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Evaluation of Combined Femoral and Sciatic Nerve Block as a sole Anaesthetic Technique for Lower knee Surgical Procedures: Our experience as a learning Curve(Study of 70 cases)

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Abstract
Background and Aim *:The opportunity to interrupt pain pathways at multiple anatomic levels and ability to provide excellent operating conditions without undue sedation or obtundation makes specific peripheral nerve blocks ideally suited for surgery of the lower extremity. Low incidence of perioperative complications, superb postoperative analgesia and increased operating room efficiency, all have accounted for the substantial resurgence of interest in these techniques. Hence, the aim of this study was to assess the suitability of this simple and safe technique i.e Combined Femoral& sciatic nerve block for various unilateral lower limb surgeries specially below knee level and to assess the hemodynamic stability of the patients after this procedure.*
Materials and Method: *This Prospective Observational study involved 70 patients from June 2016 to June 2018, in the age group of 21-60years,scheduled to undergo elective and emergency lower limb surgeries under combined femoral and sciatic nerve blocks. A sciatic nerve block was given by the posterior approach of Labat, and a femoral (3in 1) block was given by Winnie's inguinal perivascular approach using a mixture of 0.5% Levobupivacaine 10cc plus 50ug Fentanyl in femoral & 15 cc 0.5% Levopubivacaine plus 50ug fentanyl in Sciatic .* ***Results:*** *Complete block was achieved in 95% of the patients. None of the patients had any complications and there was no significant difference between the pre-operative and postoperative vitals (pulse and blood pressure*
Conclusion:
Combined femoral (3-in-1) and sciatic nerve block is a simple, safe, and efficient technique as a sole anaesthetic technique in lower knee surgical procedures with very low incidence of side effects and a negligible failure rate.

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I. Introduction

Peripheral nerve blocks (PNBs) have been extensively used in patients with poly-trauma posted for emergency surgeries and for patients with critical co-morbidities who cannot tolerate even the slightest alteration of hemodynamic status.

Recently several developments have led to an increased interest in lower extremity PNBs, including recognition of transient neurological symptoms associated with spinal anesthesia and evidence of improved rehabilitation outcome with lower limb PNB. It is desirable to provide effective anesthesia, rapid and an uneventful recovery, persistent postoperative analgesia and early ambulation to patients. Peripheral nerve blocks are ideally suited for lower limb surgeries because of the peripheral location of the surgical site and the potential to block pain pathways at multiple levels. In contrast to other anesthetic techniques such as general or spinal anesthesia, properly conducted PNBs avoid hemodynamic instability and ,facilitate postoperative pain management, and assure a timely discharge of the patient. When long-acting local anesthetics are used, peripheral nerve blocks can be used to provide excellent anesthesia and postoperative analgesia in patients undergoing a wide variety of surgical procedures.[1,2,3]

This study was there fore done to assess the suitability of Combined femoral & sciatic nerve block as a simple ,safe & sole anaesthetic technique for various unilateral lower limb surgeries specially lower knee surgeries and also to assess the extent of analgesia & the hemodynamic stability of the patients after the block was given.It is necessary to get acquainted with the technique as a learning curve so can be used in indicated patient to avoid morbidity & mortality, specially in patient with lots of comorbidities who cannot tolerate slight

alteration in haemodyanamics.The aim of study to share our experience of Combined femoral & sciatic nerve block as sole anaesthetic Technique for lower knee surgical procedures.

II. Methods & Material

This prospective observational study involved 70patients, in the age group of 21-60years ,ASA grade I & ASA grade 2 scheduled to undergo elective and emergency lower limb surgeries below level of knee under combined femoral and sciatic nerve blocks. The exclusion criteria included allergies, bleeding disorders, localized infection, neurological disease and morbid obesity. All the patients provided a written and informed consent after detailed counselling

We used levobupivacaine, as it is a preferred local anaesthetic due to its longer sensory block, lower cardiac and central nervous system toxicity and shorter motor block compared to other routinely used drugs i.e. bupivacaine and ropivacaine. Levobupivacaine being highly lipophilic remains in contact with nerve fibres for longer duration and therefore provides longer postoperative analgesia.

In present study, we used fentanyl 50 µg in sciatic nerve block and 50µg in femoral nerve block for evaluating the effects of opioid drugs with different physiochemical properties (such as morphine, buprenorphine and sufentanil), reported that the more lipophilic the opioid, the longer was the duration of postoperative pain relief after peripheral nerve block using a local anaesthetic mixture. For this reason, we used a highly lipophilic opioid, such as fentanyl.

Success of the PNB requires proper technique of nerve localization, needle placement and LA injection. In our study, we performed sciatic femoral nerve block using peripheral nerve stimulator. Previous studies quoted that without a nerve stimulator, sciatic nerve blocks are frequently unsuccessful. Therefore, vast majority of sciatic nerve blocks are performed using insulated needles and nerve stimulators.

