A STUDY OF ULTRASOUND-GUIDED FEMORAL NERVE BLOCK FOR POSITIONING FOR CENTRALNEURAXIAL BLOCKADE IN PATIENTS WITH PROXIMAL FEMUR FRACTURE SURGERIES

By

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"A STUDY OF ULTRASOUND-GUIDED FEMORAL NERVE BLOCK AND FASCIA ILIACA BLOCK FOR POSITIONING FOR CENTRALNEURAXIAL BLOCKADE IN PATIENTS WITH PROXIMAL FEMUR FRACTURE SURGERIES "

DOCTOR OF MEDICINE

IN

ANAESTHESIOLOGY

ABBREVIATIONS

ASA-AMERICAN SOCIETY OF ANAESTHESIOLOGISTS

ECG-ELECTROCARDIOGRAM

CM- CENTIMETER

FICB- FASCIA ILIACA COMPARTMENT BLOCK

FNB- FEMORAL NERVE BLOCK

HR-HEART RATE

Kg-KILOGRAM

PR-PULSE RATE

BP-BLOOD PRESSURE

LA- LOCAL ANAESTHETIC

LOS- LENGTH-OF-STAY

Mg-MILLIGRAM

MHz-MEGA HERTZ

ML-MILLILITER

NSAID- NON-STEROIDAL ANTI-INFLAMMATORY DRUGS

USG- ULTRASONOGRAPHY

VAS- VISUAL ANALOGUE SCALE

ABSTRACT

Background and aims:

The femur fracture is common orthopedic emergency, these fractures are very painful and further movements are extremely painful these injuries makes appropriate positioning difficult for the regional anesthesia, thus altering their overall success rate.

To reduce pain and improve positioning before anesthesia, non-steroidal anti-inflammatory drugs (NSAIDs), intravenous opioids, or peripheral nerve blocks are used.

The possibility of a successful central neuraxial blocked has increased due to the ability of the anesthesiologist to see the nerve, needle, and drug dispersion while using ultrasonography in anaesthesia. a nerve block's outcome.

To the date the analgesic efficacy and onset time of ultrasound guided fascia iliac compartment block while positioning patients with femur fracture have not been directly compared with ultrasound guided femoral nerve block.

Methods:

In 90 research participants both genders split into 2 groups, each with 45 participants (Group A- FNB, Group B- FICB). All research participants had proximal femur fracture surgery with the intention of anaesthetizing them with a central neuraxial block.

The study was double blinded where the anesthetist who performed Ultrasound guided FNB / FICB was not involved in performing of central neuraxial block and the evaluation and recording of study parameters.

Result:

FICB VAS scores of 4, 5, and 6 were observed in 8 (17.77%), 11 (24.44%), 23 (51.11%), and 2 (4.44%) patients. VAS scores of 4, 5, 6, and 7 were observed in 10 (22.22%), 13 (28.88%), and 20 (44.44%) of the FNB group, respectively. There was no statistically significant difference between the groups in terms of VAS score on movement (p value = 0.919).

An 8-minute FICB group of 0, 1, 2, 3, and 4 was observed in 6 (13.33%), 9 (20%), 21 (46.66%), and 7 (15.55%) patients in the FNB group with a VAS score of 0, 1, 2, and 3 in 11 (24.44%), 17 (377.7%), and 15 (33.33%) of the cases. There was a statistically significant difference, and the P value was 0.045.

The scores for quality of positioning for central neuraxial blockade as assessed by the anesthesiologist performing the procedure were recorded. A score of 0 was observed in 5 (22.22%) patients in FICB group but none in FNB group. Best positioning with a score of 3 was observed in 15 (33.33%) patients in FICB group and in 32 (71.11%) patients in FNB group. There was a statistically significant with a p value of <0.001.

Conclusion:

This study's findings suggest that ultrasound-guided FNB is superior to ultrasound-guided FICB for providing central neuraxial blockade for hip joint operations because it results in more effective pain relief for patients with proximal femur fractures.

