



COMPARATIVE STUDY B/W CLONIDINE AND DEXMEDETOMIDINE AS AN ADJUVANT TO LEVO-BUPIVACAINE IN USG GUIDED FEMORO-SCIATIC NERVE BLOCK FOR POSTOPERATIVE ANALGESIA AFTER BELOW KNEE SURGERIES UNDER SUBARACHNOID BLOCK.

Anaesthesiology

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KEYWORDS

INTRODUCTION

Pain is one of the most distressing symptoms that a person can experience in their life. It is as old as the human race itself. Post-op pain is often intense and difficult for patients undergoing orthopedic surgery. The lower limb procedures are amenable to regional anesthesia techniques which reduce neuro-endocrine stress responses, central sensitization of the nervous system and muscle spasm in response to pain stimuli as described by Pang et al.¹ Thereby regional anesthetic techniques for analgesia following lower limb procedures now a days are being focused upon femoro-sciatic nerve blocks, which are two of the most common blocks applied either in combination or alone.²

High resolution ultrasound guidance has been shown to improve block success rates and block onset times. It can be used to locate these nerves and allow for the deposition of smaller volumes of local anesthetic drugs adjacent to them. Various studies have investigated the role of novel analgesic adjunct to Femoro-Sciatic block for post operative analgesia. Clonidine & dexmedetomidine are α_2 -adrenergic receptor agonist, has potent central and peripheral antinociceptive properties.

Dexmedetomidine is approximately eight-times more selective towards α_2 adreno receptor than clonidine. α_2 adreno receptor are located on primary afferent terminals implicated in analgesia. It supports the analgesic action at peripheral sites.³ The goal of which is to reduce the onset time, prolong the analgesic effect without the disadvantages of systemic side effects or prolonged motor blockade and allow for the reduction in the total dose of local anaesthetic. Clonidine is used for postoperative pain relief. It inhibits A δ and C fibers, and prevents the release of substance from spinal dorsal nerves. It potentiates local anaesthetic by inhibition of C-fiber induced action potential, release of enkephalin like substances and interaction with opioid receptors.⁴

AIM

To study the effects of Clonidine and Dexmedetomidine as an adjuvant to Levobupivacaine on sensory block and the duration of postoperative analgesia for USG-guided Femoro-Sciatic (Popliteal approach) nerve block in patients scheduled for below knee surgeries after subarachnoid block.

OBJECTIVES

To evaluate the efficacy of three FSN Block formulations (Levobupivacaine, Levobupivacaine+Clonidine and Levobupivacaine +Dexmedetomidine), having most beneficial effect on the post operative analgesia upto 24 hrs after the surgery.

To assess pain scores after surgery at 6, 12, 18 and 24 hours. Postoperatively, the first emergency analgesic need.

Three groups of patients were studied to compare their postoperative analgesia.

Study Area- Department of Anaesthesiology Dr.R.P.G.M.C Kangra at Tanda Himachal Pradesh

Study population- After approval by the institutional ethics committee, this study was conducted on 90 patients in the age range of 20-60 years.

Duration of the study -The study lasted 12 months and included data collection, data organization, data presentation, and data analysis.

Sample size – All patients who were within the time limit and met our inclusion and exclusion criteria, were included in this study.

Inclusion criteria:

Between the ages of 20-60 years, males and females. ASA class I-II.

Surgery of the foot and leg

Exclusion criteria:

Refusal of the patient to block. History of heart, renal, or hepatic disease. Local infection at the area where the needle for block is to go in. Patients who have brady-arrhythmia or are on beta blocker therapy.

Study design - It was a prospective and double-blind control trial study.

METHODOLOGY

The procedure was initiated after institutional scientific review, protocol committee approval, ethics committee approval and written informed consent. After satisfying all inclusion and exclusion criteria, the enrolled patients were randomly divided into three groups.

Group L - (n=30) Control Group –30 ml of 0.125% Levobupivacaine (15ml in Femoral Nerve block and 15ml sciatic nerve block).

Group LC - (n=30) Clonidine Group -30ml 0.125% Levobupivacaine +0.5ug/kg Clonidine (15ml in Femoral Nerve block and 15ml sciatic nerve block).

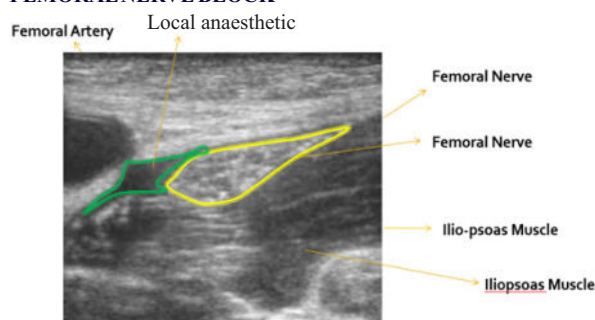
Group LD - (n=30) Dexmedetomidine Group -30ml 0.125% Levobupivacaine +0.5 ug/kg Dexmedetomidine (15ml in Femoral Nerve block and 15ml sciatic nerve block).

All patients received subarachnoid blocking (SAB) using 26G Quincke's spinal needle in L3–L4 interspinous space with 15 mg of 0.5 % hyperbaric bupivacaine after free flow of CSF.

After the level regressed down to T10, proper positioning (Supine) of patient was done and USG-guided Femoral Nerve Block was performed. Then, patients were given respective drug solutions.

