Efficacy of bilateral dual transversus abdominis plane (TAP) block for postoperative analgesia after open abdominal aortic aneurysm (AAA) surgery : a prospective monocentric randomized double-blind controlled trial

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Background and Goal of Study

The Transversus Abdominis Plane (TAP) block is a peripheral nerve block of the nerves supplying the anterior abdominal wall.

The TAP block reduces postoperative pain and morphine consumption after gynecologic and lower abdominal surgery, but has never been assessed in open abdominal aortic surgery.

Aim of the study : to assess whether a bilateral dual TAP block (1) could reduce morphine consumption within 24 hours after open abdominal aortic surgery.

Materials and Methods

Patients scheduled for open abdominal aortic surgery through midline laparotomy were eligible.

Randomized, double-blind, controlled, prospective trial (ClinicalTrials.gov Identifier : NCT02292667)

2 parallel groups :

- TAP group : bilateral dual TAP block using 4 x 10 ml of 0.375 ropivacaine (total dose = 150 mg)
- CONTROL group

The bilateral dual TAP block combined an ultrasound-guided medial intercostal TAP block (figure 1) and an ultrasound-guided classical TAP block (figure 2). The bilateral dual TAP block was performed under general anesthesia.

Standardized postoperative analgesia in the 2 groups based on intravenous paracetamol and patient-controlled analgesia with intravenous morphine.

Primary outcome : total dose of morphine (mg) delivered within 24 hours after surgery.

Secondary outcome : total dose of morphine (mg) delivered within 48 hours after surgery.

Figure 2 The classical TAP block : External oblique (EO) muscle ; Internal oblique (IO) muscle ; Transversus abdominis (TA) muscle ; Peritoneal cavity (PC) (1)

Results and Discussion

30 and 27 patients were included in the TAP and CONTROL groups respectively (age : 65 ± 7 vs 69 ± 8 yr ; male : 30 (100%) vs 25 (96%) ; ASA physical status III : 13 (43%) vs 14 (54%) ; obese (BMI > 30 kg/m²) : 9 (30%) vs 4 (15%)). The primary and the secondary outcome did not significantly differ between the 2 groups (figure 3).

Figure 3 Primary and secondary outcomes

Conclusions

In our study, bilateral dual TAP block did not provide a significant reduction in morphine consumption after open abdominal aortic surgery. postoperative. A great variability in postoperative morphine requirements and insufficient dose of ropivacaine could explain this result.

References

(1) Acta Anaesthesiol Scand ; 2011, 55(6), 658-63

Figure 1 The medial intercostal TAP block : Rectus abdominis (RA) muscle ; Transversus abdominis (TA) muscle ; Peritoneal cavity (PC) (1)