FNB provides a better analgesia than FICB in terms of optimal positioning for patients with femur fracture and can be performed without complications as is done under ultrasound and also provides good comfort to patients.

Keywords:

The Analgesic, Anesthesia, Central neuraxial block, Bupivacaine, Fascia, Femoral Nerve, Fractures, nerve block, Ultrasonography, femoral fractures, patient positioning.

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INTRODUCTION:

Minimal trauma and fall from height are common causes of fracture neck of femur in elderly individuals [1]. NSAID medications, such as Paracetamol and opioids, are frequently used to treat pain, but they have drawbacks that range from minor side effects like nausea, vomiting, urinary retention, and constipation to more serious ones like nephrotoxicity and respiratory distress. These medications also interact with other medications and are therefore not recommended [2, 3].

To compensate for the inadequacies and to provide as a substitute to systemic analgesics in perioperative usage, regional analgesia is preferred [2-6]. A form of regional anesthesia is peripheral nerve block which is utilized to block the sensation and transmission of pain signals in a specified region of body. With the effect seen within minutes and lasting upto few hours, it is one the most commonly used technique to manage perioperative pain [7,8]. With lower extremity peripheral block there is reduced pain, decreased need for systemic analgesics, time to first rescue analgesia decreases, As the frequency of delirium declines and hospital stays are shorter, it is ever more becoming advised for pain control in patients with femoral fractures [5,6,9,10].Both the femoral nerve block (FNB) and the fascia iliaca compartment block (FICB) are simple and direct procedures with few tools needed and few absolute contraindications, the most serious of which are sensitive to local anaesthetic agents or the development of vascular or neurological issues in the

affected limb.[11] These fundamental approaches, however, are underutilised in the treatment of pain reduction in femur fractures.

During a peripheral nerve block, verify the needle's position and monitor the distribution of a local anaesthetic medication. USG was utilized first in 1989[12]. With time, USG guided blocks have become increasingly popular compared to nerve stimulator or landmark techniques due to improved visualization of anatomical structures, decreased doses of local anaesthetics required, higher success rate and reduced complications [13].

AIMS AND OBJECTIVES OF THE STUDY

AIM

To compare the analgesic efficacy of ultrasound-guided femoral nerve block and fascia iliaca block in patient with proximal femur fractures of minimising pain associated with positioning for centralneuraxial blocks.

OBJECTIVES

PRIMARY:

To compare the analgesic efficacy of ultrasound-guided femoral nerve block and ultrasound-guided fascia iliaca block using 0.25% bupivacaine in patient with proximal femur fractures in diminishing the discomfort associated with positioning for central neuraxial block.

SECONDARY OBJECTIVES:

The patient positioning quality for central neuraxial blockade, complications and side effects like Nausea, vomiting, Hypertension, respiratory depression and Block site hematoma.

REVIEW OF LITERATURE

Accidental falls are the greatest source of injury and mortality from among elderly [14]. In 2016, the Centers of Disease Control and Prevention (CDC) reported that over 95% of hip fractures occurred as a result of a fall, resulting in the hospitalisation of over 300,000 older adults aged 65 and older [15].

These older patients tend to have other comorbidities leading to further deterioration of health namely heart failure, diabetes, HTN and chronic lung disease.[16] In this population, postoperative delirium is frequent after repair, with a prevalence of around 20%, and annual all-cause mortality following hip and femur fractures is almost 30%.[17]. The most popular analgesics for hip and femur fractures are opioids, however they may put patients at higher risk for delirium than those who get LA at or close to the site of the injury [18]. However, this risk seems to be lower than the chance of delirium brought on by uncontrolled pain [18]. An emergency department (ED) provider's diagnosis of a hip and femur fracture patient is often the first step in the admission process. A hip and femur fracture patient will likely be admitted to either the general medicine service line or the orthopaedic service line after being diagnosed and after waiting for an orthopaedic consult. Orthopedic surgeons strive to fix hip and femur fractures as soon as feasible; nevertheless, comorbidities may cause surgery to be postponed for many days, leaving the patient in continual discomfort. All treatment modalities can benefit from the highly skilled management of complicated pain disorders by anaesthetists. While concerns about untreated pain are significant, they must be weighed against worries about the possibility of delirium and the present opioid crisis.

