

Preemptive Analgesia in Single-Incision Laparoscopic Surgery

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The administration of local anesthetics into the wound before the incision (preemptive analgesia) has been demonstrated to reduce postoperative pain in many kinds of elective surgery such as inguinal herniorrhaphies [1], gynecological procedures [2], and appendectomies [3]. The concept of preemptive analgesia is based on the hypothesis that the most effective way to eliminate or reduce postoperative pain is to prevent nociceptive input from afferent stimuli to the central nervous system so that central nervous system hyperexcitability does not occur [4]. Local tissue infiltration has many advantages: simplicity, safety, and low cost; the efficacy of this procedure has been investigated in several studies, but without reaching a clear conclusion that shows the real benefits of this technique [5].

An appendectomy is one of the most common emergency surgical procedures. However, few randomized clinical studies have been done to determine the efficacy of preemptive analgesia for postoperative pain relief after an appendectomy, and the results remain controversial [6, 7]. Cervini et al. [7] demonstrated the benefit of preemptive bupivacaine infiltration by showing that it resulted in a decreased need for postoperative parenteral narcotics in patients undergoing a laparoscopic appendectomy. Kim et al. [8] reported that the total dose of analgesics in the 24 hours following surgery was not statistically significant, but the pain scores in the 24 hours after surgery were higher in patients who underwent a single-incision laparoscopic surgery (SILS)-appendectomy.

As the number of ports is reduced to one, the length of the single fascial incision tends to be longer. The length of the fascial in-

cision is closely associated with postoperative wound pain [9]. The single umbilical incisions reported in other studies typically reached lengths of 15 to 20 mm.

Although postoperative pain has not been a major concern since the introduction of the routine laparoscopic cholecystectomy (LC), supporters of a single-incision LC (SILC) advocate the hypothesis that a reduction in the number of incisions may result in lower postoperative pain. On the other hand, some authors believe that the SILC increases postoperative pain because of the additional stress on the port incision necessary to allow triangulation of the instruments and exposure or the longer incision at the port site. Previous meta-analyses showed no difference in pain on the day after surgery between the two approaches. In the present meta-analysis, no differences in postoperative pain were found up to 30 days after surgery [10].

The study of Ahn et al. [11] aimed to determine the efficacy of preincisional bupivacaine infiltration as preemptive analgesia in postoperative pain relief after an appendectomy especially in single-incision laparoscopic surgery. Bupivacaine, 0.5%, was used as the local anesthetic for preincisional infiltration because it has a longer half-life than lidocaine and it has potential advantages for the relief of postoperative pain [12]. The study showed that preincisional bupivacaine infiltration was an effective and simple method of reducing postoperative pain for patients undergoing a SILS-appendectomy. Administration of preincisional bupivacaine infiltration may be worth considering for all patients undergoing an appendectomy, and it may be extended to other elective surgery as well.

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