

CHAPTER 5

DISCUSSION

Since the idea of pre-emptive analgesia had been introduced into clinical practice, there had been a considerable number of clinical trials evaluating the effect of intraoperative analgesia on postoperative pain. As it had been proposed that antinociceptive measures taken prior to surgery were predicted to reduce postoperative pain more than the same measures taken after the surgery.⁽²⁻⁵⁾ Timing is an important issue to be considered. Even though the noxious stimuli generated during surgery is not felt by the anesthetized patient, it may trigger central sensitization in the spinal cord. Once it was triggered, the state of central sensitization is likely to persist well into the postoperative period. It could therefore be a major contributor to postoperative pain.

There were two studies demonstrating the pre-emptive analgesic effect of local anesthetic wound infiltration given before rather than after surgery.^(11,15) For surgery under general anesthesia with pre- versus

postsurgical administration of systemic opioid, two studies have shown the prominent effect of pre-emptive analgesia.^(26,27) Richmond et al. concluded that a small dose of morphine (10 mg) had a greater effect on postoperative pain when administered before rather than after an operation.⁽²⁶⁾ They found a 27 % reduction in morphine dose administered postoperatively in presurgical group comparing with postsurgical group. In their postsurgical group, the use of preoperative opiates had been avoided and no other analgesics or local anesthetics were given perioperatively. The postsurgical dose of morphine was given at the time when the parietal peritoneum was closed. As we always include supplemental analgesics in our routine practice, we changed the study protocol to make it more applicable. We gave morphine in postsurgical (postincisional) group at 15 minutes after surgical incision was made. However, we could demonstrate a 24 % reduction in morphine dose given postoperatively in the preincisional group as well. In addition, we recruited both upper and lower abdominal surgery in our study to make it generalizable to all categories of abdominal surgery.

As we had already mentioned, we excluded three patients (two in preincisional and one in postincisional group) because of positive result on urine opiate test. These three patients had no history of chronic narcotic use or narcotic addiction and their urine samples were sent for confirmation on the day before surgery. When the result came out that they had positive urine opiate metabolites, they were considered failure to meet the inclusion criteria and were eventually excluded from the study. Regarding the pain intensity, NRS at 12 hours after surgery had not been measured since the patients were likely to be sleeping during this period of time and the pain scale obtained might not be reliable.

The time to first requirement of analgesia was previously used in some studies to demonstrate the pain-free period right after surgery. In this study, we found no significant differences between our study groups. It could perhaps be influenced by the duration of surgery itself and the residual effect of anesthesia. Moreover, we could not definitely tell that the patients really needed the analgesics when they first delivered morphine from the PCA machine. Some patients might use morphine to alleviate discomfort associated with bladder irritation from urinary catheterization or to make them feel asleep. The pain-free period in

preincisional group seemed to be shorter than the postincisional group. This could possibly be explained by the morphine's duration of action. Since the timing of morphine administration in preincisional group was at least 30 minutes earlier than in postincisional group, the analgesic effect of morphine in the former group should wear off earlier. According to several reasons mentioned here, the time to first requirement of analgesia might not be an appropriate and reliable outcome to use for evaluation of pre-emptive analgesia.

In addition, we found very few side effects associated with morphine during the 2-hour period in recovery room. No respiratory depression demonstrated in this study. Other side effects included shivering, pain from bladder irritation and delayed recovery from anesthesia. The rate of side effect event was not greater than what we encountered in routine anesthetic practice.