Epidural analgesia during the first stage of labour

A QUALITY CONTROL STUDY

Skeide BI, Bjørnestad E

Department of Anaesthesia and Intensive Care, Haukeland University Hospital, Norway

Background

Adding opioids improves the quality and reduces the dose of local anaesthetics in labour epidural (1). Opioid side effects are dose dependent. Lowering the concentration of opioid may reduce the risks of adverse effects. The aim of the study was to evaluate the quality of the labour epidural when changing the concentration of sufentanil from 1.0 mcg/ml to 0.5 mcg/ml.

Materials and methods

After approval of the local ethical committee, 50 consecutive healthy primiparae in spontaneous labour received a continuous epidural infusion of ropivacaine 1.0 mg/ml and sufentanil 1.0 mcg/ml (Group A), 6 ml/hour. Changing the solution to ropivacaine 1 mg/ml and sufentanil 0.5 mcg/ml (Group B), the next 42 parturients received a continuous epidural infusion, 6 ml/hour. Rescue boluses were given on demand. The maximum dose of sufentanil was 50 mcg. The total dose of either solution was registered until the start of stage 2, a C-section was needed, the removal of the catheter or until 50 mcg sufentanil had been consumed. Pain intensity was registered, as Numerous Rating Scores (NRS, 0-10) and quality of the analgesia assessed by the parturient. The NRS were based on the pain the parturient experienced during the latest contraction before establishing the epidural infusion (NRS baseline) and 30 min after establishing the epidural infusion (NRS 30). NRS was sufficiently reduced if NRS 30 was reduced at least 4 points from NRS baseline, or if NRS 30 was less than 4. All parturients were asked to evaluate the quality of the pain relief.

Results

There were no significant differences (ns) between the two groups considering age, obstetrical- or neonatal data. Cervical dilation was similar in both groups when epidural analgesia was requested. The volume of epidural solution infused was similar in the two groups. Paracetamol received was not significantly different in the two groups. None of the women received systemic opioids, nitrous oxide, pudendal- or paracervical block. Significant more women in Group A, 17 women (34%), versus 2 women (4.8%) in Group B achieved the maximum dose of sufentanil (50 mcg).

NRS baseline and NRS 30 were similar (Table 1). In Group A, 50 women (100%) assessed the quality of the analgesia to be sufficient compared to 34 women (81%) in Group B. In Group B, sufficient analgesia was never achieved in 2 cases (Table 2). In 6 cases, the labour epidural gave sufficient analgesia 30 min after establishing bolus, but the women received severe pain relapse later in labour. For this reason, 2 of the women had their epidural catheter removed.

No motor block, hypotension or respiratory depressions were registered.

Table 1. Pain assessment

	Group A (n=50)	Group B (n= 42)	p-value
NRS baseline (mean, SD)	9±1	9±1	ns
NRS 30 (mean, SD)	3±2	3±2	ns
Analgesia sufficient	50 (100%)	34 (81%)	<0,001

Table 2. Parturients receiving insufficient analgesia in Group B

Cervix (cm)	NRS baseline	NRS 30	Duration infusion (hours)
4	8	6	1.4
5	10	7	3.2
4	9	5	4.2 (pain relapse)
4	10	6	9.1 (pain relapse)
2	8	3	10 (pain relapse)
4	8	0	8.9 (pain relapse)
4	9	2	6.4 (pain relapse)
5	9	2	8.0 (pain relapse)

Conclusion

Reducing the concentration of sufentanil to 0.5 mcg/ml reduced the parturients satisfaction with epidural analgesia during the first stage of labour.

Reference:

1. Buyse I. Int J Obstet Anesth 2007; 16: 22-28