



ORIGINAL RESEARCH PAPER

Anaesthesiology

ULTRASOUND GUIDED SUPRACLAVICULAR BRACHIAL PLEXUS BLOCK: COMPARATIVE STUDY OF BUPIVACAINE WITH LIGNOCAINE AND ROPIVACAINE WITH LIGNOCAINE

KEY WORDS: Alternative, Local Anaesthetics, Compounding, Supraclavicular

Dr. G. Shyamaldip

Senior Grade Specialist, Department of Anaesthesiology, STNM Hospital, Sikkim.

Dr. Kh. Maniram Singh

Professor, Department of Anaesthesiology, RIMS- Imphal, Manipur.

Dr. L. Ruth

Anaesthesiologist, Aizawl, Mizoram.

ABSTRACT

Brachial plexus block is one of the most popular technique to accomplish anaesthesia and post operative pain management for upper limb surgery. Brachial plexus block provides a better alternative to general anaesthesia because of its simple technique, safeties, preserves consciousness during surgery, avoids airway instrumentation, provides rapid recovery, avoids post operative nausea and vomiting and profound post operative analgesia. Lignocaine, bupivacaine and ropivacaine are the amino-amide local anaesthetic drugs used for brachial plexus block. The combination of the two local anaesthetic drugs produces faster onset of block and adequate post operative analgesia instead of using high volume of one drug alone. Hence, the present study was undertaken to compare the onset and duration of sensory and motor block, duration of post operative analgesia and side effects by compounding of two local anaesthetic agents guided by ultrasound to ascertain the better combination of drugs for supraclavicular brachial plexus block in terms of onset, duration and post operative analgesia.

INTRODUCTION

Brachial plexus block is one of the most popular technique to accomplish anaesthesia and post operative pain management for upper limb surgery. Brachial plexus block provides a better alternative to general anaesthesia because of its simple technique, safetiness, preserves consciousness during surgery, avoids airway instrumentation, provides rapid recovery, avoids post operative nausea and vomiting and profound post operative analgesia. Brachial plexus block has over advantages whenever the general condition of the patient is poor or the patient is not adequately prepared or in the presence of associated comorbid conditions like uncontrolled diabetes, cardiovascular and respiratory diseases.

Kulenkampff in 1911 performed the first percutaneous supraclavicular block and published in 1928 by Kulenkampff and Persky.¹ Lignocaine, bupivacaine and ropivacaine are the amino-amide local anaesthetic drugs used for brachial plexus block.

Various adjuvants are used in brachial plexus block, to achieve faster onset of action and to increase duration of action .The combination of the two local anaesthetic drugs produces faster onset of block and adequate post operative analgesia instead of using high volume of one drug alone.^{2,3,4} Hence, the present study was undertaken to compare the onset and duration of sensory and motor block, duration of post operative analgesia and side effects by compounding of two local anaesthetic agents guided by ultrasound to ascertain the better combination of drugs for supraclavicular brachial plexus block in terms of onset, duration and post operative analgesia.

Sources: www.googleimages .com/ brachial plexus anatomy

DISCUSSION

This was a comparative study, carried out in 66 patients, of ASA I and II undergoing upper limb surgery with ultrasound guided supraclavicular brachial plexus block. The patients were randomly allocated into two groups using standard randomisation code. The group I recieved 0.5% bupivacaine (15 ml) plus 2% adrenalized lignocaine (15 ml) making a total volume of 30 ml. The group II recieved 0.5% ropivacaine (15 ml) plus 2% adrenalized lignocaine (15 ml) making a total volume of 30 ml.

The assessment of onset and duration of block was carried out by the principal investigator who was blinded to the drugs administered in the block. There was random allocation of the patients in the two groups and both the groups were statistically alike. All the findings and observations made during the entire study were tabulated, graphically depicted whenever possible, statistically analysed and inference drawn to compare the onset and duration of sensory and motor block and any side effects associated.

In general, ropivacaine showed faster onset and recovery for both sensory and motor blockade in comparison to bupivacaine with incomparable mean duration of analgesia and side effects between the two groups.

There were few limitations of this study. The size of our study sample was small and it was limited to ASA I and II patients only. It would have been more useful if we had included high risk patients which needs to be studied.

CONCLUSIONS

On the basis of present study, conclusions were drawn that onset of action of sensory, motor block was early in Ropivacaine group with faster recovery of sensory and motor functions as compared to Bupivacaine group. No significant side effects were noted in both groups.

Therefore, the study suggests that Ropivacaine is a suitable alternative to Bupivacaine for upper limb surgeries under Supraclavicular Brachial Plexus Block.

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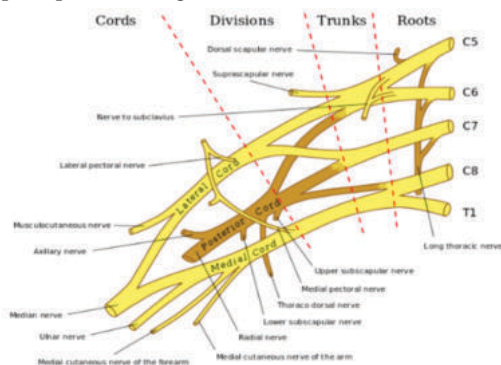


Figure 1: Formation of Brachial Plexus

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