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A Randomized Controlled Study Comparing Three Methods of Gas Releasing on Abdominal Distension in Patient Underwent Laparoscopic Cholecystectomy

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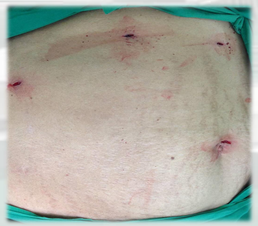
Background Residual intra-abdominal CO_2 could contribute to abdominal distension and pain following laparoscopic surgery. The present study was designed to assess the recovery of abdominal distension after usual gas releasing, active aspiration and passive valve release in patients underwent laparoscopic cholecystectomy (LC).

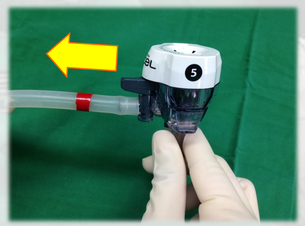
Methods In this randomized control trial, a total of 142 patients underwent LC were randomly divided into 3 groups. Group I: gas release from surgical wound without port releasing (control group; n = 47), group II: active gas aspiration via sub-diaphragmatic port (active aspiration group; n = 48) and group III: passive valve release by sub-diaphragmatic port valve releasing (passive valve release group; n = 47). Abdominal distension and shoulder pain was assessed using a numeric rating scale (at 30 min, 60 min 4 h and 24 h postoperatively), blinded assessor from the intervention techniques. Data were analyzed using the frequency, percentage, mean, SD, Chi-Square, Post-Hoc test and ANOVA.

Results The active aspiration group significantly reduced postoperative abdominal distension at 30 min, 4 h and 24 h postoperatively compared with the control group (50% vs. 80.9%, 43.8% vs. 76.6%, 33.3% vs. 57.4 %, respectively, p <0.05). Abdominal distension at 60 min postoperatively not significantly difference between groups (control 85.1%,active aspiration 64.6%, and passive valve release 72.3%). The passive valve release group significantly reduced postoperative abdominal distension at 4 h and 24 h postoperatively compared with the control group (51.1% vs.76.6%, 57.4 % vs. 36.2%, $p < 0.05$). Both of the intervention groups significantly reduced postoperative shoulder pain level (at 30 min, 60 min 4 hours and 24 hours postoperatively) compared with the control group ($p < 0.001$). In addition, postoperative ambulation time at inpatient unit in the active aspiration group significantly shorter than the control group and passive valve release group ($p < 0.001$).

Conclusion Releasing of the residual CO2 intra-abdominal cavity at the end of LC with the active aspiration or passive valve release techniques are the effective procedure to reduce the postoperative abdominal distension and shoulder pain.



Control group



Active aspiration group

Valve release group

Keywords:
laparoscopic cholecystectomy, abdominal distension, shoulder pain, active aspiration, valve release

Poster No.15

Perioperative Nursing Implication: The important role of perioperative nurse is patient advocacy. To collaborating with the multidisciplinary team for releasing of the residual CO2 intra-abdominal cavity at the end of laparoscopic surgery could reduce postoperative abdominal distension and shoulder pain. Furthermore, the reduction of residual intraperitoneal gas could decrease postoperative ambulation time and enhance the patient's recovery.