ISSN: 2377-4630

AHMED et al. Int J Anesthetic Anesthesiol 2021, 8:125
DOI: 10.23937/2377-4630/1410125
Volume 8 | Issue 2
Open Access

International Journal of
Anesthetics and Anesthesiology

CASE REPORT

Cardiac Anesthesia Would Be Better With Ultrasound Guided Erector Spinae Plane Block

AHMED Hassan S, MD[1*], MADKHALI Majeed M, MD[2], SHIHATA Mohammed S, MD[3] and ZABANI Ibramin A, MD[4]

[1]Associate Consultant Anesthesiologist, Department of Anesthesiology, King Faisal Specialized Hospital and Research Centre, Jeddah, KSA

[2]Cardiac Anesthesia Fellow, Department of Anesthesiology, King Faisal Specialized Hospital and Research Centre, Jeddah, KSA

[3]Consultant Cardiac Surgeon, Section-Head of Cardiovascular Department, King Faisal Specialized Hospital and Research Centre, Jeddah, KSA

[4]Consultant Cardiac Anesthesiologist, Department of Anesthesiology, King Faisal Specialized Hospital and Research Centre, Jeddah, KSA

***Corresponding author:** *Dr. AHMED Hassan Saad, MD, Associate Consultant Anesthesiologist, Department of Anesthesiology, King Faisal Specialized Hospital and Research Center, Jeddah, 21499, PO Box 40047, J-22, KSA, Tel: 00966502719855*

Abstract

On July 2020, The International Association for the Study of Pain released the revised definition of pain [1]. Stressing that pain is always a personal experience and should be respected. Candidates of cardiac surgical procedures have significant issues to address regarding outcome of procedure and post-operative pain as well. Cardiac surgical procedures are done either through midline sternotomy or thoracotomy; both are associated with significant pain.

Pain can be debilitating and frustrating. It may interfere with sleep, work, activities, and quality time with friends and family. Pain management provides relief so patients can enjoy life. Many preoperative, intraoperative, and postoperative interventions and management strategies are available for reducing and managing postoperative pain. Pain management concentrates on patient education, reassurance, medications and regional anesthetic techniques. Pain medications are either opioid like morphine, codeine, fentanyl, etc. Non opioids include; non-steroidal anti-inflammatory drugs, paracetamol, ketamine, Regional anesthetic techniques are done preoperative, intraoperative or postoperatively. Different techniques in clinical practice include local anesthetic infiltration, neuraxial, and regional blocks. Adequate pain control without significant sequelae is not yet got. Recently, the use of fascial planes/field blocks for local anesthetic drug deposition has increased in clinical practice [2]. This change may be related to avoidance of side effects related to the blocks, better understanding of regional blocks and availability of drugs and gadgets for nerve block. Most importantly, the introduction of ultrasound has revolutionized the techniques of regional anesthesia. Recent literature with regards to regional blocks includes the fascial plane blocks like erector spinae plane block, quadratus lumborum block, serratus anterior plane block, pectoral nerves block, transversus abdominis plane block, rectus sheath block and adductor canal block etc., The reports on these blocks have shown promising results with regards to perioperative analgesia.

Erector spinae plane block used in many surgical procedures with satisfactory results especially with ultrasound guidance. Local anesthetic drugs injected away from the pleura, major blood vessels and the spinal cord. Being simple and effective technique made it attractive option in cardiac surgery. Lot of articles in different surgical procedures, proved its safety and efficacy but little in cardiac procedures. We applied bilateral single shot erector spinae plane block under ultrasound guidance. Our patient had a stable course and extubated easily with mild pain at end of procedure. Adequate analgesia extended during intensive care stay and telemetry as well. We are presenting our experience as a first step on a promising stage.

Keywords

Erector spinae plane block, Cardiac surgery, Post-operative pain

Citation: AHMED HS, MADKHALI MM, SHIHATA MS, ZABANI IA (2021) Cardiac Anesthesia Would Be Better With Ultrasound Guided Erector Spinae Plane Block. Int J Anesthetic Anesthesiol 8:125. doi.org/10.23937/2377-4630/1410125

Accepted: August 26, 2021: **Published:** August 28, 2021

Introduction

Postoperative pain management is a medical concern and patient right as well. Post-operative pain management in cardiac patients is a complex, partly due to their baseline state and the perioperative events. Pain management comprise two main categories: Pharmacologic (opioids, nonsteroidal drugs, paracetamol, ketamine. etc,) and non-pharmacologic (local anesthetic infiltration, neuraxial blocks, paravertebral blocks.). Erector spinae plane block introduced in 2016 as a novel regional anesthetic technique for acute and chronic thoracic pain, both anesthesiologists and pain specialists reported positive feedback about it [3,4]. Single shot or continuous technique both reported with great results [5]. Its mechanism of action still not yet understood.

