

Does targeting individualized systolic blood pressure reduce organ dysfunction in high-risk patients undergoing surgery?

Summarized by: Gabriel Prada, MD

This month we investigate the effects of individualized vs standard blood pressure management on postoperative organ dysfunction among high-risk patients undergoing major surgery on [the INPRESS trial published in JAMA in 2017](#). We know that hypotension, however brief and minimal, is associated with adverse outcomes, especially in high-risk patients undergoing major surgery. Evidence to define meaningful hypotension in the anesthetized patient continues to evolve and this trial moves us closer to understanding where that threshold exists.

Design: multicenter, stratified, unblinded, randomized controlled trial in France

Population: 292 high-risk patients (147: intervention, 145: control), mean age 70, ~82% had chronic HTN, ~94% were abdominal surgeries

Intervention: norepinephrine infusion to target SBP within 10% of reference (resting) SBP

Control: IV ephedrine boluses to target SBP >80 mmHg or <40% below reference SBP

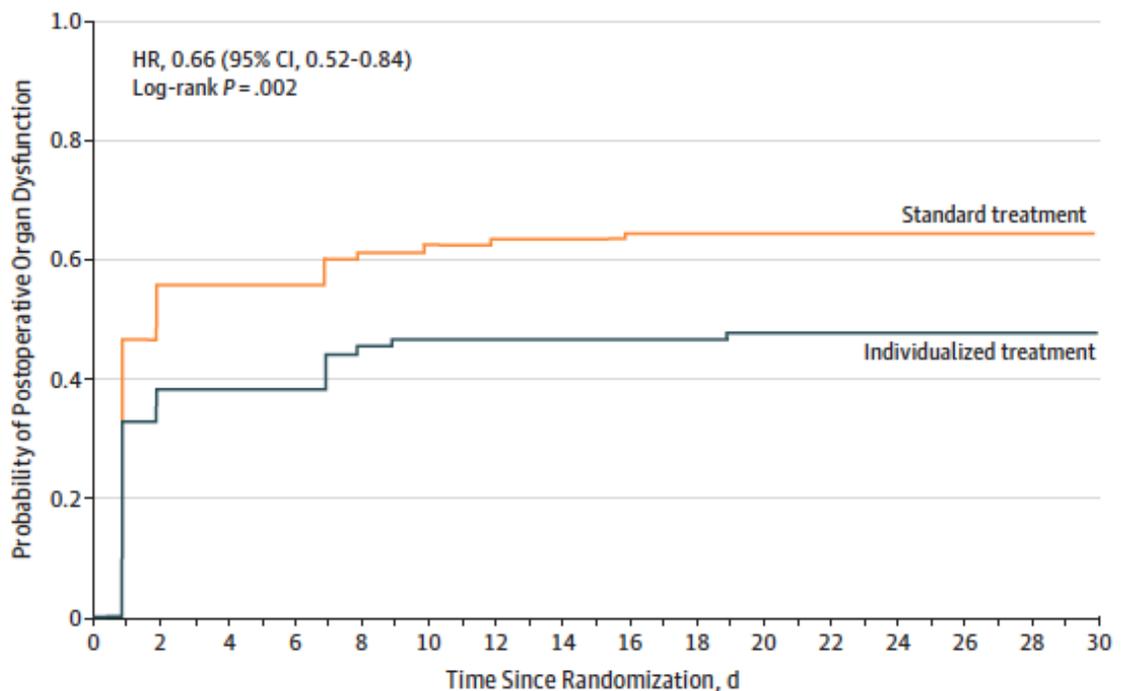
Outcome: composite of SIRS and at least one organ dysfunction by postoperative day 7

Conclusion: **targeting individualized SBP reduces the risk of postoperative organ dysfunction in high-risk patients undergoing abdominal surgery**

Limitations: all patients had invasive BP monitoring which may not be reflective of our practice. Majority of recruited patients excluded due to AKI risk index <3.

Outcome	Individualized SBP (n = 147)	Standard SBP (n = 145)	Adjusted RR (95% CI)
SIRS + organ dysfunction	56 (38%)	75 (51%)	0.73 (0.56 to 0.94) p = 0.02
Renal dysfunction	48 (32%)	71 (49%)	0.70 (0.53 to 0.92) p = 0.01
Altered mental status	8 (5%)	23 (15%)	0.34 (0.16 to 0.75) p = 0.07

Figure 3. Kaplan-Meier Estimates of the Probability of Postoperative Organ Dysfunction by Day 30 After Surgery



No. at risk					
Standard treatment	145	78	65	58	54
Individualized treatment	147	99	91	82	80

Bonus research: an [observational study published in *Anesthesiology* in 2013](#), Walsh et al. from the Cleveland Clinic evaluated 33,330 patients who underwent noncardiac surgery and found that intraoperative MAP <55 mmHg was associated with postoperative AKI or myocardial infarction, even for periods of hypotension that lasted less than 5 mins. In addition, 30-day mortality was significantly associated with more than 20 min of MAP <55 mmHg.

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