Frequent opioid administration, can produce detrimental side effects in the older adult population including, respiratory depression, cardiovascular effects and delirium, resulting in increased hospital length-of-stay (LOS) and increased expenditure in terms of cost [19,20].

Limiting the use of opioids by providers due to the risk of harmful side effects results in uncontrolled pain during the perioperative period and this uncontrolled pain can lead to neurologic, cardiovascular, and respiratory effects including delirium, dysrhythmias, myocardial ischemia, atelectasis, and hyperventilation, which contribute to prolonged recovery and increased costs [21,22].

A study by Hamilton et al. (2019)[23] revealed peripheral nerve blocks were associated with a decrease in hospital LOS and associated inpatient costs. With increase in the population's median age, it is suspected that there will be an increase in hip fracture rates, and the economic burden will continue to grow[24]. To enhance patient outcomes, reduce prolonged recovery, and decrease health care costs associated with increased hospital LOS, optimal pain control must be a top priority in this population. Current literature recommends the use of USG guided femoral nerve block and FICBs for pain control in patients suffering from an acute hip fracture.

Pain Management

The approach to prevent, diagnose, and treating pain is known as pain management. Severe pain can threaten a sense of well being as experienced by the patient[25]. This study is planned to change the current strategy for pain management which has lead to inadequately treated pain.

Regional Anesthesia

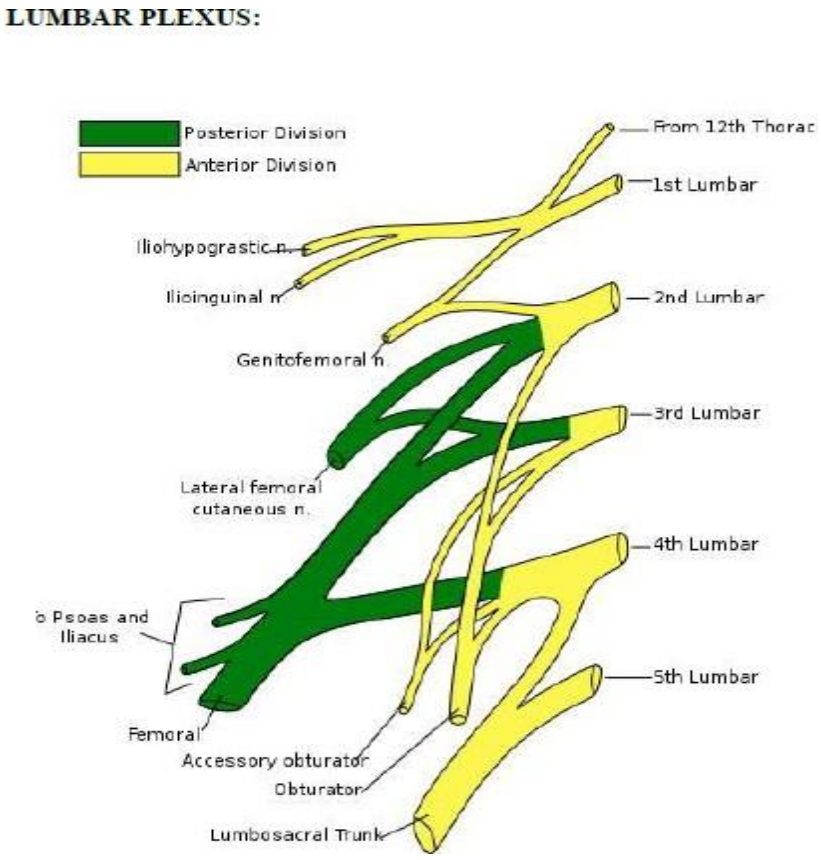
Regional anesthesia is a method of delivering anaesthesia where a local anesthetic agent is injected/delivered to a site such as a nerve, a muscle compartment, the epidural space or the subarachnoid space in the spinal cord [26]. Site where the local anesthetic agent is injected vary greatly and hence the consideration for care vary in similar pattern. Localization and site specification of regional nerve block (neural plexus block) are efficient and can be an alternative choice for post operative analgesia[27].

