A Comparison of Combined Spinal-Epidural-PCA Analgesia With Continuous Epidural-PCA Analgesia Alone for Labor Pain

INTRODUCTION: We recently provided labor epidural analgesia with ambulation and telemetry monitoring while using ropivacaine (R) 0.04% with sufentanil (S) 1mcg/ml & epinephrine (E) 2mcg/ml. Combined spinal-epidural (CSE) analgesia induced by intrathecal sufentanil administration gained popularity by providing rapid onset and effective analgesia in obstetrics. We determined whether the addition of spinal sufentanil with ropivacaine to our routine epidural-PCA ropivacaine-sufentanil-epinephrine with ambulation can improve our neuraxial analgesia technique for labor pain.

METHODS: Following IRB approval and informed consent 136 parturients who requested epidural analgesia for labor pain were randomized to: Group I (n= 68): received CSE which was initiated by intrathecal R 2mg + S 5mcg via PENCAN 25g spinal needle followed by epidural-PCA analgesia. Group II (n=68): received 20 ml of R 0.04% + S 1 mcg/ml + E 2 mcg/ml epidural study solution followed by epidural-PCA analgesia. All p’ts received an infusion of the study solution at 4ml/hr, PCA dose 4ml, lockout time 10min (Abbott PCA pump). After initial neuraxial dose administration (time = 0min), p’ts were queried with each contraction as to their satisfaction with analgesia. If at time = 20min, VAS>3, p’ts were given a 5-10ml bolus of the study solution at 4ml/hr, PCA dose 4ml, lockout time 10min (Abbott PCA pump). After initial neuraxial dose administration (time = 0min), p’ts were queried with each contraction as to their satisfaction with analgesia. If at time = 20min, VAS>3, p’ts were given a 5-10ml bolus of the study solution every 10min for a maximum of 20ml as needed until VAS<3. If analgesia was still inadequate (VAS>3), p’ts were rescued with 5ml of 0.25% R every 10min as needed to a max of 20ml & p’ts could no longer ambulate. At each interval where intervention was required the infusion rate was increased by 2ml/hr to a maximum of 16ml/hr. Pain, nausea, pruritus, sedation, and motor block were evaluated hourly, or sooner if intervention was required. Patients were asked to rate their satisfaction for 1st stage, 2nd stage, and overall. Data were expressed as mean Â± SD. Statistical analysis was performed with ANOVA or Fisherâ€™s exact test as appropriate at p <0.05.

RESULTS: In five patients in group I, PENCAN spinal needle could not pierce the dura and were removed from the study. There were no differences among the groups with respect to weight, height & parity, 1st & 2nd stage duration, initial cervical dilation, total infusion time, time to full satisfaction, pain scores at time of satisfaction, IV pitocin, pruritus, sedation, nausea, vomiting, urinary retention, 1st & 2nd stage & overall satisfaction, number of patients able to ambulate, or APGAR scores. Thirty two (47%) & 41 (60%) parturient ambulated in G I & II respectively.

CONCLUSION: The addition of spinal analgesia to our routine epidural-PCA analgesia with ambulation for labor pain provided a shorter time to full satisfaction without affecting the quality of the block, its side effects, & pt’s satisfaction.