Until the mid-1990s, coronary artery bypass grafting (CABG) was performed with cardiopulmonary bypass in conjunction with the induction of ischemic cardiac arrest (on-pump CABG). On-pump CABG has been considered as the standard approach as it allows for precise vascular anastomoses without cardiac motion or hemodynamic compromise. To circumvent the complications associated with bypass circuit and cross-clamping of the aorta, the off-pump technique was developed as an alternative approach, particularly for patients with extensive disease of the ascending aorta.

With respect to perioperative analgesic techniques for cardiothoracic surgery, thoracic paravertebral block (PVB) has gained considerable popularity over the past two decades. In thoracic PVB, somatic and sympathetic nerve blockade is achieved by injection of local anesthetics into the paravertebral space. Continuous PVB is utilized in conditions requiring more prolonged pain relief than that conferred by single-injection PVB.

In the current issue, a randomized study prospectively investigated the feasibility and efficacy of bilateral continuous PVB in conjunction with general anesthesia among 60 patients scheduled for elective off-pump CABG. Patients with infection at the puncture site, failed paravertebral catheterization, anomaly of vertebral column, left main coronary artery lesion, ejection fraction of <40%, associated vascular heart disease, or pre-existing neurological, respiratory, renal, or liver disease were excluded from the analysis. Bilateral PVB was performed in 30 patients at the level of third or fourth thoracic vertebra with bupivacaine 0.125% injection at 0.15 ml/kg/h intraoperatively and postoperatively. The other 30 patients of third or fourth thoracic vertebra with bupivacaine 0.125% injection at 0.15 ml/kg/h on each side) failed to eliminate the need for supplemental opioids after CABG. Furthermore, all seven patients who received continuous ropivacaine infusion experienced postoperative neurologic impairment presumably due to ropivacaine toxicity, raising the concern of appropriate regimen and dosage for continuous PVB.

The authors should be congratulated for conducting a prospective randomized study in an attempt to supplement current evidence concerning the continuous PVB in off-pump CABG. A systematic review and meta-analysis from Scarfe et al. revealed that continuous PVB for post-cardiothoracic surgery analgesia is associated with a lower risk of nausea and vomiting, hypotension, and urinary retention than epidural analgesia. Mixed results as well as heterogeneous measures of outcome (e.g., scoring of pain intensity, time frame of pain assessment, and rescue analgesia requirement) were noted. Therefore, a fully conclusive verdict on the analgesic effect of continuous PVB could not be reached. There remains an unmet need for more high-quality evidence and consistency in outcome assessment. Future data from pooled analysis of controlled trials, observational studies, and registries will be required to inform physicians regarding the risk-benefit of continuous thoracic PVB with a greater certainty.

REFERENCES


