HYBRID PCEA WITH SUFENTANIL IN POST-CESAREAN SECTION PATIENTS: THE INFLUENCE OF α_2-ADRENERGIC AGONISTS

M Vercauteren, D Vandeput, K Greernaert, M Gillis, H Adriaensen

Department of Anesthesia, University Hospital Antwerp, B-2650 Edegem, Belgium

Introduction. Whereas it has been shown that epinephrine and clonidine may potentiate the analgesic activity of spinally injected opioids,[1,2] no reports exist describing continuous or PCA mediated administration of this combination on the quality of postoperative pain relief.
Methods. In 60 patients scheduled for cesarean delivery, a combined spinal-epidural block was performed after a fluid load of 1500 ml Ringer's lactate. The spinal block was achieved with isobaric bupivacaine 8 mg + sufentanil 4 μg after which the epidural catheter was inserted. The epidural catheter was connected to a Bard PCA pump 2 hours after delivery. PCA solutions contained sufentanil 2 μg/ml diluted in either NaCl 0.9% (SS group, n=20) or to which was added either epinephrine 2.5 μg/ml (SE group, n=20) or clonidine 3 μg/ml (SC group, n=20). PCA settings were: basal infusion of 2.5 ml/hr; demand dose of 2.5 ml, lock out of 10 min and a 1 hr limit of 10 ml. VAS pain at 10 and 24 hrs, quality of night rest, degree of sedation and pruritus, sufentanil consumption and number of valid demands during the first 24 hr were recorded. Vital signs and quality of pain relief were checked hourly during the first 6 hr and thereafter at 2-4 hr intervals. If pain relief was poor to moderate, VAS score exceeded 3, or maximal doses were required for 2 consecutive hr the basal infusion was increased to 3 ml/hr and demand dose to 3 ml (max 15 ml/hr). In case of no demands within the first 10 hr the basal infusion was decreased to 2 ml/hr and demand dose to 2 ml. Statistical analysis was performed with Mann-Whitney U and Fisher's Exact test.
Results. There were no differences between the 3 groups with regard to age, weight, parity, duration of pregnancy and pain scores. Consumption of sufentanil was significantly lower ($p<0.001$) in the SE group (167.5±45 μg) and the SC group (139.1±31.9 μg) as compared to the SS group (208.2±38.9 μg). The difference between the former 2 groups was also significant ($p<0.05$). The number of additional demands was lowest in the SC group (5.5±3.7 vs 13.7±6.8 in the SS group) and lower in the SE group (7±4.6) than the SS group ($p<0.001$). PCA settings had to be increased in 5 patients in the SS group, whereas they were decreased after 10 hr in clonidine treated patients ($p<0.05$). The degree of sedation did not differ among groups. Despite a trend for less marked sedation and a higher incidence ($p<0.05$) of pruritus, significantly fewer SE patients complained of a bad quality of night rest. This cannot be explained by the lower number of demands since for the SC group had even fewer demands, but had similar quality of sleep as compared to the SS patients. In 1 clonidine treated patient a transient decrease of systolic blood pressure to 85 mmHg was noticed.
Discussion. As compared to sufentanil alone, the addition of clonidine lowers sufentanil dose more than epinephrine. Side-effects could be further reduced by starting with a lower dose regimen. The sedative properties of clonidine may have been masked by the decrease in sedation from the reduced dose of sufentanil. Whether improved quality of analgesia by adding epinephrine is related to decreased systemic absorption,[1] or an action on spinal α_2-adrenoceptors cannot be determined from this study. Finally, we conclude that quality of sleep may be influenced by other factors than number of demands or presence/absence of side-effects.
References. 1. Eur J Anaesth 5:183-191, 1988. 2. Anaesthesia 45:531-534, 1990.