

Laparoscopic Cholecystectomy under Epidural Anesthesia: A Feasibility Study

Dear Editor,

We read with great interest the work done by Hajong *et al.*, which has been published in your esteemed journal.^[1] Laparoscopic cholecystectomy is a very common surgical procedure. The goal of anesthetic management for patients undergoing laparoscopic cholecystectomy includes achieving adequate level of sensory blockade, management of pneumoperitoneum, management of shoulder tip pain along provision of postoperative pain relief adequate to prevent deterioration of respiratory mechanics, and early ambulation. Spinal, epidural anesthesia, or combined spinal epidural (CSE) anesthesia fulfills these criteria, and thus has been suggested to be a suitable alternative anesthetic method for laparoscopic surgeries.^[2] It has been performed under spinal anesthesia with a good success rate.^[3,4] CSE anesthesia has also been used for laparoscopic appendectomy with success.^[5] Laparoscopic cholecystectomy under epidural anesthesia has also been done in patients with comorbidity.^[6,7] The feasibility assessment of epidural anesthesia in American Society of Anesthesiologists (ASA) I and II physical status patients is an interesting aspect; however, we have few concerns regarding the present work.

Firstly, in the present study local anesthetic drug used is not so clear. After epidural catheter placement, 3 ml of 2% lidocaine with adrenaline (1:200,000) was given as a test dose followed by 10 ml of 0.5% bupivacaine, which was given via the epidural catheter. Thereafter, incremental doses of 3 ml of 0.5% bupivacaine were given till the desired level of block was reached. Again anesthetic solution was prepared using 18 ml of lidocaine 2% plus epinephrine (1:200,000) and 2 ml of sodium bicarbonate 8.4%. After negative aspiration, 3 ml of the solution was administered as a test dose followed by an additional 7 ml along with 50 µg fentanyl and an additional 2 ml of the solution was administered incrementally to reach the desired level of segmental block.

Secondly, the combined dose of administered local anesthetic clearly appears to be in toxic level even for infiltration anesthesia and above recommended maximum dose for an average Indian female patient of 45-50 kg.^[8]

Thirdly, it is mentioned that, epidural catheter was inserted at T9-10 ± 2 levels, which was further pushed 3 cm cephalic and then drug was injected. The position appears to be fine, but in association with the high dose, volume, and concentration used as mentioned; chances of involvement of cardiac accelerator fibers are very likely. Though the desired level of block word is mentioned, level of desired block or block achieved before starting the surgery, including the severity of block is also not mentioned.

Fourthly, it is mentioned that end-tidal carbon dioxide (EtCO₂) was monitored in these patients. As the patients were on facemask for O₂ supplementation, what method was used to measure or monitor EtCO₂ accurately is not clear? If it was measured from expired gas of face mask in the study, what was the use and reliability?

Fifthly, CO₂ pneumoperitoneum is expected to increase minute ventilation in an otherwise awake patient under epidural anesthesia. In the present study it is mentioned that no significant changes were noted in the respiratory parameters in any patients which appears to be contradictory to the normal physiology. Or, can it be because that some of them have received injection midazolam 1-2 mg and incremental fentanyl 1-2 µg/kg over and above epidural 50 µg fentanyl in all patients intraoperatively which have actually caused enough sedation to cause respiratory depression? In this context, it will be nice to know, what parameters were monitored for respiratory changes along with the sedation level of the patients.

Sixthly, spinal or CSE anesthesia is known for its rapid onset and same is a disadvantage of epidural anesthesia. To judge feasibility of a technique in perioperative period, especially in ASA I and II physical status patients for routine use, it is also necessary to take the time and cost factor into account. The cost of the epidural catheter set, price of high amount of drugs needed for epidural anesthesia and the time required to achieve the desired level of block with 10% conversion (as found in this study) to general anesthesia (GA) rate needs to be introspected further before deciding so.

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