Hemodynamic variations between continuous paravertebral and epidural thoracic block in laparoscopic esophagectomy : a prospective study.

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Background and Goal of Study:

Recently the paravertebral thoracic catheter (PVCT) was developed with ultrasounds techniques in thoracic surgery and it seems that it induces less hypotension than epidural (ET) with similar quality of analgesia. **The purpose of this study is to compare, for the first time, the proportion of the hypotension episode in both groups in the esophagus surgery, Lewis-Santy, with thoracotomy and laparoscopy.**

Materials and methods:

- Prospective, randomized, interventional, monocentric study.
- After ethical committee approval, 26 patients in ET group vs. 28 in PVCT group were included.
- They had both the following protocol: A bolus of 5ml of Ropivacaïne 0,2% and 10 µg of Sufentanil was injected at the end of the abdominal part of the surgery, then an infusion of Ropivacaïne 0,2% 4ml/h was realized at the thoracic time. Postoperative analgesia consisted on a Ropivacaïne 0,2% infusion at 6ml/h in the ET groupe and 8ml/h in the PVCT group and a bolus of 4ml every 15min as required.
- **The primary endpoint was a mean arterial pressure (MAP) less than 70 mmHg or a decrease in MAP of about 20% when compared to preopérative one.** Hypotension was correlated to PVCT or ET when all other surgical or anesthetic causes of hypotensions was verified by a standard algorithm in both groups. We compared the MAP till 15 min after the bolus, during the thoracic time, and in the postoperative period until 48 hours.
- Secondary endpoints was: fluid administration, the use of vasopressor drugs, the analgesic efficacy (NRS), and the use of morphine during the post-operative time till 48 hours in both groups. Chronic pain at 3 and 6 months was also compared.

Results:

- **There were significant differences between the two groups regarding the episodes of hypotension (23/26) in ET group vs. (11/28) in PVCT group ($p < 0,001$).**
- The proportion of hypotension was significantly higher after the bolus ($p = 0,002$) and on post operative period ($p < 0,001$).
- We noticed more use of ephedrine in perioperative ($p = 0,019$) and of noradrenaline in postoperative ($p = 0,04$), morphine consumption, and chronic pain.

Conclusion:

PVCT provides better hemodynamic stability than ET, but it is equal efficacy on analgesia to ET in esophagus surgery