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Intercostal catheter analgesia vs. intercostal nerve blockade for postthoracotomy pain relief

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Background: The pain after thoracotomy may result in a postoperative hypoventilation and lead to an atelectases and pneumonia. This study was carried out in order to compare two postoperative analgesic regimens.

Materials: 80 patients 40-70 years who were divided in two groups: group A (n=40) intercostal catheter analgesia, and group B (n=40) intercostal block analgesia.

Methods: Intercostal catheter analgesia was achieved by 20 ml of 0.5% bupivacaine injected through catheter placed at the end of an operation into intercostal space. Additional injections of local anaesthetics were repeated twice a day. Intercostal nerve blockade was performed using 5 ml of 0,5% bupivacaine. Intercostal nerve in thoracotomy wound, nerves below and above thoracotomy wound were also injected. PaO₂, PaCO₂, FVC FVC1 and visual analogous pain scale were obtained preoperatively, 24, 48 and 72 hours after operation. Means and standard deviation were calculated. Differences between groups were calculated using t-test. Postoperative complications were recorded at the patient discharge.

Results. Results are shown in table 1.

	Preoperative		1.PO		2. PO		3. PO	
	A	B	A	B	A	B	A	B
FEV1 (%)	81.8	83.9	68.0	70.95	72.0	73.9	73.1*	83.5*
FVC (L)	3.37	3.27	1.98	1.83	1.92	2.30	2.30	2.39
PaCO ₂ (kPa)	4.90	4.96	5.09	4.93	4.91	5.38	5.08	5.04
PaO ₂ (kPa)	10.09	10.00	9.79	10.26	9.90	9.90	10.24	10.17
VAS	0	0	2.2	3.0	1.9*	3.6*	1.2*	2.3*

* Statistically significant differences between two groups (p<0.05)

The arterial blood gas analyses did not show statistically significant change in any group and time according to the baseline values. FVC and FEV1 decreased significantly in both groups at first postoperative day according to baseline measurements. A significant difference in FEV1 values between groups was observed in the third postoperative day (p<0.05). A postoperative occurrence of haematoma of the postoperative wound, pneumothorax and infection were not different between two groups.

Conclusion: Intercostal catheter analgesia had not significantly changed partial gas pressures in blood when compared to the intercostal nerve blockade. According to visual analogous pain scale, the pain control was thoroughly controlled by this method. The intercostal catheter analgesia was more comfortable for the patient and technically easier to perform for surgeon.

Reference: Downs CS, Cooper MG. *Anaesth Intensive Care*. 1997;25:390-7.