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Original Research Article

Comparative Study of Efficacy of Bupivacaine with or without Clonidine in Ultrasound Guided Ankle Block in Patients Undergoing Foot Surgeries

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Abstract:

Lower limb surgical procedures can be performed under General anaesthesia, Sub arachnoid blockade and Peripheral nerve blockade. Peripheral nerve blocks are widely accepted as the gold standard for ambulatory limb surgeries. The advantage of operating under regional anaesthesia can outweigh the hazards of general anaesthesia. The aim of this study is to compare the efficacy of Bupivacaine with or without Clonidine in Ultrasound guided ankle block in patients undergoing foot surgeries.

Study Design: Many adjuvants have been tried to enhance the analgesic efficacy of local anaesthetics in peripheral nerve block. From previous studies, it was noted that α2 agonists added to local anaesthetics had produced prolonged analgesia in ankle block. Hence, in our study, we have compared a group of patients who received 0.25% Inj.Bupivacaine alone with the other group of patients who received the combination of 0.25% Inj.Bupivacaine and Inj.Clonidine. Onset of sensory blockade of each nerve, hemodynamic characteristics, duration of post- operative analgesia and time for first rescue analgesia were observed. SPSS 26 Version was used for descriptive, analytic and comparative statistics.

Result: There was no statistically significant difference in onset of sensory blockade in both the groups. The duration of post-operative analgesia and the time to first rescue analgesia were prolonged in clonidine group.

Conclusion: The results showed that clonidine had prolonged the duration of post-operative analgesia and the time to first rescue analgesia when added to bupivacaine in ankle block in patients underwent foot surgeries.

Keywords: Ankle block, Tibial nerve, Superficial peroneal nerve, Deep peroneal nerve, Saphenous nerve, Sural nerve, Bupivacaine, Clonidine.

Introduction

Peripheral nerve blocks are widely accepted as the gold standard for ambulatory limb surgeries. The advantage of operating under regional anesthesia can outweigh the hazards of general anaesthesia. In high-risk patients, regional anesthesia has been demonstrated to be successful. Ultrasound-guided regionalanaesthetic procedures are becoming more popular because of their effectiveness in terms of cost and performance as well as a high margin of safety and adequate post-operative analgesia. Peripheral nerve blocks are effective treatments for ensuring a comfortable operating environment and perioperative analgesia. Its benefits include minimal alterations to the body's basic functioning and the ability to keep patients attentive and awake. Regional anaesthesia has grown in popularity in ambulatory surgery due to itsability to provide excellent pain control in the immediate post-operative period, as well as a shorter stay in the post- anaesthetic care unit and opioid sparing. Ultrasound guided continuous nerve block is used for prolonging the duration of nerve blockade. Continuous catheter technique most commonly used in femoral nerve in lower limb. Various adjuvants have been explored to increase the quality and duration of peripheral nerve blockade.

Clonidine, α2 agonist, is used as an adjunct to local anaesthetics in regional anaesthesia procedures to improve analgesia quality and duration.

Five nerves innervates the foot are: Tibial, Superficial peroneal, Deep peroneal, Sural and Saphenous Nerve. Except for the saphenous nerve, which is the terminal

branch of the femoral nerve, all others are the branches of sciatic nerve.

The five nerves that provide sensory innervation to the region distal to the malleoli are blocked during an ankle block. It can be used alone as an anaesthetic technique in foot surgery or in conjunction with general or neuraxial anaesthesia to provide adequate postoperative analgesia.

The absence of motor blockade above the ankle is its main advantage over simultaneous sciatic and femoral nerve blocks. This allows for the patient's rapid mobilization, which is important in the outpatient setting or when bilateral procedures are required.

Adjuvants are the drugs when combined with local anaesthetic agents may improve the onset and duration of sensory and motor blockade, lengthens the time required for the first analgesic, reducing the dose of local anaesthetics, counteracting the negative effects of local anaesthetics and reducing the side effects such as myocardial depression, hypotension, bradycardia, heart block, and ventricular arrhythmias. α2 adrenoceptors are found on primary afferents of both peripheral and spinal nerve endings, on thespinal cord's superficial laminae, and within several brainstem nuclei, implying analgesic action at peripheral, spinal, and brainstem sites in animals. There has been a significant revival of interest in the use of regional anaesthesia techniques for surgery and pain management over the lasttwo decades. To counteract the side effects of subarachnoid block and epidural, new adjuvants to local anaesthetics are constantly being added to the list.

