



Evaluation of an Emergency Physician Performed Ultrasound Guided Regional Anesthesia Service in the Emergency Department

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Abstract

Regional anaesthesia (RA) has become a prominent component of multimodal pain management in emergency medicine (EM), and its use has increased rapidly in recent decades. The objective is to improve the effectiveness of ultrasound-guided nerve blocks performed by trained personnel, as a key element of multimodal pain management regimens in the ED.

Keywords: Regional Anaesthesia; Component; Pain Management; Emergency Medicine

Introduction

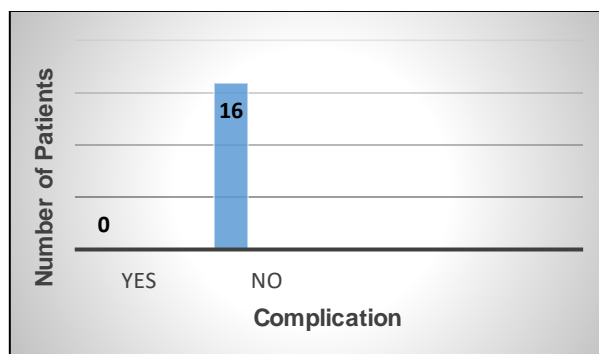
Regional anaesthesia (RA) has become a prominent component of multimodal pain management in emergency medicine (EM), and its use has increased rapidly in recent decades (Hernandez & de Haan, 2022). The objective is to improve the effectiveness of ultrasound-guided nerve blocks performed by trained personnel, as a key element of multimodal pain management regimens in the ED (Brown *et al.*, 2022).

Methodology

Emergency physicians who have been trained in ultrasound guided regional anesthesia performing the procedure in patients who are in pain especially traumatic injury patient through a one-year period in 2023. Data was collected for all the cases who had regional anesthesia in the emergency department via a standardized data collection sheet to minimize bias. The data from all the cases was then analyzed in each of its components which includes safety profiles, most common blocks, making them as a possible core competency to focus on learning mainly on those techniques, type of medication used, amount of medications needed and the indications to perform a regional block.

Results and Discussion

A total of 16 patients received emergency regional anaesthesia in the above-mentioned period, in Hospital Selayang and none of them had any complications observed, making them a safe procedure (Macfarlane *et al.*, 2020).



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Figure 1: Complications of Emergency Regional Anesthesia

In the 16 patients, most commonly used regional blocks are Fasia iliaca and serratus anterior block. Though the types of blocks depend on the indication and the location of interest, making this most common blocks as a part of core competency learning is advised (Blackwell et al., 2021).

Table 1: Types of Nerve Blocks

Type of Blocks		No. of Patients	Percentage
Upper extremities Blocks	Axillary Nerve Blocks	1	6%
	Supraclavicular Blocks	2	13%
Lower extremities Blocks	Fascia iliaca block	5	31%
	Femoral nerve block	2	13%
Thoracic Nerve Blocks	Interscalene Block	1	6%
	Serratus Anterior Block	5	31%

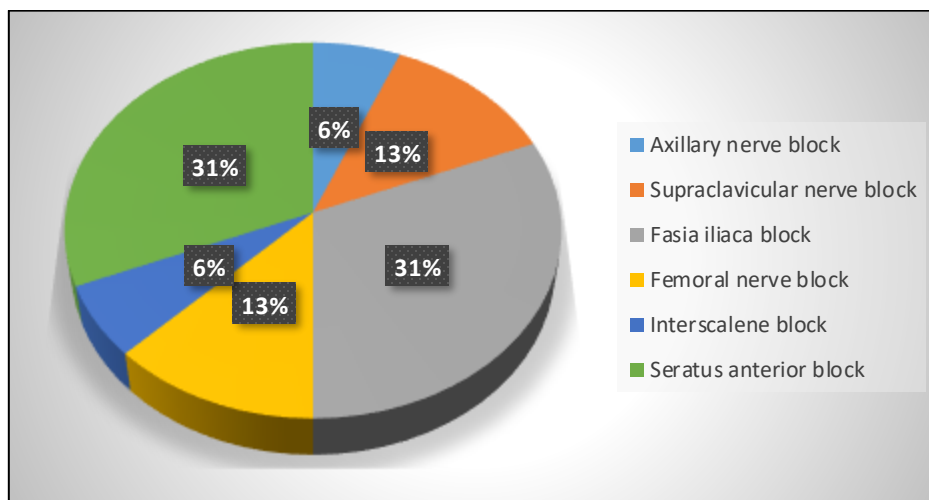


Figure 2: Types of Nerve Blocks

Below table shows, most commonly used drug, also demonstrating that at low doses, pain relief can be achieved with easily available drug.