Following this, a sciatic nerve block(Fig 2) was given by the posterior approach of Labat using Peripheral Nerve Stimulator with stimuplex needle (Fig 1).As the needle is advanced, twitches of the gluteal muscles are observed first. These twitches merely indicate that the needle position is still too shallow. Once the gluteal twitches disappear, brisk response of the sciatic nerve to stimulation is observed (hamstrings, calf, foot, or toe twitches).After the initial stimulation of the sciatic nerve is obtained, the stimulating current is gradually decreased until twitches are still seen or felt at 0.2 - 0.5 mA. This typically occurs at a depth of 5-8 cm. After negative aspiration for blood, 15 cc 0.5% Levopubivacaine plus 50ug fentanyl slowly injected. Any resistance to the injection of local anesthetic should prompt needle withdrawal by 1mm.The injection is then reattempted. Persistent resistance to injections should prompt complete needle withdrawal and flushing to assure its patency before the needle is reintroduced

A femoral (3in1) block (Fig 1)was given by Winnie's inguinal perivascular approach using a 10mL mixture . of 0.5% Levobupivacaine plus 50ug Fentanyl .A standard 10cm insulated needle, connected to a nerve stimulator, was inserted to elicit the response to nerve stimulation. Visible or palpable twitches of the hamstrings, calf muscles, foot, or toes, or a palpable twitch of the quadriceps muscle at 0.2-0.5mA current were looked for. Precautions to avoid arterial or venous puncture were taken

An assessment was done every 30 seconds for the initial 10 minutes and then every minute till the onset of block. Patient were assessed for Sensory blockade – onset and duration,Motor blockade – onset and duration,Time of complete sensory and motor blockade,Onset of surgical anaesthesia,Quality of block perioperative hemodynamic stability – heart rate, blood pressure, respiratory rate and oxygen saturation' ,Duration of surgery,Duration of complete analgesia ,Number of rescue analgesia doses required

ASSESSMENT OF SENSORY BLOCK:

Sensory block was evaluated by Hollmen scale and findings were recorded at an interval of every 2 min from time-0 till complete sensory block was achieved i.e Hollmen Score = 4**Sensory block: (Hollmen scale)** 1 = Normal sensation of pinprick,2 = Pinprick felt as sharp pointed but weaker compared with same area in the other lower limb,3 = Pinprick recognized as touch with blunt object,4 = No perception of pinpricK

1. Onset of sensory block

This was defined as the time interval in minutes from the end of administration of local anaesthetic solution in sciatic nerve (time-0) till sensory block started appearing i.e. Hollmen score = 2.

2. Time of complete sensory block

This was defined as the duration of time in minutes from time-0 (Time of injection of local anaesthetic in sciatic nerve) till complete sensory block was achieved i.e. Hollmen Score=4.

ASSESSMENT OF MOTOR BLOCK:

Motor block was evaluated by using modified Bromage Scale (BS) for lower extremity and findings were recorded at an interval of every 2 min from time-0 till complete loss of motor power was achieved i.e. BS Score=3

MODIFIED BROMAGE SCALE Motor block:

Grade	Criteria
I	free movement of legs and feet
II	Just able to flex knees with free movement of feet
III	Unable to flex knees, but with free movement of feet
IV	Unable to move legs or feet

3. Onset of motor block

This was defined as the time interval in minutes from time-0 (Time of local anaesthetic injection in sciatic nerve) till motor block started appearing i.e. BS score ≥1. minimum of grade 1 of modified Bromage scale.

4. Time of complete motor block

This was defined as the duration of time in minutes from time-0 (Time of local anaesthetic injection in sciatic nerve) till complete motor block was achieved i.e. BS score=3.

5.Time of onset of surgical anaesthesia

This was defined as the time from the end of anaesthetic injection to loss of pinprick sensation on sciatic and femoral nerves distribution with the inability to move the ankle and toes of the operated limb.

6. Quality of block:

The quality of the block was judged as –

Excellent - Indicated complete loss of touch, position sense and pain sensation with no sensitivity on deep pressure with marked or total paralysis of muscle.

Good - Loss of pain, touch, and position sense but retained a sensory response to maximum pressure applied to finger nail, require minimal sedation [IV midazolam (0.02mg/kg) and fentanyl (1mcg/kg)]

Moderate – Patchy anaesthesia with mild pain or discomfort during the operative procedure requiring rescue analgesia like inj. Pentazocine 0.3 mg/kg or inj.Ketamine

Poor/Failure - Failure to obtain anaesthesia, moderate to marked pain during the surgical procedure. Requiring general anaesthesia

Failure: is defined as the absence of complete sensory block in at least one dermatome supplied by sciatic and femoral nerve.In our study, all the blocks were given by experienced anaesthesiologist.