Clonidine and other α2 adrenergic agonists have broadened the scope of regional anaesthesia.

The aim of this study is to see how clonidine combined with bupivacaine affects the onset of sensory blockade and the duration of post-operative pain alleviation in patients undergoing foot surgeries.

Materials and Methodology

This is a Double Blinded Randomized Controlled Prospective Study. This study was carried out in the Orthopaedic and General Surgery operation theatre, Government Rajaji Hospital, Madurai upon Institutional approval from January 2021 to November 2021.

Sample Size

Formula for intervention study comparing two means.
$N = 2 (Z\alpha + Z\beta)^2 SD^2 / (\mu_1-\mu_2)^2$
$Z\alpha = 1.96$ at 95% CI; $Z\beta = 0.84$ at 80% power.

Standard deviation SD = 6.55 (SD of control group).
$(\mu 1-\mu 2) = 5$ (mean difference in the total duration of analgesia i.e., onset of sensory analgesia to time to request of rescue analgesia between the intervention and control groups). The sample size was estimated to be 27 patients in each group.

Selection of Cases

60 adult patients in the age group of 18-60 years belonging to ASA I, II and III scheduled to undergo foot procedures were chosen. All the patients were assessed prior to surgery and informed written consent was obtained. The selected patients were randomly assigned to two groups, namely Group B and Group C.

Group B: Patients undergoing ankle block under ultrasound guidance received 0.25%Inj. Bupivacaine 15 ml + equal volume of normal saline added to that of clonidine volume and the total volume is standardized to 16 ml.

Group C: Patients undergoing ankle block under ultrasound guidance received 0.25% inj. Bupivacaine 15 ml + Inj.Clonidine 1 mcg/kg and the total volume is standardized to 16 ml.

Inclusion Criteria

Both genders, Age: 18-60 years, Patients undergoing foot procedures, ASA I, II and III, Patient given valid informed written consent.

Exclusion Criteria

Mentally unstable patients, Local site infections, Allergy to local anaesthetics, Coagulation disorders, Patient refusal, Neurological disorders Cardiovascular instability like hypotension, heart blocks.

Standard anaesthesia equipments and tray made ready. Drugs for the block – 0.25% Inj. Bupivacaine, Inj.Clonidine.

Patients were assessed pre-operatively and the procedure was explained to the patients. Written informed consent was obtained. Patients were not given any premedication.

Conduct of Anaesthesia

The procedure details were explained to the patients during their preoperative visit. Monitors - Pulse oximetry, NIBP, and ECG were connected as soon as the patient enters the operating room. Then, preoperative baseline parameters - pulse rate, blood pressure, SpO2 and respiratory rate were recorded. An intravenous access was obtained using an 18-gauge intravenous cannula in the opposite arm. The ultrasound-guided ankle block was administered to the patients as follows.

Technique of Block Performance

Tibial Nerve

The transducer was placed crosswise between the medial malleolus and the Achilles tendon with the knee in flexion and the hip in external rotation. The tibial nerve appears as a hyperechoic structure adjacent to the posterior tibial artery. After a negative aspiration test for blood, a 3 ml local anaesthetic mixture containing injection Bupivacaine 0.25 percent and injection Bupivacaine 0.25 percent and Clonidine 1mcg/kg

was injected to groups B and C respectively.

Superficial Peroneal Nerve

The transducer was placed across the middle third of the lateral aspect of the leg with the knee in flexion and the hip in internal rotation. Deep to the crural fascia, the nerve is located between the peroneus brevis and the extensor digitorum longus. After a negative aspiration test for blood, a3 ml local anaesthetic mixture containing injection Bupivacaine 0.25 percent and injection Bupivacaine 0.25 percent and Clonidine 1mcg/kg was injected to groups B and C, respectively.

Deep Peroneal Nerve

Transducer was placed crosswise over the inter malleolar region where the anterior tibial artery is visualised, and 3 ml of local anaesthetic mixture containing injection Bupivacaine 0.25 percent and Clonidine 1mcg/kg was injected to groups B and C respectively, after a negative blood aspiration test.

Sural Nerve

The transducer was placed across the space between the lateral malleolus and the Achilles tendon on the posterolateral aspect of the leg with the knee in flexion and the hip in internal rotation. There is a hyperechoic image lateral to the lesser saphenous vein. After a negative aspiration test for blood, a 3 ml local anaesthetic mixture containing injection Bupivacaine 0.25 percent and injection Bupivacaine.

