



Need for an optimal regimen of programmed intermittent epidural bolus administration for maintenance of labor analgesia

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Labor pain is severe in intensity and is characterized by a complex, multidimensional experience, including fear, anxiety, pain due to uterine contraction, birthing pain, and back pain [1]. Epidural analgesia is the most effective form of pain relief for women in labor. Maintenance of epidural analgesia has progressed from manually administered intermittent boluses to continuous epidural infusion (CEI), patient-controlled epidural analgesia (PCEA) for breakthrough pain, and finally, programmed intermittent epidural bolus (PIEB). The new technique PIEB provides better maintenance of epidural analgesia compared to CEI owing to lesser local anesthetic consumption, lesser need for physician intervention, and more maternal satisfaction [2]. PIEB involves administration of automatic intermittent epidural boluses with high-pressure injection, which allows a wider and more uniform spread of the epidural solution and eventually contributes to better quality of analgesia [3,4]. Recently, the epidural pump technology, capable of co-administering PIEB and PCEA, has been available. Using this pump, combined administrations of PIEB or CEI and PCEA have been performed clinically.

Previous studies have compared PIEB combined with PCEA to CEI and to CEI combined with PCEA. However, only a few studies have investigated the efficacy of PIEB alone in adequate maintenance of labor analgesia. Moreover, little evidence is

available to establish the optimal settings for PIEB administered with commercially available pumps. As published in the current issue of the *Korean Journal of Anesthesiology*, Dr. Fidkowski et al. [5] carried out a prospective single-blinded randomized controlled trial to compare CEI to 2 PIEB regimens in a continuous infusion for labor analgesia. In their trial, 150 patients scheduled for induction of labor at term under epidural labor analgesia were randomized to receive the epidural analgesia regimens of 0.125% bupivacaine with 2 µg/ml of fentanyl at 5 ml of PIEB every 30 min (low-volume PIEB group), 10 ml of PIEB every 60 min (high-volume PIEB group), or 10 ml/h CEI (CEI group). The primary outcome was the pain scores throughout labor, and the secondary outcomes included the degree of motor block, the dermatomal sensory level, the number of physician-administered boluses, and patient satisfaction. They found that the high-volume PIEB group had significantly fewer physician-administered boluses compared to the low-volume PIEB and CEI groups, while all groups showed similar pain scores, degree of motor blockade, dermatomal sensory level, patient satisfaction, and rates of instrumented vaginal and cesarean deliveries. The authors suggested that a high-volume PIEB regimen with a low concentration of bupivacaine for labor analgesia decreased breakthrough pain and the number of physician-administered boluses. They recommended future studies to determine the op-

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timal PIEB pump settings.

Conflicts of Interest

No potential conflict of interest relevant to this article was reported.

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