Success: We considered our block to be successful when the patient had a full block of all the sensory dermatomes and no power to move the limb

7. Total duration of sensory block

This was taken as the duration of time in minutes from the time-0 till the time when patient came back to Hollmen score 1 (patient could perceive the normal sensation of pinprick).

8. Total duration of motor block

This is defined as the time interval between the onset of complete motor block till the patient recovered completely from motor block and was able to do all movement of the limb (Grade 0 in Modified Bromage scale).

9. Duration of surgery

Duration between the skin incision and complete closure was taken as duration of surgery.

Duration of surgery and type of surgical procedure was recorded

10. Duration of complete analgesia:

This was the time since the administration of the local anaesthetic drug in sciatic nerve to onset of intolerable pain (VAS ≥ 4) at rest requiring supplementary (rescue) analgesic in form of 1gm injection paracetamol iv.

Pain was assessed by Visual Analogue Scale (VAS). VAS was recorded and assessed at an interval of every 30 minutes till the score ≥ 4. Time of first dose of post–operative systemic analgesic was on the basis of VAS score ≥ 4 and was noted for use as duration of analgesia. Visual analogue scale: Visual analogue scale consists of a 10 cm line, marked at 1 cm each. The patient makes a mark on the line that represents the intensity of pain he or she experienced. Mark "0" represents no pain and mark "10" represents worst possible pain. The numbers marked by the patient was taken as units of pain intensity. 0 = no pain 10=maximum pain

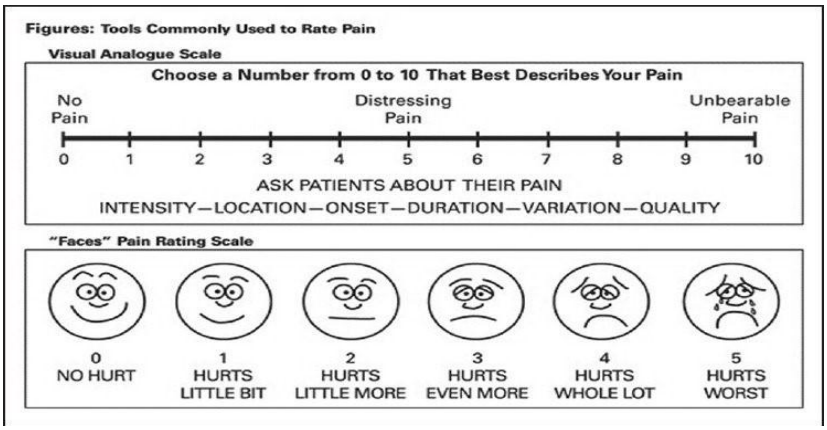


FIGURE NO.10

11.Number of doses of rescue analgesics required in 24 hours:
Rescue analgesic given as inj.paracetamol 1gm IV if VAS≥4 in each group and number of rescue analgesic doses required in 24 hours were noted.

12. perioperative complications
Following intra-operative and post-operative complications were looked for Inadequacy of block,Nausea,vomiting ,Neurotoxicity,prolonged motor weakness,sedation,Any reaction at injection site like hematoma, Persistent bradycardia, Persistent hypotension, Fall in respiratory rate to <10 per min, Fall in SpO2 to < 90%, Any symptoms or signs of local anaesthetic toxicity, ,Any significant ECG changes

Statistical analysis:
The data was collected, compiled and analysed using EPI info (version 7.2). The qualitative variables were expressed in terms of percentages. The quantitative variables were both categorised and expressed in terms of percentages or in terms of mean and standard deviations.

