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

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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.