0.25 percent and Clonidine 1mcg/kg was injected to groups B and C, respectively.

Saphenous Nerve

The transducer was placed proximal to the medial malleolus with the hip in external rotation. The nerve appears as a hyperechoic structure posterior to the great saphenous vein. A 3 ml injection of local anaesthetic mixture Bupivacaine 0.25% and injection Bupivacaine 0.25 % and Clonidine 1mcg/kg was injected to group B and C respectively after negative aspiration test for blood.

Evaluation of the Block

1. Vital signs monitoring: Throughout the intraoperative period, non-invasive blood pressure and heart rate, ECG, SpO_2, and respiratory rate were continuously monitored. They were recorded every 15 minutes for statistical purposes.
2. Patients were evaluated every minute after the drug was administered until sensory blockade occurred.
3. The touch perception was tested first and then to pinprick sensation with a 26G hollow needle was used to determine the time of onset of sensory blockade.
4. Failure was declared if the block had not taken within 20 minutes.
5. The patients were given subarachnoid block or general anaesthesia and were subsequently excluded from the study.

Sites for Testing of Sensory Analgesia

The following areas were assessed for presence or absence of touch perception and then to pin prick sensation. The block technique will be performed in the following order and the testing for sensory analgesia will be done after performing the block of individual nerves.

1. Tibial nerve – skin over the plantar surface of medial three and a half digits and lateral one and a half digits andassociated sole area.
2. Superficial peroneal nerve- skin over dorsum of foot excluding first web space.
3. Deep peroneal nerve- skin over the dorsum of first web space.
4. Saphenous nerve- skin over the medial side of foot.
5. Sural nerve- skin over the plantar surface of lateral aspect of foot.

Surgery was begun after confirmation that the block had taken up. During the surgical procedure, the level of pain was measured using a three-point verbal rating scale (VRS).

0 - No Pain
1 - Pain
2 - Excruciating Pain

If the VRS was greater than one, the patients were given a subarachnoid block and were removed from the study. Local anaesthetic toxicity manifestations such as circumoral numbness, tinnitus, twitching, convulsions and so on were investigated, and appropriate measures were devised. Complications such as intravascular injection were examined, andappropriate measures were devised. Analgesia duration was assessed postoperatively using a VAS score every hour until 24 hours. When the VAS was greater than 4, patients were given intramuscular Inj.Tramadol 2 mg/kg as a rescue analgesic.

Parameters Observed

- Onset time for sensory blockade of tibial nerve.
- Onset time for sensory blockade of superficial peroneal nerve.
- Onset time for sensory blockade of deep peroneal nerve.
- Onset time for sensory blockade of sural nerve.
- Onset time for sensory blockade of saphenous nerve.
- Duration of surgery.
- Duration of post-operative analgesia.
- Time for first rescue analgesia.
- Complications.

The end of the drug injection was assigned as "time 0". Every minute, patients were evaluated for the onset of sensory blockade, hemodynamics every 15 minutes intraoperatively, and hourly postoperatively for up to 20 hours.

Onset of Sensory blockade

The onset of sensory blockade was defined as the loss of appreciation for pinprick sensation. This is the time in minutes between the injection of the drug and the loss of appreciation for pinprick sensation.

After the appropriate nerves were completely blocked, surgery was permitted.

Duration of Analgesia

This is the time in hours between the onset of analgesia and the administration of rescue analgesia.

Successful block

A successful block was defined asa blockade of the posterior tibial, superficial peroneal, deep peroneal, saphenous and sural nerves, all of which were appropriate for surgery. If only one nerve was spared, the block was considered incomplete. When any of the dermatomes did not have analgesia after

30 minutes of drug injection, the block was considered incomplete. These patients were given IV injections of fentanyl (1-2 µg/kg). A failed block occurs when the patient experiences pain or discomfort, or when more than one nerve is spared. Pain was assessed postoperatively using a VAS (Visual Analogue Scale), with "0" representing no pain and "10" representing the worst possible pain. When the VAS was equal to or greater than 4, Inj.Tramadol 2mg/kg IM was administered as a rescue analgesic.

Statistical Analysis and Results

Data were entered in the excel spread sheet and variables were coded accordingly. The statistical analyses were performed using SPSS trial version 26 software. Data were presented as mean with Standard deviation for data with normal distribution (Age, Heart rate, blood pressure at various time durations). Data were presented as frequency with proportion n (%) for categorical data (gender and adverse effects). Student t test was used to compare the proportions, mean between the groups for age, weight, various durations, heart rate, SBP, DBP and SpO2, RR between the two groups at various time points. $p<0.05$ was considered statistically significant.