Figure 1 PNS used

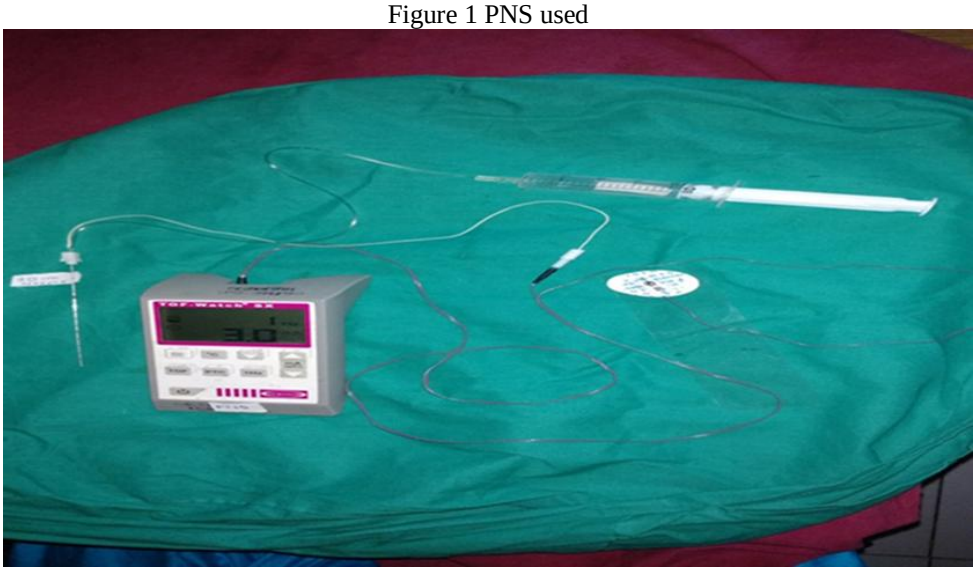


Figure 2 Technique of femoral nerve block

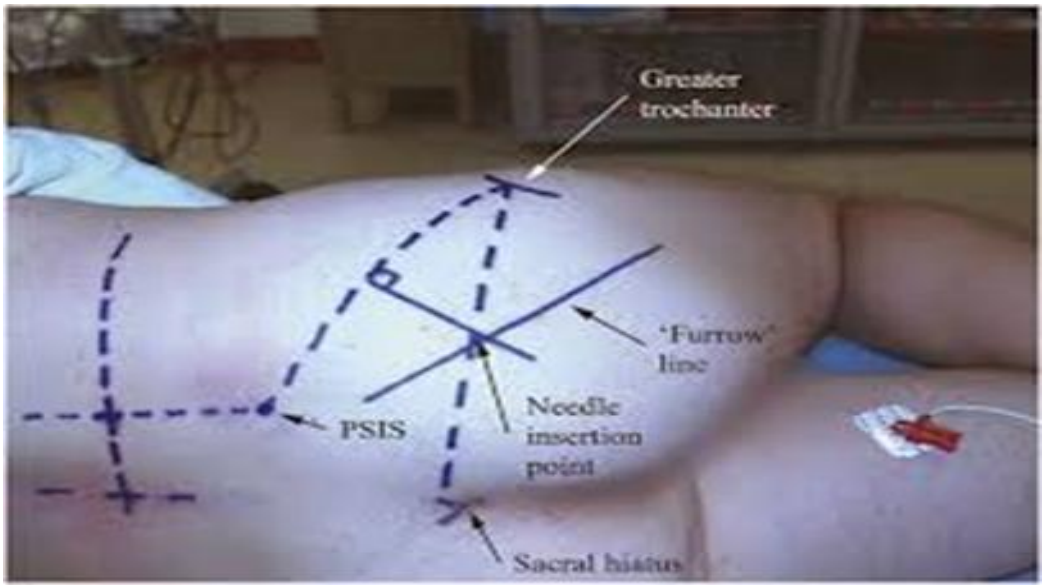


Figure 3 Technique of sciatic Nerve Block

III. Observations

- Mean age of patients study was 33.77 ± 10.01 respectively. Maximum number of patients belonged to age group 20-40 years. Mean weight of patients in group was 60.00 ±6.46 kg. Patients of both the sex were included in the study In group , 77% of the patients were males while 23% patients were females(Table no 1)

Table no 1 : Demographic data

Demographic Data		
Age (yrs)		33.77 ± 10.01
Wt(kg)		60.00 ±6.46 kg.
sex	Male	77%
	Female	23%

- The types of surgeries carried out were proximal tibia plating, distal tibia plating, midshaft tibia nailing and calcaneum fracture fixation.

Table 2 : Parameters Assessed & Observed

Parameter Assessed	Results
Mean duration of surgery(mins)	118.0 ± 31.51
onset of sensory block(mins)	12.45 ± 0.86
Time taken for Complete sensory block (mins)	21.30 ± 1.15

Mean time taken for motor block onset(mins)	17.31 ± 1.65
Mean time taken for complete motor block (mins)	29.51 ± 1.27
Mean time taken for onset of surgical anaesthesia	29.08 ± 1.30 .
Mean of total duration of sensory block(mins)	782.29 ± 53.88
Mean of total duration of motor block(mins)	590 ± 14.24
The mean duration of analgesia(mins)	931.14 ± 56.46
Success rate of technique(%)	95.71
Failure rate(%)	4.28

