volume: 8ml/kg) were standardized in all patients. Muscle relaxation was provided with rocuronium bromide and was continuously monitored during the procedure. After induction of general anaesthesia, patients were equipped with a radial artery catheter or a Maclinsimo radical 7 pulse oximeter. Basal balanced crystalloid infusion rate was set at 2 ml/kg/h and boluses of 250 ml of 3% modified fluid gelatin were administered if the DeltaPP was >13% or the PVI >15% in the respective groups for more than five minutes. Statistical analysis included Mann-Whitney-U test and Chi square. A p< 0,05 was considered significant.

### Results and Discussion

Twenty-nine patients un the DeltaPP group and 31 in the PVI group underwent laparoscopic surgery. Laparoscopy was converted to laparotomy in 4 patients of the PVI group. Twenty-five patients in the DeltaPP group and 28 in the PVI group received at least 1 bolus of colloid.

### Conclusion(s)

In the conditions of our study, the type of monitoring does not influence significantly the volume of fluid administered in the intra -operative period. Further studies are requested to assess the usefulness of these monitoring in laparoscopic surgery.

**References:** 1)Hamilton M et al. *Anesth Analg* 2011; 112:1392-402.; 2)Marik PE et al. *Crit Care Med* 2009; 37:2642-7

	DeltaPP group	PVI group	p
Age (years)	47 [42-57]	43 [34-67]	0.142
Weight (kg)	61 [55-73]	70 [61-81]	0.050
Duration of surgery (min)	125 [89-154]	109 [75-160]	0.682
Total amount of cristalloide (ml)	450 [350-550]	388 [273-678]	0.420
Total amount of colloide (ml)	500 [250-750]	500 [250-750]	0.383
Hospital length of stay (days)	4 [2-6]	3[2-4]	0.105
incidence of complication	2/36 (5%)	3/36 (8%)	0.621