

Systematic review of the impact of operative techniques on post-operative pain in laparoscopic cholecystectomy

Rory McCloy, Francis Bonnet, Frederic Camu, Barrie Fischer, Henrik Kehlet, Margarita Puig, Narinder Rawal and Christian Simanski on behalf of the PROSPECT Working Group

Goal of Study: A systematic review was conducted to compare the efficacy and safety of analgesic, anaesthetic and operative techniques in influencing post-operative pain in adult patients undergoing laparoscopic cholecystectomy.

Materials and Methods: The review was conducted according to the methods of the Cochrane Collaboration. MEDLINE was searched from 1966–June 2002 and EmBASE from 1988–June 2002. A total of 59 studies was included in the review: randomised trials of peri-operative analgesia compared with either placebo or other methods of analgesia, and trials of anaesthesia and operative techniques conducted to examine their effect on post-operative pain. Qualitative and quantitative analyses were conducted.

Results: Fifty-seven studies were included for analysis. *Microlaparoscopic cholecystectomy (5 studies):* 3/5 studies showed superiority for post-operative pain scores up to 48 hours and the length of convalescence vs. conventional laparoscopic cholecystectomy. *Radially expanding trocars (2 studies):* Limited data do not provide definitive evidence of an advantage for radially expanding trocars vs. conventional trocars on pain scores. *Warmed pneumoperitoneum (PP [3 studies]):* Warmed CO₂ PP is not superior to conventional CO₂ PP in reducing pain scores. *Pressure of CO₂ PP (2 studies):* Low pressure CO₂ PP is superior to conventional CO₂ PP in reducing pain scores up to 48 hours, the use of supplementary analgesia, and the length of hospital stay by a median of 0.5 days. *N₂O vs. CO₂ PP (1 study):* The use of N₂O is superior to CO₂ for pain scores. *Helium vs. CO₂ PP (1 study):* Helium is not superior to CO₂. *Gasless vs. gas techniques (1 study):* Gasless techniques are not superior to gas techniques. *Suction of CO₂/lavage and suction (1 study):* CO₂ suction is superior to no suction for pain scores, but it is not clear whether lavage and suction are superior in combination.

Conclusions: Of available techniques, microlaparoscopy, low pressure CO₂ pneumoperitoneum and suction of CO₂ appear to have a beneficial effect on postoperative pain in laparoscopic cholecystectomy. For other techniques, further data are required for definitive conclusions to be made.