

## 283. Comparison the analgesic efficacy of ropivacaine with bupivacaine in the intercostal nerve block after thoracotomy

**Kabukcu H, Sahin N, Ertugrul F, Kanevetci BN, Titiz TA**  
**Email: kanevetci@yahoo.com**  
**Akdeniz University, Dumlupinar bul. 07070, Antalya,**  
**Turkey**

**Background:** Thoracotomy results in severe pain and deleterious changes in pulmonary physiology. Severe pain after thoracotomy can lead to impaired ventilation and alterations in pulmonary mechanics. These alterations are inevitable and can only be minimized, but not prevented by effective analgesia. Intercostal blockade is adequate for providing a sufficient pain relief which can help to avoid prolonged postoperative mechanical ventilation.

Studies for the use of ropivacaine in intercostal blockade are still not enough. Although ropivacaine is slightly less potent than bupivacaine, multiple studies showed that it can provide adequate surgical anesthesia when used in similar concentrations.

The aim of our prospective, double-blinded, randomised study was to compare the analgesic efficacy of ropivacaine with bupivacaine in intercostal blockade after thoracotomy. Hemodynamics, and respiratory parameters were also compared in both groups.

**Methods:** After the approval of the ethics committee, written informed consent was obtained from 40 patients scheduled for thoracotomy. Intercostal blockade was performed at the end of surgery with 5 ml 0.5% bupivacaine in group B (n=20) versus 5 ml 0.5% ropivacaine in group R (n=20). Postoperatively visual analogue pain score (VAS), hemodynamics (mean blood pressure and heart rate) and respiratory parameters as arterial blood gases (ABG), forced vital capacity (FVC), forced expiratory volume in the first second (FEV1) were compared in both groups. The time to the first analgesic rescue was recorded. Diclofenac Na 75 mg was given intramuscular for pain relief when VAS > 5.

**Results:** During the first postoperative day, patients in group B had less pain than group R on the 2<sup>nd</sup>, 4<sup>th</sup>, 8<sup>th</sup>, 12<sup>th</sup> and 24<sup>th</sup> hours assessed by VAS ( $P < 0.05$ ). Respiratory parameters (FVC, FEV1) were reduced significantly in both groups after thoracotomy. Inter-group differences were not significant. There were no differences in PaO<sub>2</sub> and PaCO<sub>2</sub> values between the two groups. Postoperatively, mean blood pressure was statistically significant decreased in group R than in group B on the 4<sup>th</sup> hour postoperatively ( $88 \pm 15$  mmHg vs  $96 \pm 11$  mmHg,  $p < 0.05$ ). Also increments in the heart rate were statistically significant in group R than in group B on 4<sup>th</sup> hour postoperatively ( $86 \pm 15$  vs  $77 \pm 11$  beat/min,  $p < 0.05$ ). Specific therapy was not required due to the changes in the blood pressure and heart rate in both groups. The time to the first analgesic rescue was  $6.3 \pm 2.4$  h in group R compared with  $10.6 \pm 3.3$  h in group B.

**Conclusions:** Intercostal blockade with bupivacaine has provided more significant postoperative analgesia without any effects on hemodynamics and respiratory parameters compared with ropivacaine. Further studies comparing different doses of ropivacaine in intercostal blockade for the best relief of post thoracotomy pain are recommended.

**Reference:** 1. Richardson J; Sabanathan S; Mearns AJ; Evans CS; Bembridge J; Fairbrass M Efficacy of pre-emptive analgesia and continuous extrapleural intercostal nerve block on post-thoracotomy pain and pulmonary mechanics. *J Cardiovasc Surg (Torino)* - 01-Jun-1994; 35(3): 219-28