FIG 1: Bar diagram showing sensory parameters

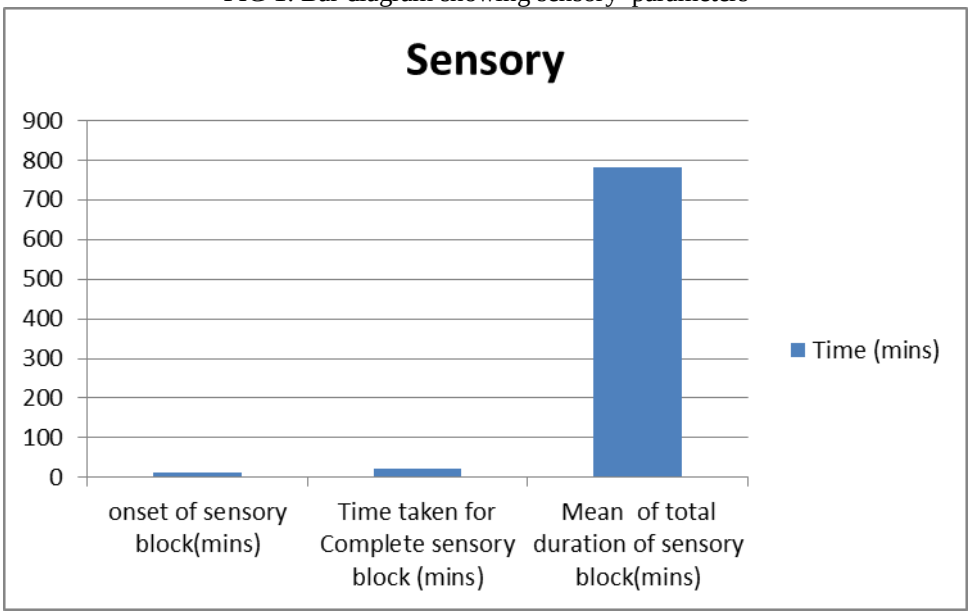
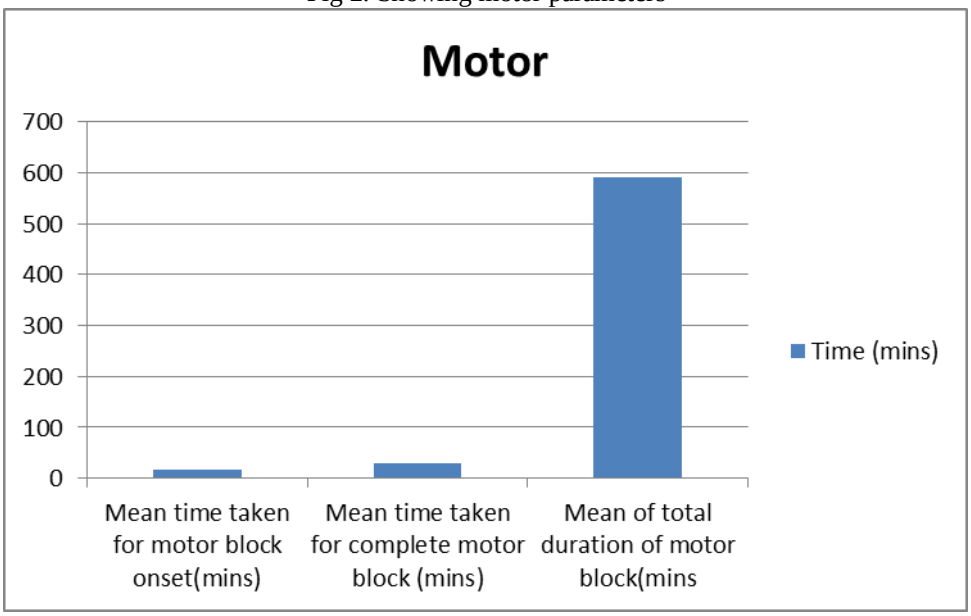


Fig 2: Showing motor parameters



Mean duration of surgery in was 118.0 ± 31.51 minutes.The mean time of onset of sensory block was 12.45 ± 0.86 minutes The mean time taken for sensory block complete 21.30 ± 1.15 minutes .The mean time taken for motor block onset was 17.31 ± 1.65 minutes .the mean time taken for motor block complete was 29.51 ± 1.27 minutes

The mean time taken for onset of surgical anaesthesia was 29.08 ± 1.30 .