Table 1: Comparison of demographic profile between the groups in the study

Parameter		Group B	Group C	t	df	P value
Age(yrs)		43.6667 ± 7.5673	41.1000 ± 8.02303	1.275	58	0.208 (NS)
Weight(kg)		60.2667 ± 8.88600	65.4667 ± 6.77080	2.549	58	0.013 (S)
Gender	Male	21 (70)	21 (70)	-	58	1.000 (NS)
	Female	9 (30)	9 (30)			
Duration of surgery(min)		52.1667 ± 21.64300	53.3333 ± 20.98166	2.12	58	0.833 (NS)

Table 2: Comparison of pulse rate (in bpm) at various time intervals between the groups in the study

Heart rate at time interval	Group B (N=30)	Group C (N=30)	P value
0 min	87.7333 ± 9.81882	81.0000 ± 9.53397	0.009 (S)
15 min	86.6667 ± 12.28774	82.5000 ± 8.79165	0.136 (NS)
30 min	86.4000 ± 8.79165	83.6333 ± 9.55739	0.248 (NS)
45 min	82.1304 ± 6.58030	79.5200 ± 11.85018	0.356 (NS)
60 min	84.0667 ± 5.87326	76.4615 ± 11.32560	0.031 (S)
75 min	82.8333 ± 5.94699	77.1667 ± 12.13947	0.329 (NS)

Table 3: Comparison of systolic blood pressure (SBP in mmHg) at various time intervals between the groups in the study

Systolic BP at time interval	Group B (N=30)	Group C (N=30)	P value
0 min	125.4667 ± 15.48243	122.0000 ± 18.39040	0.433 (NS)
15 min	127.2667 ± 13.42651	120.7333 ± 16.18414	0.094(NS)
30 min	124.5333 ±14.69631	121.0000 ± 13.96301	0.344(NS)
45 min	122.5833 ±11.93430	123.0400 ± 15.54692	0.909(NS)
60 min	123.3333 ± 7.91623	125.5385 ± 13.42023	0.595(NS)
75 min	126.8000 ± 8.31865	136.0000 ± 10.95445	0.158(NS)

Table 4: Comparison of diastolic blood pressure (DBP in mmHg) at various time intervals between the groups in the study

Diastolic BP at time interval	Group B(N=30)	Group C(N=30)	P value
0 min	75.7333 ± 11.01389	71.2000 ± 12.53519	0.142 (NS)
15 min	77.2000 ± 11.49033	72.333 ± 12.86624	0.128(NS)
30 min	76.6667 ± 9.13249	72.2667 ± 8.34982	0.06(NS)
45 min	75.7500 ± 7.98504	73.7600 ± 8.35304	0.399(NS)
60 min	77.8667 ± 7.34717	76.3077 ± 8.47924	0.606(NS)
75 min	78.4000 ± 6.22896	76.6667 ± 7.76316	0.697(NS)

Table 5: Comparison of SpO2 (%) at various time intervals between the groups in the study

SpO2 at time interval	Group B (N=30)	Group C (N=30)	P value
0 min	98.0000 ± 1.38962	98.5000 ± 1.25258	0.149(NS)
15 min	98.0333 ± 1.21721	98.9667± 1.06620	0.003(S)
30 min	98.0000 ± 1.01710	98.5667± 1.25075	0.059(NS)
45 min	98.3333 ± 1.00722	98.8800 ± 1.05357	0.070(NS)
60 min	98.6667 ± 1.11270	98.9231 ± 0.75955	0.490(NS)
75 min	97.8000 ± 1.30384	98.5000 ± 1.04881	0.349(NS)

Table 6: Comparison of respiratory rate (breath per min) at various time intervals between the groups in the study

Respiratory rate at timeinterval	Group B(N=30)	Group C(N=30)	P value
0 min	14.3667 ± 1.12903	14.0667 ± 1.04826	0.291(NS)
15 min	14.0333 ± 0.085029	14.1000 ± 0.84486	0.762(NS)
30 min	14.2333 ± 0.85836	14.1667 ± 0.74664	0.749(NS)
45 min	14.0417 ± 0.75060	13.9600 ± 0.78951	0.712(NS)
60 min	14.2143 ± 0.69929	14.2308 ± 0.92681	0.959(NS)
75 min	13.8000 ± 0.44721	14.1667 ± 0.75277	0.365(NS)

