Abstract

A comparison of analgesic efficacy of cephalad vs caudad oriented epidural catheter direction in laboring parturient: A pilot study

Panyakhamlerd Y, M.D., Tontisirin O, M.D., Lekprasert V, M.D.,M.Sc., Innoy S, M.D., Chulapornsiri C, M.D.

Department of Anesthesiology, Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand, 10400

Background: The larger size of the first sacral nerve root has been reported to be an unfavorable factor leading to sacral sparing in epidural anesthesia. Theoretically at the time of fully cervical dilatation, the caudal placement of epidural catheter should give more pain relief than cephalad placement. However, from previous study we have found only in ankle surgery that caudal placement provided adequate analgesic effect of the epidural block. In this study, the effect of epidural analgesia with catheter placement of a cephalad or caudad direction was compared in laboring parturients. **Methods:** We performed a prospective, single-blinded study of 20 parturients undergoing normal delivery with epidural analgesia. All parturients were randomized into 2 groups. The epidural catheter was placed either to a cephalad (CEP group, n = 10) or caudad (CAU group, n = 10) direction. Both groups were received 0.125% bupivacaine 10 ml for initial bolus then 5 ml every 10 min until satisfied. PCEA was setting as followed; background infusion with 0.0625% bupivacaine and fentanyl 2 mcg/ml rate 3 ml/hr , PCEA dose 3 ml and lockout interval 10 min. Pain score was asessed with verbal numerical rating scale (VNRS). The onset of pain relief, initial analgesic bolus volume, total analgesic dose, PCEA requirement, duration of first and second stage, and incidence of adverse events were recorded. **Results:** Dermographic data in both group were not different. In CEP group, onset of pain relief was 19.30 $\pm$ 8.78 min, initial bolus volume were 14 $\pm$ 4.59 ml, total dose of local anesthetic were 40.77 $\pm$ 8.80 mg, PCEA dose were 8.10 $\pm$ 2.55 times, duration of first stage labor 567 $\pm$ 105.57 min and duration of second stage labor 32 $\pm$ 13.09 min. CAU group: onset of pain relief were 21.20 $\pm$ 11.97 min, initial bolus volume were 14.50 $\pm$ 4.37 ml, total dose of local anesthetic were 38.93 $\pm$ 12.83 mg, PCEA dose were 7.80 $\pm$ 4.28 times, duration of first stage labor 550 $\pm$ 188.42 min and duration of second stage labor 28.40 $\pm$ 11.48 min. **Conclusion:** Insertion of epidural catheter in caudal direction for labor analgesia provided adequate analgesic effect, but not different from cephalic oriented catheter direction, further study and more population needed.