The quality of block of 65 with levobupivacaine plus fentanyl was excellent. 2 patienst had good quality of block and needed additional intra operative supplementation in form of sedation i.e. midazolam 0,02mg/kg and

fentanyl 1µg/kg. 3 pts required General Anaesthesia.Failure Rate of technique was 4.28%.Our success rate of combined sciatic femoral technique was 95.71%

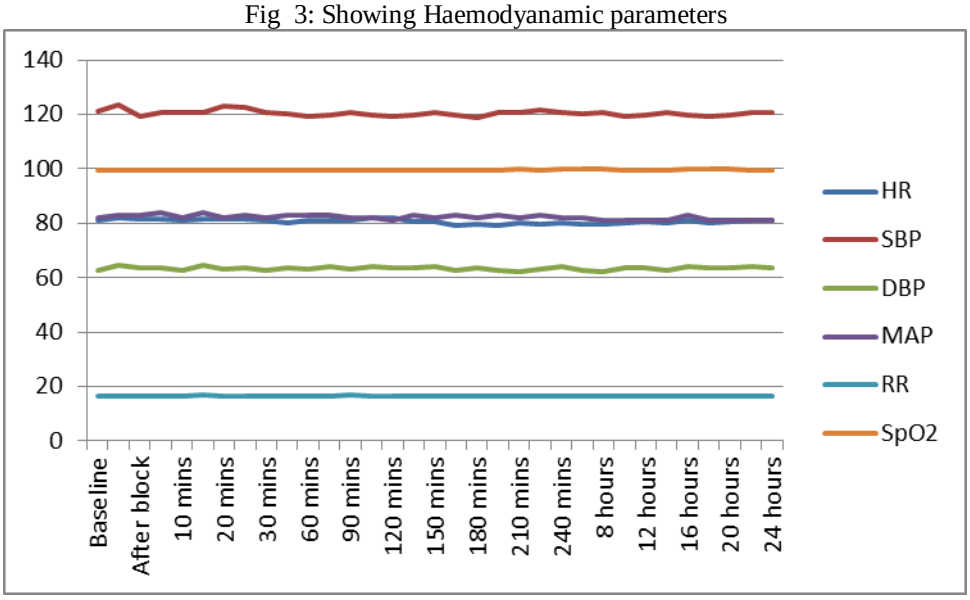
The mean (±SD) of total duration of sensory block was 782.29 ± 53.88 minutes.In our study, the mean of total duration of motor block was 590 ± 14.24 minutes .In the present study, the hemodynamic parameters (heart rate, blood pressure, respiratory rate and oxygen saturation) were noted at various intervals in the intraoperative and postoperative period..Addition of fentanyl 50 µg to 0.5% levobupivacaine in combined sciatic femoral nerve block maintained haemodynamic stability.

the mean duration of analgesia 931.14 ± 56.46 Thus, we found that duration of postoperative analgesia was significantly prolonged by addition of fentanyl 50 µg to 0.5% levobupivacaine in combined sciatic femoral nerve block.In the postoperative period pain was assessed by Visual Analogue Scale. The patients were asked to quantify their pain subjectively. The visual analogue scale consists of a 10cm drawn line with the left anchor point descriptor labelled 'no pain' and the right side equivalent labelled 'worst pain'. The patient was asked to mark their severity of pain on continuum.Rescue analgesia given as paracetamol 1gm IV if VAS score ≥4 in each group and number of rescue analgesia doses required in 24 hours were noted.

In the present study, it was found that majority of patients required only 1 analgesic

In our study, one patient in each group complained of nausea and Vomiting. None of the patient had any other complications. No significant complications were observed in both groups in present study. None of the patient had bradycardia, hypotension or any other complications during intraoperative and postoperative period. There were no clinically significant changes in respiratory rate and oxygen saturation from baseline values. Oxygen saturation was within 98-100% range throughout intraoperative and postoperative period.(graph 3)Thus, in present study, addition of fentanyl 50 µg to levobupivacaine did not increase the incidence of complications.

Fig 3: Showing Haemodyanamic parameters



IV. Discussion

The present method of PNB is an extremely useful and effective alternative technique for lower limb operative procedures in which whole of the lower limb can be anesthetized by using the two-puncture technique. This can be applied to any patient undergoing extensive lower limb surgery irrespective of whether he is fit for spinal or general anesthesia. In our study,80% of the patients were having relative contraindications.

The primary aim of this study was to assess the combined femoral (3-in 1) and sciatic nerve block for unilateral lower limb surgery in terms of onset of time for sensory and motor blockade, result of the block, complications of the procedure and hemodynamic stability.

Historically, for obscure reasons sciatic nerve blocks have been among the least performed procedures. Davies and Mc glade have shown that without a nerve stimulator, sciatic nerve blocks are frequently unsuccessful. Therefore, vast majority of sciatic nerve blocks are performed using insulated needles and nerve stimulators[(1)] In our study, every block was given with the use of a nerve stimulator. The success ratewas92%. In study of Dr. Bindi B et al sciatic and femoral nerve block was given with the use of a nerve stimulator. The success rate was 92%. Thus author concluded that Combined femoral (3-in-1) and sciatic nerve block is an efficient technique with a negligible failure rate [(2).]A. Singh et al also reported the high reliability and relatively low failure rate (4%) in their study. [(3)]Raj kumar et al also reported 99.44% success rate in their study.[(4)]

In 1930, Labat first proposed a posterior approach to sciatic nerve block. In the present study of 50 cases, the classical posterior approach of Labat was used in all patients because it is easy to apply, less painful land more convenient to the patients.

