Ultrasound (USG)-guided supraclavicular brachial plexus block allows better visualisation of underlying structures, movement of needle and direct spread of local anaesthetic and thereby making procedure safe and effective as compared to nerve stimulator-guided technique. It is safe to perform USG guided Supraclavicular block using smaller volume of local anaesthetic as low as 20 ml. Several studies have added different forms of adjuvants to reduce the onset time of block and increase post operative pain relief can be provided easily and in no time to the patient with an appropriate regional blockade.

In the past two decades three factors have brought about a reappraisal of regional techniques. Firstly a local block in combination with controllable sedation so that the patient stay awake during surgery and secondly realization has grown that excellent post-operative pain relief can be provided easily and in no time to the patient with an appropriate regional blockade.

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The onset and spread of sensory and motor loss was assessed using scores proposed by Parris and Chambers. Sensory loss was assessed by pinprick method, using a short beveled 25 G needle as:

- 0 – sharp pain
- 1 – touch only
- 2 – not even touch sensation

Motor block was assessed as:

- 0 – patient was asked to move arm against resistance
- 1 – inability to move wrist elbow against resistance
- 2 – inability to move wrist and elbow against gravity
- 3 – inability to move the arm

Time in minutes to achieve effective sensory and motor blockade was recorded in each case. A close watch on each patient was kept to look for any complications during the operative procedure and in the post-operative period. At the end of the procedure all the patients were shifted to the recovery room and monitored every 15 minutes for 1 hour in Post Anaesthesia Recovery Room. Side effects if any were recorded. The observations recorded were tabulated and subjected to statistical analysis by applying SPSS software version 10.

**INTRODUCTION**

Since the discovery of local anaesthetic drugs, the anaesthesiologists have become increasingly involved in the provision of postoperative analgesia; the need of pain relief during surgery without loss of consciousness is appreciated more, both by anaesthesiologists and surgeons. In the past two decades three factors have brought about a reappraisal of regional techniques. Firstly a local block in combination with controllable sedation so that the patient stay awake during surgery and secondly realization has grown that excellent post-operative pain relief can be provided easily and in no time to the patient with an appropriate regional blockade.

**MATERIALS AND METHODOLOGY**

This study was conducted after research committee approval to compare the effects of addition of 0.2 mmoles of KCl and 150mg of MgSO4 as an adjuvant on the onset of sensory and motor blockade with USG guided supraclavicular block in adult surgical patients. The onset of (T1), (T2), (T3) and (T4) was earliest in Group A KCl respectively followed by Group B MgSO4 and last in Group C Control respectively.

**OBSERVATION AND RESULTS**

**KEYWORDS**: USG guided SCB, adjuvant, KCl, MgSO4

**ABSTRACT**

**Aim**: This study was conducted to compare the effects of addition of 0.2 mmoles of KCl and 150mg of MgSO4 as an adjuvant on the onset of sensory and motor blockade with USG guided supraclavicular block in adult surgical patients.

**Material and methodology**: The patients were randomly divided into 3 groups of 20 each into group A (KCl - 0.2 mmoles (1ml solution)), group B (MgSO4 -150mg (1ml solution)) and group C (Control-1 ml NS) added as adjuvant in USG guided SCB. Time of onset of sensory block (T1), motor block (T2), Time of onset of Peak sensory block(T3) and Peak motor block(T4) and side effects, if any were noted.

**Conclusion**: KCl reduces the onset of sensory and motor blockade than MgSO4, when used as an adjuvant in USG guided SCB.
Potassium salts were first used as adjuvants to local anaesthetics in 1912. Several authors[14] conducted a study and concluded that the addition of potassium chloride to local anaesthetic solutions in order to increase the extracellular potassium and depolarize the membrane results in faster uptake of the drug by the tissues.

Hence our study compared the effect of 0.2 millmoles of potassium chloride and 150 mg magnesium sulphate as an adjuvants on onset of sensory and motor blockade in USG guided supraclavicular block.

In our study both potassium chloride and magnesium sulphate reduces the time taken for onset and peak of sensory and motor blockade significantly which is similar to studies done by Parris et al[12] and Khosa et al[13]. Though the study by Parris was conducted on axillary block, the results were similar to our study.

The most interesting result from our study was that 0.2 millmoles of potassium chloride reduces the onset of sensory and motor blockade when compared to 150 mg of magnesium sulphate.

**SIDE EFFECTS**

In present study, we monitored for the following side effects.

Drowsiness, Nausea, Vomiting, Excessive sedation, Bradycardia, Hypotension and Respiratory depression. Side effects in all the three groups were compared using “chi-square test” and there was no statistically significant difference analyzed.

There were no serious side effects in the 60 study patients. 4 patients in Group A and 5 patients in Group B and Group C control experienced nausea and vomiting and were treated with Inj. ondansetron 4mg I/V.

**CONCLUSION:**

• Thus, it is concluded that, addition of Potassium chloride in strength of 0.2 mmoles and Magnesium sulphate in strength of 150mg to a mixture of lignocaine and bupivacaine local anaesthetic solution, given by USG guided supraclavicular approach for brachial plexus block, provides faster onset of sensory and motor blockade without any major side effects, requiring any kind of intervention.

**LIMITATIONS OF THE STUDY**

• Since ‘pain’ is a subjective phenomenon associated with a wide variability of responses among the individuals, it is difficult to standardize the variable. What may be tolerable for one person may be intolerable for another. Under these circumstances, it is difficult to assess and grade the pain in the same manner and this may lead to some bias in the study.

• In our study we have given the fixed dose of the study drugs irrespective of the patient’s age, weight or body surface area.

**REFERENCES**