Femoral block (FNB): The Femoral Block was performed via USG guided method. After draping the inguinal area on the affected side, using linear probe (6-13 MHz frequency) with sufficient application of jelly under AAP in supine position.

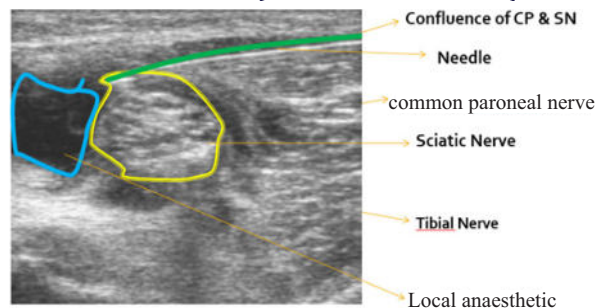
FEMORAL NERVE BLOCK



Sciatic nerve block (SNB): Sciatic nerve block was given in supine position with ultrasound guided method mentioned above. Leg of the

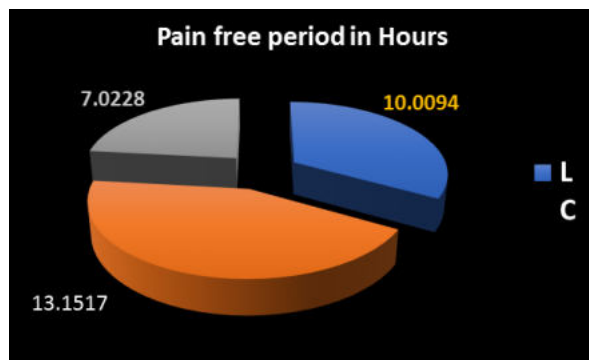
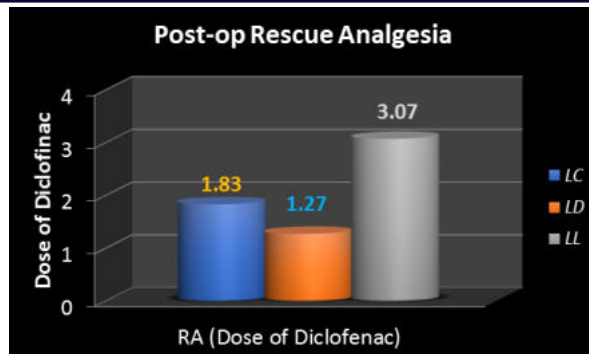
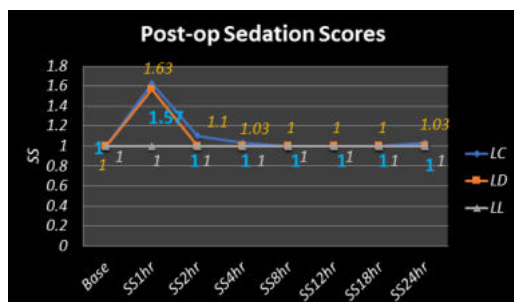
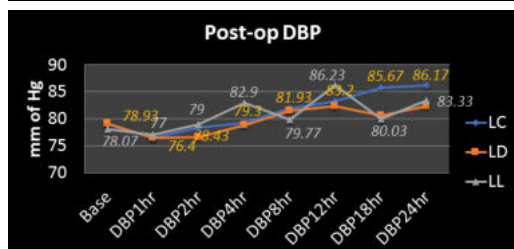
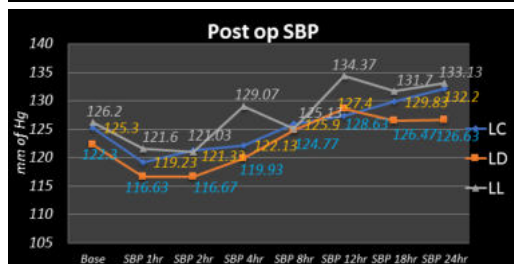
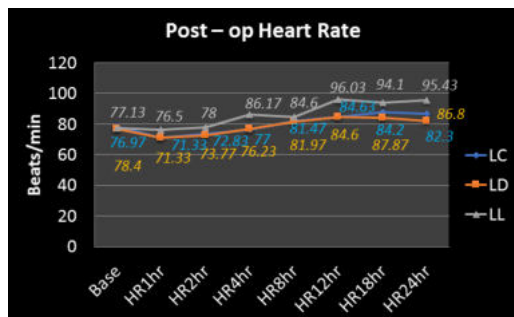
patient was elevated in a way to allow the access of flow in a way to allow the access of probe.

SCIATIC NERVE BLOCK [POPLITEAL APPROACH]



OBSERVATIONS

PARAMETER	Groups			p Value
	LC (n=30)	LD (n=30)	LL (n=30)	
AGE (Yrs.) ± SD	36.37+ 11.61	39.10 + 15.24	42.03 + 14.75	.296
BMI	23.01 + 1.97	22.26 + 2.99	23.61 + 2.11	.145
Sex Male/Female(n)	26/4	25/5	24/6	.786
ASA Grade 1/2 (n)	30/0	30/0	30/0	.70



CONCLUSION

Dexmedetomidine in a dose of 0.5 µg/kg as an adjuvant to Levobupivacaine 0.125% in FSNB after below knee surgeries increases the duration of post-operative analgesia and decreases the demands of rescue analgesics significantly without causing any adverse effects.

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