Bindi et al also study Combined Femoral and Sciatic Nerve Blocks using labat approach for Lower Limb Surgical Procedures.In the anterior approach to the sciatic nerve block, the femur often obstructs the passage of the needle toward the sciatic nerve.by using a human cadaver model.[5] **Jerry D. Vloka** assessed how internal and external rotation of the leg influences the accessibility of the sciatic nerve with the anterior approach. [6] **Palaniappan T** compared the classic posterior and lateral approach to the sciatic nerve in the political fossa in diabetic patients undergoing lower extremity surgeries.[7] The lateral approach is slightly more difficult technically, but more convenient with respect to the patient positioning and ease of needle placement, the success of blockade and number of attempts were better in the posterior approach than lateral approach, hence concluding both the methods have their own merits and demerits. **Dalens B** Compare the Posterior, Anterior, and Lateral Approaches of Sciatic Nerve Blocks in 180 Pediatric Patients found successful block on the first attempt in 88% of patients in group Posterior, in 78% in group Lateral ,and in 62% in group Anterior.[8]

Femoral nerve block is a basic nerve block technique that is easy to master, carries a low risk of complications and has significant clinical applicability for surgical anesthesia Winnie described the femoral (3-in-1) block using a single injection of a local anesthetic solution which blocks the femoral ,lateral cutaneous and obturator nerves. When combined with sciatic nerve block, anesthesia of almost the entire lower extremity from the mid thigh level can be achieved.

Lipsybansal et al[9], Sumana et al [10], Akshoy et al [11] ,A Singh et [12] all successfully conducted studies on Combined Sciatic Femoral nerve block with Haemodyanamic stability in lower limb surgeries as sole anaesthetic technique.

Levobupivacaine is S- enantiomer of bupivacaine and has clinical profile similar to that of bupivacaine. But the better safety profile of levobupivacaine confers an advantage over its racemic parent bupivacaine [13]. Thus the reduced toxic potential of two pure left isomers – ropivacaine and levobupivacaine is useful in clinical situations in which the risk of systemic toxicity related to their overdosing or unintended intravascular injection is high, such as during peripheral nerve blocks. Levobupivacaine is a good substitute for bupivacaine. Compared to ropivacaine, levobupivacaine provides a significantly longer duration of analgesia. [14]. The return of motor activity is earlier with ropivacaine [15]

The vasoconstrictor property of aminoamide LA, vascularity of the injection site, lipid solubility [16], and addition of epinephrine may contribute to decreased absorption of LA into systemic circulation. This leads to prolonged nerve exposure to LA and reduced plasma levels, which lead to an increased duration of anaesthesia produced by the LA agent.If a drug causes vasoconstriction at local site of injection, than diffusion of drug within soft tissue fat is hinderd leaving a high level of concentration saturation near the nerves to block) The vasoconstrictor property depends on the inward shift of calcium ion through voltage-gated calcium channels present on cell membranes and lipid forms major component of it. The degree of lipophilicity of the LA agent (levobupivacaine is more lipophilic than ropivacaine) may have significant effects on the cell membranes, thereby changing the gating of ion channels of the calcium channel. Thus, levobupivacaine being highly lipophilic remains in contact with nerve fibres for longer duration and therefore provides longer postoperative analgesia.

The addition of adjuvants to the local anesthetics in peripheral nerve blocks such as epinephrine, clonidine or opioids improve the quality of analgesia and provide a dose-sparing effect, thereby decreasing the potential for systemic toxicity. The addition of clonidine and fentanyl to levo bupivacaine in paravertebral nerve block provide excellent analgesia and local anesthetic sparing effect and decrease post-operative systemic morphine requirement. . The addition of opioids prolonged the duration of block.

Charles P et al [17], Khushboo et al [18] used volume of levobupivacaine 20ml 0.5% in sciatic block.various studied used 20-25 ml we preferred 0.5% 25 ml volume.praveen et al,Lipsy bansal et al [9] added 25ug of fentanyl in sciatic and femoral block and they didn't get extension of postop analgesia.we added 50ug to see extend of analgesia

Most of the patients in the study were from 51 to 70 years of age with a mean age of 52.84 +/- 14.51 years because we wanted to assess the effectiveness of the PNB by avoiding the risk and disadvantages of general anesthesia (GA)/ central nerve block (CNB) in patients with cardiac, respiratory and renal diseases.

Rajkumar et al reported the use of combined sciatic and femoral 3-in-1 blocks in high-risk elderly patients for lower limb amputations(meanage70.71+/-8.73years).