Table 7: Comparison of onset of sensory blockade of individual nerves in minutes between the groups in the study

Parameter	Group B	Group C	t	df	P value
Tibial nerve	10.0000 ± 1.64002	10.0667 ± 1.11211	0.184	58	0.854(NS)
Superficial peroneal nerve	5.6333 ± 1.82857	6.3000 ± 1.46570	1.558	58	0.125(NS)
Deep peronealnerve	4.0588 ± 1.71284	4.3158 ± 1.45498	0.487	34	0.630(NS)
Saphenous nerve	3.8333 ± 1.60208	4.9725 ± 0.83452	3.112	12	0.06(NS)
Sural nerve	4.0000 ± 1.41421	4.3721 ± 1.24642	2.942	16	0.07(NS)

Parameter	Group B	Group C	t	df	P value
Duration of post operative analgesia	4.7667 ± 0.81720	9.2000 ± 0.9965	18.842	58	<0.0001(S)
Time for firstrescue analgesia	5.5000 ± 0.86103	9.7333 ± 1.11211	16.486	58	<0.002(S)

Table 8: Comparison of frequency distribution of adverse events between the groups in the study

Adverse Events	Group B (N= 30)	Group C (N=30)	df	P value
Bradycardia	0(0)	3(10)	58	0.07(NS)
Hypotension	0(0)	2(6.6)	58	0.15(NS)
Drug Allergy	0(0)	0(0)	---	---

Group B – Bupivacaine, Group C – Bupivacaine + Clonidine, S – Significant, NS – Not Significant
Data are expressed as mean with SD. Student t test was used to compare the mean between the groups.

Results

Patient characteristics across the groups

The patients in our study groups did not vary much with respect to Age and Gender. The study groups did not vary much with respect to duration of surgery.

Changes in the perioperative cardiovascular parameters

There was statistically significance changes in heart rate in GroupC (Bupivacaine+Clonidine) and P value was 0.031. Though P value was statistically significant in Group C, it was not clinically detrimental requiring intervention.

The duration of analgesia was 5.5000 ± 0.86103 hours in Group B (Bupivacaine) and 9.7333 ± 1.11211 hours in Group C (Bupivacaine+Clonidine). The duration of analgesia was longer in Group C (Bupivacaine plus Clonidine) compared with Group B (Bupivacaine), which is statistically significant. Hence this study concluded that Bupivacaine plus Clonidine provided longer duration of post-operative analgesia and prolonged the time for requirement of first rescue analgesics.

There was no significant differences between the study groups with respect to pattern of changes in Systolic blood pressure, Diastolic blood pressure perioperatively.

Onset time of Sensory blockade

In our study, we observed that there is no difference in onset time of sensory block between both the groups.

Duration of post-operative analgesia

In our study the duration of post-operative analgesia was 4.7667 ±0.81720 hours in Group B (Bupivacaine) and 9.2000 ± 0.9965 hours in Group C (Bupivacaine+Clonidine) and p-value was <0.0001 which was statistically significant. The duration of post-operative analgesia was longer in Group C (Bupivaine+Clonidine) compared with Group B (Bupivacaine).

Hence, we conclude that Bupivacaine 0.25% plus Clonidine had an advantage of prolonged duration of post-operative analgesia when compared to 0.25% Bupivacaine in ankle block at equal volume.

Duration of time to first rescue analgesics

The mean time from onset of block to first request of analgesics was taken as total duration of analgesia.

Discussion

Foot surgeries are often painful and regional anaesthesia is becoming more popular in ambulatory surgeries because it provides superior pain control in the immediate postoperative period, as well as shorter length of stay in the post-anaesthetic care unit and perioperative opioid sparing.

A sub arachnoid blockade, popliteal sciatic block, ankle block, metatarsal block, or a combination of these techniques are all appropriate regional anaesthetic techniques. Ankle blocks can provide prolonged postoperative analgesia and aid in early mobilization.

An effective analgesia is critical for early discharge. Regional anaesthesia for foot surgery provides excellent anaesthesia as well as postoperative analgesia, making it ideal for day care procedures. Ankle block can prolong postoperative analgesia and allow for early mobilization.

Ankle blockade consists of blocking the five nerves that provide sensory innervation to the region distal to the malleoli. It can be done using either a landmark based or an ultrasound- guided (USG) technique. When compared to the conventional technique, the USG guided technique may improve block success.

