Comparison of standard-pressure and low-pressure pneumoperitoneum in laparoscopic cholecystectomy: a double blinded randomized controlled study

Abstract

Background and objective: With the safety of laparoscopic cholecystectomy (LC) having been established, the current stress is on reducing the postoperative morbidity associated with this procedure. Hence, this study was undertaken to compare the effect of low-pressure (8 mm Hg) (LPLC) versus standard-pressure (12 mm Hg) (SPLC) pneumoperitoneum on postoperative pain, respiratory and liver functions, the stress response, and the intraoperative surgeon comfort in patients undergoing LC.

Materials and methods: Patients undergoing LC (n=43) were randomized into the LPLC (8 mm Hg) group (n=22) and the SPLC (12 mm Hg) group (n=21). Postoperative pain, changes in liver function, peak expiration flow rate, C-reactive protein level, and intraoperative surgeon comfort were assessed.

Results: The postoperative pain scores (P=0.003, 0.000, 0.001, and 0.002 at 0, 4, 8, and 24 h), total analgesic requirement (P=0.001), and the number (total and good) of demands for analgesic in the first 24 hours (P=0.002 and 0.001) were lower in the LPLC group. The surgeon comfort in the LPLC group was significantly lesser (P=0.000). The liver function and peak expiration flow rate did not show any significant changes. C-reactive protein levels varied significantly only at 24 hours postoperatively (P=0.001).

Conclusions: The use of low-pressure pneumoperitoneum (8 mm Hg) for LC is associated with a significantly lower postoperative pain. However, the use of this low-pressure pneumoperitoneum can jeopardize the surgeon's comfort.