Drugs injected away from the pleura, major vessels and spinal cord, make it safe in cardiac surgery; regarding anticoagulation. Very few reports available describing its efficacy in cardiac surgery, mainly reduced analgesic requirements, reduced time to separate from mechanical ventilation. Although this is great but none so far, up to the last search we did, described endotracheal extubation at end of procedure. This why we are presenting our case to share happiness with your patient being awake, pain free and medically stable as well.

Case Description

Our case is a 24-years-old female patient, weighing 43 kg, 159 cm height, BMI 17. Referred to our centre, for repair of ventricular septal defect and tricuspid valve repair. Routine examination (history/physical) and investigations (laboratory, chest x ray and echocardiogram done.

She was asymptomatic. Normal laboratory data (blood, renal and hepatic profile).

Echocardiography showed large size ventricular septal defect and trace tricuspid valve regurge. Dilated left ventricle, with normal function of both right and left ventricles. She underwent cardiac catheterization which revealed favorable surgical intervention. Plan accepted and consent obtained.

On the planned day, routine cardiac monitors done. After fixing endotracheal tube, arterial line, large-bore intravenous cannula and central venous catheter. Patient turned on her side, skin sterilized and draped. At the fifth transverse process, proper needle position seen by ultrasound, and confirmed by negative aspiration and injection of 1- 2 mls saline. Bupivacaine 0.25% total of 20 mls injected. The same technique repeated on the other side. Sterile dressing applied, patient turned supine and prepared for surgery.

Full repair of the ventricular septal defect under full cardiopulmonary bypass. Adequate hemostasis done and hemodynamic stable without support. Satisfying respiratory parameters make extubation an easy job. Awake, alert with mild pain.

Patient shifted to intensive care unit awake, stable with mild pain (3-4 on visual analogue scale). She was stable with mild pain in intensive care unit and telemetry ward after, as reported and documented by the nursing staff.

Conclusions

Adequate analgesia before start of surgery offered by the block, results in mild responses in the heart rate or the blood pressure to stimulation by insertion of the urinary catheter. This was also observed with skin incision, sternotomy and sternal retraction. Adequate analgesia provided, necessitated less use of narcotics during the procedure, facilitate early extubation. Also, during intensive care unit stay, mild pain reported, managed with intravenous paracetamol. No rescue analgesic needed.

The effective analgesia observed agrees with a study done by Nagaraja, et al. [6]. Although they started continuous catheter block one day pre-procedure compared with continuous thoracic epidural analgesia. They concluded that erector spinae plane block provides analgesia comparable to thoracic epidural analgesia and can be an effective alternative in cardiac surgical patients. Also, our result agrees with those of Krishna, et al. [7], they compared bilateral ultrasound-guided single shot block with intravenous analgesics. They found superior analgesia, longer duration and improved recovery. We appreciate the results and believe that it is an excellent aid in promoting fast and safe track cardiac care.

Sources of Support

None.

Conflict of Interest

None.

References

1. Raja SN, Carr DB, Cohen M, Finnerup NB, Flor H, et al. (2020) The revised International Association for the Study of Pain definition of pain: Concepts, challenges, and compromises. Pain 161: 1976-1982.
2. Garg R, Bhan S, Vig S (2018) Newer regional analgesia interventions (fascial plane blocks) for breast surgeries: Review of literature. Indian J Anaesth 62: 254-262.
3. Forero M, Adhikary SD, Lopez H, Tsui C, Chin KJ (2016) The Erector Spinae Plane Block: A Novel Analgesic Technique in Thoracic Neuropathic Pain. Reg Anesth Pain Med 41: 621-627.
4. Yoshizaki M, Murata H, Ogami Takamura K, Hara T (2019) Bilateral erector spinae plane block using a programmed intermittent bolus technique for pain management after Nuss procedure. J Clin Anesth 57: 51-52.
5. Zhang Y, Liu T, Zhou Y, Yu Y, Chen G (2021) Analgesic

efficacy and safety of erector spinae plane block in breast cancer surgery: A systematic review and meta-analysis. BMC Anesthesiol 21.

6. Nagaraja PS, Ragavendran S, Singh NG, Asai O, Bhavya G, et al. (2018) Comparison of continuous thoracic epidural analgesia with bilateral erector spinae plane block for perioperative pain management in cardiac surgery. Ann Card Anaesth 21: 323-327.

7. Krishna SN, Chauhan S, Bhoi D, Kaushal B, Hasija S, et al. (2019) Bilateral erector spinae plane block for acute post-surgical pain in adult cardiac surgical patients: A randomized controlled trial. J Cardiothorac Vasc Anesth 33: 368-375.