

In Reply:—I thank Dr. Ben-David for his interest in our recently published paper on the risks associated with high injection pressure during lumbar plexus blockade.¹ Here is my brief reply:

1. Dr. Hadzic is a shareholder at Macosta-Medical USA (Houston, TX); none of the remaining authors have financial interest in the device used in the study. In hindsight, although we simply studied the effect of injection pressures on epidural spread during lumbar plexus block rather than the actual devices or means of monitoring, this probably would have been best disclosed *a priori*.
2. It would be logical to assume that a small volume of injectate is unlikely to lead to epidural/contralateral spread of the local anesthetic, regardless of the injection pressure. Our findings, however, specifically indicate that high injection pressure during a standard single-shot technique of lumbar plexus block using 35 ml carries a significant risk of this complication. Administration of local anesthetic through a small-gauge indwelling catheter may involve an entirely different process and/or injection pressure considerations. This was not the subject of our study, and I do not have data to comment on this objectively.
3. I appreciate Dr. Ben-David's description of an alternative technique consisting of paravertebral L1 to L2 low-volume injections for postop-

erative analgesia after hip arthroscopy.² In our study, a lumbar plexus block was used as anesthesia for knee surgery, rather than for postoperative analgesia as in Dr. Ben-David's publication.^{1,2} Equating anesthesia with analgesia remains a common source of discussion bias when discussing regional techniques; techniques used for analgesia are not universally interchangeable with techniques used for anesthesia. Finally, an anecdotal publication of two successful patient management scenarios using a new technique does not support claims of greater safety, efficacy, and ease-of-use advantages.²

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What Happens with the Fluid Replacement in the Septic Surgical Patient?

To the Editor:—We have read the interesting review of Chappell *et al.*¹ about the rational approach to preoperative fluid management, and we would like to add several aspects related to the surgical patient with sepsis coming to the operation room.

In 2004, the first guidelines² of the management of the septic patient were published. In these guidelines, fluids were essentially given to reach the objectives in terms of blood pressure. At the beginning of 2008 these guidelines were updated,³ and one of the most important items was still fluid replacement. If you follow the guidelines, as you should, you will find yourself giving a huge amount of volume in the first 24 h.

These guidelines did not differentiate the surgical and the medical patient. As we all know, our surgical patient has many differences in terms of fluid management.

For example, if you are on duty and the surgeon calls us because he has a patient in septic shock because of peritonitis, then we follow the guidelines using different monitors that show us the fluids the patient needs (central venous saturation, systolic pressure variation, lifting the legs up, *etc.*); what we really obtain is a very liberal fluid strategy.

As Chappell *et al.*¹ analyze, there are many studies that show us that the liberal strategy increases the anastomotic leaks, pulmonary edema, and wound infection after colorectal surgery. So what do we do?

To try and answer this question, we have to first find studies that discuss this specific topic, but it is really difficult to find. So what we really do is extrapolate the studies of the surgical scheduled patient and the septic patient, and we put them all together.

In the majority of patients, the septic surgical patient reaches the operation room with a high negative fluid balance, hypoproteinemic (hypoalbuminemic), and hypotensive. At that moment we start to administer fluids, but what type of fluids? The septic patient guidelines indicate that there is no difference in terms of mortality in using colloids or crystalloids.

If we give only crystalloids it would provoke different complications,⁴ but a big third space would be created in our patient, and this is related to higher morbidity,⁵ including anastomotic leaks.⁶ If we give only colloids, it could aggravate the septic kidney failure.⁷

In the end we try and balance the guidelines for the surgical and medical patient; colloid nephrotoxicity *versus* tissue edema of crystalloids, rapid fluid replacement *versus* slow fluid replacement with vasopressor.

The liberal strategy is beneficial for the septic patient but is deleterious for the surgical one. Trying to counterbalance the risks and benefits of the correct fluid replacement strategy is at times difficult because of the lack of studies and guidelines in the septic surgical patient.

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