44353 - ADRENALINE DOES NOT INFLUENCE PCEA MEPERIDINE USE AFTER THORACOTOMY

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INTRODUCTION: Patient controlled epidural analgesia (PCEA) with meperidine provides effective analgesia following thoracotomy. Accumulation of normeperidine, a meperidine metabolite with neuroexcitatory effects, has led to recommendations to limit the use of meperidine postoperatively(1). The consumption and systemic levels of epidurally administered local anesthetics and opioids are reduced by the addition of adrenaline to the analgesic solution(2). The purpose of this study was to determine if the addition of adrenaline to PCEA meperidine was associated with decreased meperidine consumption, decreased serum normeperidine levels, and improved analgesia following thoracotomy.

METHODS: Following research ethics approval consenting patients were randomly assigned to either PCEA meperidine 2 mg/ml analgesia with adrenaline 2 mcg/ml (Group MAD) or PCEA meperidine 2 mg/ml plain (group MEP). All patients received a standardized anesthetic and similar perioperative care. Visual analogue pain scores (at rest and with activity), Quality of Recovery scores, and side effects were documented 6, 24, and 48 hours postoperatively. Serum levels of meperidine and normeperidine were assessed using tandem gas chromatography – mass spectrometry.

RESULTS: A total of 46 patients completed the study protocol. Patient characteristics and analgesia outcomes are shown in Table 1. Cumulative meperidine consumption at 48 hours was 601 ± 211 vs 580 ± 211 in MAD and MEP groups respectively; ($p=0.744$) Serum meperidine levels at 48 hours were 0.23 ± 0.17 vs 0.19 ± 0.14 in MAD and MEP groups respectively; ($p=0.400$). Serum normeperidine was not detected in any sample.

TABLE 1. PATIENT CHARACTERISTICS AND PAIN OUTCOMES

	MAD (n=22)	MEP (n= 24)	P value
Age (years)	63.4 ± 8.1	60.0 ± 8.7	0.166
Height (cm)	164.5 ± 8.6	168.0 ± 9.6	0.196
Weight (kg)	70.5 ± 14.4	75.8 ± 13.8	0.209
Creatinine Clearance (ml/min)	80.7 ± 23.3	88.3 ± 24.9	0.292
Pain (dynamic)			
6 hr post-op	4.1 ± 2.2	4.4 ± 2.4	0.609
24 hr post-op	3.6 ± 2.4	3.5 ± 2.6	0.924
48 hr post-op	3.7 ± 2.8	4.1 ± 2.9	0.621
Quality of Recovery			
6 hrs	13 [7 – 14]	13 [10 – 15]	0.625
24 hrs	13 [9 – 14]	13 [9 – 14]	0.620
48 hrs	13 [8 – 18]	14 [7 – 18]	0.093
Adverse Effects			
Nausea	13 (59)	14 (58)	0.958
Pruritus	9 (41)	4 (17)	0.068
Respiratory Depression (RR < 8)	1 (5)	1 (4)	0.950
Hypotension (BP <90 mmHg)	8 (36)	8 (33)	0.829

Data expressed as mean ± SD, median [interquartile range], or n (%)

DISCUSSION: The addition of adrenaline did not influence PCEA meperidine consumption, analgesia outcomes, or quality of recovery. Normeperidine did not accumulate in patients of either study group during the 48 hour study period. PCEA meperidine, with or without adrenaline, provides effective post-thoracotomy analgesia in selected patients.

REFERENCES: 1. <http://www.jcaho.org>. 2. Acta Anaesthesiol Scand 1998; 42(8):897-909.