Optimal Surgical Conditions in Laparoscopic Surgery: Just Relax and Lower the Pressure

To the Editor

In their recent review, Kopman and Naguib suggest that the benefits of deep neuromuscular block (NMB) may be nonexistent. This is a surprising conclusion, given the increasing amount of literature on this topic that shows a significant clinical benefit from deep NMB. The most important study in this respect, by Martini et al., demonstrated in a blinded, randomized, controlled trial that the use of deep compared with moderate NMB is associated with an improved quality of surgical conditions in retroperitoneal laparoscopies (retroperitoneal prostatectomy, and nephrectomy) as determined by an experienced surgeon on a 5-point surgical rating scale. Moreover, the peri- and postoperative cardiorespiratory conditions of the patients that received deep NMB were not compromised.

Another study showed that the use of deep NMB compared with no NMB improved surgical conditions for laparoscopic cholecystectomy by a motionless surgical field and better visibility. Apart from inducing the absence of interfering muscle contractions, deep NMB at post-tetanic count values ≤2 may allow for increased intraabdominal volume at lower insufflation pressures. This is important because a low pressure pneumoperitoneum (8 mm Hg) may be more advantageous than a standard pressure (12 mm Hg) in terms of the adverse impact on the surgical peritoneal environment. Guidelines from the European Association for Endoscopic Surgery recommended the use of the lowest intraabdominal pressure possible rather than the use of a routine pressure.

We contend that both surgeons and anesthesiologists agree that the level of NMB, assessed with quantitative neuromuscular monitoring, should be aimed at optimal surgical conditions with the lowest possible pressure. This would see the prospects of improved outcome, including the potential to minimize the adverse effects of high intraperitoneal pressure on inflammation/periportal fibrosis, and less pain in the days after surgery.

However, in this interesting field of neuromuscular management in relation to cavity pressure, cavity volume, and patient outcomes, there are several challenges. When assessing surgical conditions, objective measures should be developed, which may result in eliminating the discrepancy between anesthesiologist and surgeon ratings of optimal surgical conditions. The surgical rating scale of Martini et al. is a first step in this direction. Furthermore, it is important to find the correct balance between insufflation pressure and cavity volume. A deep NMB may result in larger volumes at the same pressure, leading to overexpansion of the abdominal cavity is related to visceral pain and other physiological changes, affecting the postoperative outcome negatively. Finally, in relation to the use of deep NMB laparoscopic surgical procedures, more data are required on objective end points regarding outcomes of interest, such as surgical time, incidence of complications, postoperative patient outcome, graft function, pain, or other outcomes specific to the type of patient and surgery.

The study by Martini et al. provides unambiguous evidence of benefit in one setting to deep NMB. Indeed, while we agree that further studies are needed to confirm the benefits of deeper levels of NMB in laparoscopic surgery, a multidisciplinary approach in the development of this new paradigm in laparoscopic surgery will be beneficial to the patient.

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