Table 2: Types of Medications Used

Type of Drugs	No. of Patients	Percentage
Lignocaine 1%(20mls)	9	56%
Lignocaine 2% (5-10mls)	5	31%
Ropivacaine 0.5%(10-20mls)	2	13%

Lignocaine has rapid onset of action and intermediate duration of efficacy. It has short half-life which reduces the need for ward observations. In cases of overdose, intravenous lipid emulsions can be administered.

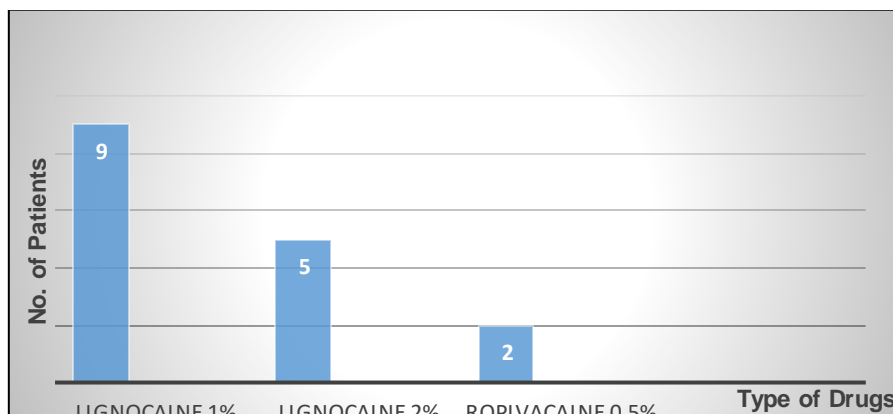


Figure 3: Most Commonly Used Drug

Regional anaesthesia can be widely used such as in cases of trauma for pain management (Albrecht & Chin, 2020) and in cases of respiratory insufficiency due to rib fractures as shown in table below:

Table 2: Indications of Nerve Blocks

Common Indications	No. of Patients	Percentage
Analgesics (Trauma)	7	43%
Respiratory insufficiency with multiple rib fractures)	3	19 %
Pre procedure (wound irrigation/chest tube/CMR)	3	19%
Relatively contraindicated for IV medications (Head injury)	3	19%

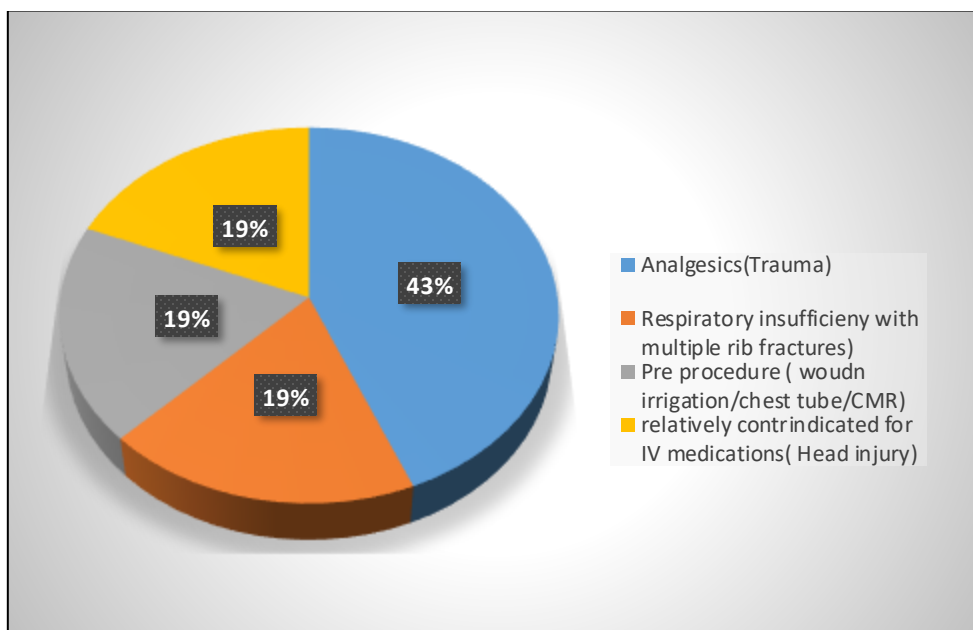


Figure 4: Indications of Emergency Regional Anaesthesia

Conclusion

Regional Anaesthesia in ED is a valuable, opioid sparing tool in multi-modal pain control with a positive impact, which are safe and effective. Standards of practice should be undertaken together with anaesthesiology to ensure patient access to quality regional anaesthesia in ED.

Conflict of Interest

The authors declare that they have no competing interests.

Acknowledgement

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