BILATERAL THORACIC CONTINUOUS ERECTOR SPINAE BLOCK FOR PAIN RELIEF IN MULTIPLE BILATERAL RIB FRACTURES WITH FLAIL SEGMENT - A CASE REPORT

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Figure 1

Figure 2

Figure 3

Introduction

The patient with multiple rib fractures will have intolerable pain and can have underlying lung parenchymal injury which will lead to atelectasis, infection and at times respiratory failure. Inadequate analgesia will further worsen the respiratory compromise and will be difficult to wean off from mechanical ventilation. ESPB is a simple technique which needs less expertise and is devoid of major complication associated with other regional anaesthesia techniques.

Case report

A 55 year old male who was thrown out of a two wheeler following collision with a four wheeler had a blunt trauma chest with multiple bilateral rib fractures (2-8 posterior) with flail segment. He also had hemopneumothorax of the left side. He also had minimal SAH in NCCT head. He had desaturation and was unconscious when he was received in the emergency department following which he was intubated and a chest drain was inserted to relieve hemopneumothorax. After 12 hrs he was hemodynamically stable and was fully conscious once we stopped off the sedation. But the patient was struggling due to severe pain and had irregular movement of chest wall owing to the flail segment. We decided to give a continuous erector spine block after discussing with trauma surgeon and neurosurgeon.

Materials and methods

Erector spinae block was performed bilaterally at the level of T5 transverse process using Sonosite M Turbo 6-13MHz 38mm linear probe in plane technique (fig3). 18 G Touhy needle was used. After negative aspiration 15 ml of 0.2% ropivacaine was given as bolus and 20G (Perifix BB Braun) epidural catheter was inserted on both sides and around 5 ml of 0.2% ropivacaine was used to hydrodissect and catheter was threaded without any resistance and the local anesthetic spread was confirmed using USG. We could find the spread of LA till T2 above and T9 below on both sides (fig2). We kept the catheter tip around 4 cm inside and the catheter was tunnelled and fixed over the skin and secured using a tight adhesive. We started an infusion of 0.1% ropivacaine with 2mcg/ml of fentanyl at a rate of 5 ml/hr on two separate elastomeric pumps.

He was actively mobilised through out and was given thorough incentive spirometry and chest physiotherapy. Erector spinae catheter was removed on the 6th day and was observed for one more day. He was completely pain free and was discharged on the 7th day.

References

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Outcome

Breathing pattern has improved after half an hour.
Dermatome block- loss of cold sensation of hemithorax from T1 to T9.
Numerical pain score was 0/10 at rest and 1/10 after coughing.
He was extubated safely.
He could do active incentive spirometry and chest physiotherapy.

Discussion

Recent advances in regional anaesthesia techniques have focussed on fascial plane blocks, specially chest wall blocks.

These include PEC blocks, SAP block and the most recent Erector spine block (2,3,4). The advantage these blocks offer are especially these are less demanding blocks as far as the expertise is required compared to neuraxial blocks, paravertebral blocks and targeted nerve blocks and they are associated with less serious side effects like (pneumothorax, dural puncture, spinal cord trauma and nerve injury). As less technical expertise is required, chest wall fascial plane blocks, especially erector spinae block, should be administered to the patients with multiple chest wall trauma and should be popularised as these blocks play a pivotal role in decreasing the pain as well as decreasing the morbidity of the patients (5). These blocks also help in decreasing opioid consumption and NSAID consumption.

Conclusion

Various analgesia techniques have been used for managing pain following multiple rib fractures with varied success rates. Early pain relief in case of rib fracture will prevent respiratory morbidities and the regional anaesthesia techniques play a crucial role in this regard. Continuous ESPB is a novel, simple technique with less complication and with intense and rapid analgesia. Further studies are warranted to evaluate the efficacy of ESPB and continuous ESPB may well be the gold standard in the analgesia clinical pathway of patients with bilateral multiple rib fractures.

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