All pts are ASA Grade 1 & 2 to get aquanted with technique so that we can used in pts with multiple comorbiditis.This implies that most of the patients had a high risk of anesthesia in whom we used a PNB without any consequent complications or significant hemodynamic changes.

Singh et al also concluded that combined sciatic and femoral (3-in-1) block can be given by choice in critically ill and hemodynamically unstable patients in place of a central neuraxial block.

ligorijevic and Brown [19] also concluded that in emergency and high risk patients, a combined sciatic and femoral 3in-1 block can be extremely useful and effective for any surgery on thelowerlimb.

The onset time for sensory block was defined as the time from injection of the local anesthetic (LA) to point 1 scale of sensory block in any area supplied by femoral, obturator, lateral cutaneous and sciatic nerves.In this study, it was found to 12.45 ± 0.86 which was comparable to the study done by A. Singh et al who reported the onset o ftime for sensory block was12.56+/-5.36min.Lipsybansal et al onset of sensory block was 13.14-2.22

The onset time for motor block was defined as the time from injection of a LA to point 1 scale Bromage.In this study 17.31 ± 1.65

Addition of fentanyl does not affect on onset of sensory and motor block as concluded in studies by kohki et al [20] ,Schavan et al [21],madhusudhan et al [22]

In our study, the pulse, systolic BP and diastolic BP were recorded during the pre-operative, intra-operative and post-operative periods. All these parameters did not changesignificantly($p>0.05$).Our study results are comparable with the study by Raj Kumar et al, A. Singh et al, V.Chakravarthy et al Fowler et al Gligorijevic et al , Zaric et al , Barton et al , Cassati at al [23], Fanelli etal [24] and Singelyn etal[].

The mean (±SD) of total duration of sensory block was 782.29 ± 53.88 minutes.In our study, the mean of total duration of motor block was 590 ± 14.24 minutes .In the present study, the hemodynamic parameters (heart rate, blood pressure, respiratory rate and oxygen saturation) were noted at various intervals in the intraoperative and postoperative period.Addition of fentanyl 50 µg to 0.5% levobupivacaine in combined sciatic femoral nerve block maintained haemodynamic stability.

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In the present study, it was found that majority of patients required only 1 analgesic

Success of the PNB requires proper technique of nerve localization, needle placement and LA injection. We performed this technique using the nerve stimulator technique.

The quality of block of 65 with levobupivacaine plus fentanyl was excellent. 2 patienst had good quality of block and needed additional intra operative supplementation in form of sedation i.e. midazolam 0,02mg/kg and fentanyl 1µg/kg. 3 pts required General Anaesthesia.Failure Rate of technique was 4.28%.Our success rate of combined sciatic femoral technique was 95.71%

A. Singh et al also reported the high reliability and relatively low failure rate(4%)in their study. Rajkumar et al also reported 99.44% success rate in their study. Our study results are comparable with both of them.

The complications associated with this block are local anesthetic toxicity, neuraxial block due to proximal spread,neurological complication which can be related to a PNB include needle trauma, intra neuronal injection and neuronal ischemia.Infectious complications like cellulitis, neuritis, skin infection around the injection site are more associated with continuous nerve block techniques rather than a single injection technique.In our study, none of the patients had any complications either intraoperative or postoperative. Our study results are comparable with the following studies: Zaric et al reported that incidence of side effects was very low ($p<0.05$) in the PNB group compared to the epidural group; Singelyn et al observed that continuous 3-in-1 block induces nearly 4 times fewer side effects than epidural analgesia; Fowler et al reported that PNB may provide effective unilateral analgesia with lower incidence of opioid related and autonomic side effects and fewer serious neurological complication compared with epidural analgesia; Raj kumar et al also found no complication intraoperative or postoperative.

These results indicate that peripheral nerve blocks can replace general anesthesia and central neuraxial block for lower extremity surgery and perhaps ideal for high risk patients who cannot tolerate the adverse consequences of even the slightest alteration

V. Conclusion

From the observation in the present study, it can be concluded that addition of fentanyl 50 µg to 0.5% levobupivacaine in combined sciatic femoral nerve block had no effect on onset of sensory block, motor block and onset of surgical anaesthesia but it significantly prolonged the duration of sensory block, motor block and duration of postoperative analgesia without increasing the incidence of side effects.

Our study recommends the use of fentanyl 50 µg as an adjuvant to levobupivacaine in combined sciatic femoral nerve block as it significantly prolong the duration of postoperative analgesia without increasing the incidence of side effects for better operative outcome.

We also recommend the use of combined femoral sciatic block for below knee surgeries in ASA I and II patients as a learning curve which helps us to get acquainted with the technique so that can be used in ASA III and IV patients.

Limitation of our study is necessity of PNS, and it is a blind procedure plus expertise is required.

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