

## Competing Interests

The author declares no competing interests.

**Erin Hurwitz, M.D.**, Affiliated Anesthesiologists, LLC, Oklahoma City, Oklahoma. erin.hurwitz@gmail.com

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## Use of Vasopressin in Vasoplegic Syndrome with Reduced Ejection Fraction: Asking for Trouble

*To the Editor:*

I read the article by Hajjar *et al.* with great enthusiasm.<sup>1</sup> First, I would like to congratulate the authors for their ambitious study and reasonable conclusions. They concluded that vasopressin improved clinical outcomes better than norepinephrine in vasoplegic shock after cardiac surgery. I would like to discuss the concerns associated with the use of a pure vasoconstrictor after cardiac surgery.

Transient or sustained vasoplegia is not uncommon after cardiac surgery and it is characterized by a fall in systemic vascular resistance (SVR).<sup>2</sup> In addition, myocardial stunning or hibernation after cardiac surgery commonly results in reduction of left ventricular ejection fraction.<sup>3</sup> Furthermore, preoperative low ejection fraction is one of the most documented predictors for vasoplegia after on-pump cardiac surgery.<sup>2</sup> A reduction in SVR may be associated with improvement in cardiac index.<sup>4</sup> To maintain systemic blood pressure solely by increasing SVR without augmenting cardiac contractility may prove counterproductive.<sup>5</sup> Therefore, our target should be to maintain SVR within normal limits.<sup>6</sup> Although the authors mentioned that the cardiac index did not change after vasopressor infusion, in patients with reduced ejection fraction, cardiac index expectedly reduces after pure vasoconstrictor infusion.<sup>7</sup> Vasopressin-related myocardial dysfunction does not arise as a result of increase in SVR, but from a direct effect on cardiac contractility.<sup>8</sup> In the current study, the majority of patients (53%) had a normal preoperative ejection fraction (greater than 60%). Unlike vasopressin, its receptor antagonist

has shown to improve left ventricular systolic function.<sup>9,10</sup> An assessment of ejection fraction in vasoplegic syndrome would have been ideal for better interpretation of the results of this study. In patients with preserved ejection fraction, vasopressin may prove superior to norepinephrine, but generalization of this study finding in patients with vasoplegic syndrome and diminished ejection fraction could be debatable.

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**Ajay Kumar Jha, M.D., D.M.**, All India Institute of Medical Sciences, Bhubaneswar, India. drajaykjh@rediffmail.com

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