When adjuvants are co-administered with local anaesthetic agents, may prolong the duration of sensory blockade. Various adjuvants like sodium bicarbonate, steroids, vasoconstrictors, α 2 agonist have been used as an adjuvants.

But literature showing the effect of adding clonidine to local anaesthetic in ankle block is limited. So this study was choosed.

Here, an attempt has been made to compare the analgesic efficacy of clonidine as an adjuvant to 0.25% Bupivacaine.

The population was divided into 2 groups. Group B received 0.25% Bupivacaine plus equal volume of normal saline as to that of clonidine volume and Group C received 0.25% Bupivacaine plus Clonidine 1µg/kg and total volume was standardized to 16 ml.

Demographic data including patient's age, gender and weight were comparable in two groups and was found no difference.

In this study we compared the two groups in terms of onset time of sensory blockade of each nerve in ankle block, duration of sensory blockade, hemodynamic variability and supplementary analgesic requirements in first 24 hrs.

In this study, the onset time for sensory blockade was not statistically significant and the duration of post-operative analgesia was longer in Group C (9.2000 ± 0.9965) when compared with Group B (4.7667 ± 0.81720) and the p value was <0.0001 which was statistically significant.

The time to first rescue analgesia was prolonged in Group C (9.7333 ± 1.11211) when compared with Group B (5.5000 ± 0.86103) and the p value was <0.002 which was statistically significant.

There was no significant difference between the study groups with respect to pattern of blood pressure. But bradycardia and hypotension had occurred in Bupivacaine plus Clonidine group, which haven't required clinical intervention.

These results were comparable with similar study done by Usha Kumar Choudhary et al, where they compared the analgesic efficacy of clonidine and fentanyl as an adjuvant in sciatico femoral nerve block. This had resulted clonidine group had longer pain free period (10.06 ± 3.62 hr) as compared to fentanyl group (7.94 ± 3.62 hr) and control group (4.59 ± 1.20 hr). Total amount of rescue analgesic requirement was lesser in clonidine group (71.25 ± 16.77 mg) than fentanyl group (86.25 ± 36.71 mg) and control group (161.20 ± 50.34 mg) and concluded that clonidine had provided better post-operative analgesia by prolonging pain free period.

Similarity exists with the results of the study by A.H. El Saied et al, had evaluated the effect of clonidine added to ropivacaine in axillary brachial plexus blockade. The clonidine group showed an increase in duration of sensory loss from 489 min to 628 min with a mean difference of 138 min (95% confidence interval of 90 to 187 min) and analgesia from 587 min to 828 min with mean difference of 241 min (95% confidence interval of 188 to 294 min) and there was no difference in onset time between the groups and had concluded that addition of clonidine to ropivacaine in a brachial plexus blockade had prolonged the sensory block and analgesia.

Also, the results were comparable with the study by Kris Vermeylen et al, evaluated the analgesic effect of clonidine and dexamethasone (DXM) added to ropivacaine in sciatic popliteal block. Clonidine had prolonged the duration to first pain sensation by 6 hours (28 ± 10 hrs) (27%), prolonged complete sensory blockade by 7 hrs (30 ± 7 hrs) (27%), prolonged the sensory block regression time by 2 hrs (17 ± 6 hrs) (13%), and concluded that clonidine as an adjuvant to ropivacaine had significantly prolonged the duration of post-operative sensory block.

Hence, our study concludes 0.25% Bupivacaine plus clonidine (Group C) had prolonged the duration of sensory blockade and the time for first rescue analgesia when compared to Group B (0.25% Bupivacaine).

These results were contrary to the study done by Jakob Hessel Anderson et al, compared efficacy of clonidine added ropivacaine 0.5% in Bilateral Adductor Canal Block and measured the duration of sensory block. This had resulted the mean duration of sensory blockade in the leg which received ropivacaine + clonidine was 19.4 hr ± 2.7 compared to 19.3 hr ± 2.4 in the leg which received ropivacaine + placebo with a mean difference of 0.1hr, 95% CI -1.0 to 1.3 and P value of 0.83, which was found to be insignificant and concluded that there was no difference in duration of sensory block when clonidine was added as an adjuvant perineurally to ropivacaine.

Conclusion

In our study, we conclude that addition of Clonidine to 0.25% Bupivacaine in Ultrasound guided ankle block had prolonged the duration of post- operative analgesia and the time for first rescue analgesia when compared to 0.25% Bupivacaine and made Clonidine - a potential adjuvant for ankle block.

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