Anatomy[28]

LUMBAR PLEXUS:

The lumbar plexus is a complex neural network constituted by the lower thoracic and lumbar ventral nerve roots (T12 to L5) that innervates the lower limb and pelvic girdle with motor and sensory innervation. The fourth and fifth lumbar nerves combine to form the lumbar plexus and the sacral plexus. The ilio-hypogastric and ilio-inguinal nerves are constituted from the majority of the first lumbar nerve. 2nd lumbar nerve joins the remaining part of 1st lumbar nerve and forms genitor-femoral nerve. The anterior and posterior divisions of the second and third, and greater lumbar nerves. The anterior division gives rise to the obturator nerve, which serves the psoas major, quadrates lumborum, psoas minor, and iliacus. The posterior division gives rise to the femoral nerve and the lateral cutaneous nerve of the thigh.

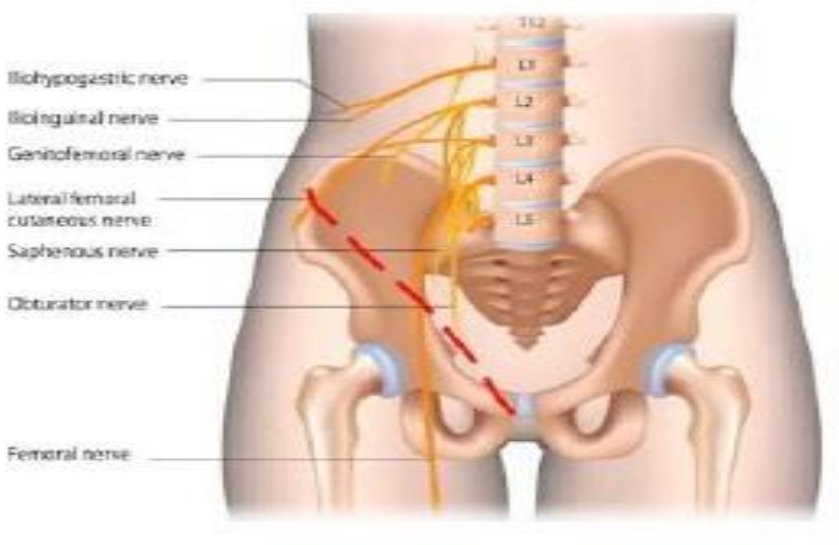
Figure 1:Anatomyof Lumbar Plexus



LATERAL CUTANEOUS NERVE OF THIGH

Dorsal division of L2 and L3 forms the lateral cutaneous nerve of thigh. It emerges from the lateral border of the iliacus muscle, runs downward, lateral and forward to reach anterior superior iliac spine. Lateral cutaneous nerve of thigh divides branches of anterior and posterior, although it also provides skin on the antero-lateral thigh up to the knee.

Figure 2: Anatomy Of Lateral Cutaneous Nerve Of Thigh



OBTURATOR NERVE

Formation of roots from L2, L3 and L4 forms obturator nerve. It is divided into three pieces, the first of which goes down slightly inside the psoas major and the second which its runs slightly downward and forward across the obturator internus inside the lateral wall of the pelvis. The third part which is located in the thigh, is divided in to the anterior, posterior segments. The anterior division lies between obturator externus and adductor brevis and posterior division lies between obturator externus and adductor magnus.

Muscular branches supply to anterior division:

- The muscle of Obturator externus,
- The muscle of Adductor longus,
- The muscle of Gracilis,
- The muscle of Pectineus and the adductor brevis muscle.

Muscular branches supply to posterior division:

- ❖ The muscle of Obturator externus,
- ❖ The Adductor brevis muscle,
- ❖ The Adductor magnus muscle.

Cutaneous branches:

The anterior division supplies skin to the lower medial region of the thigh.

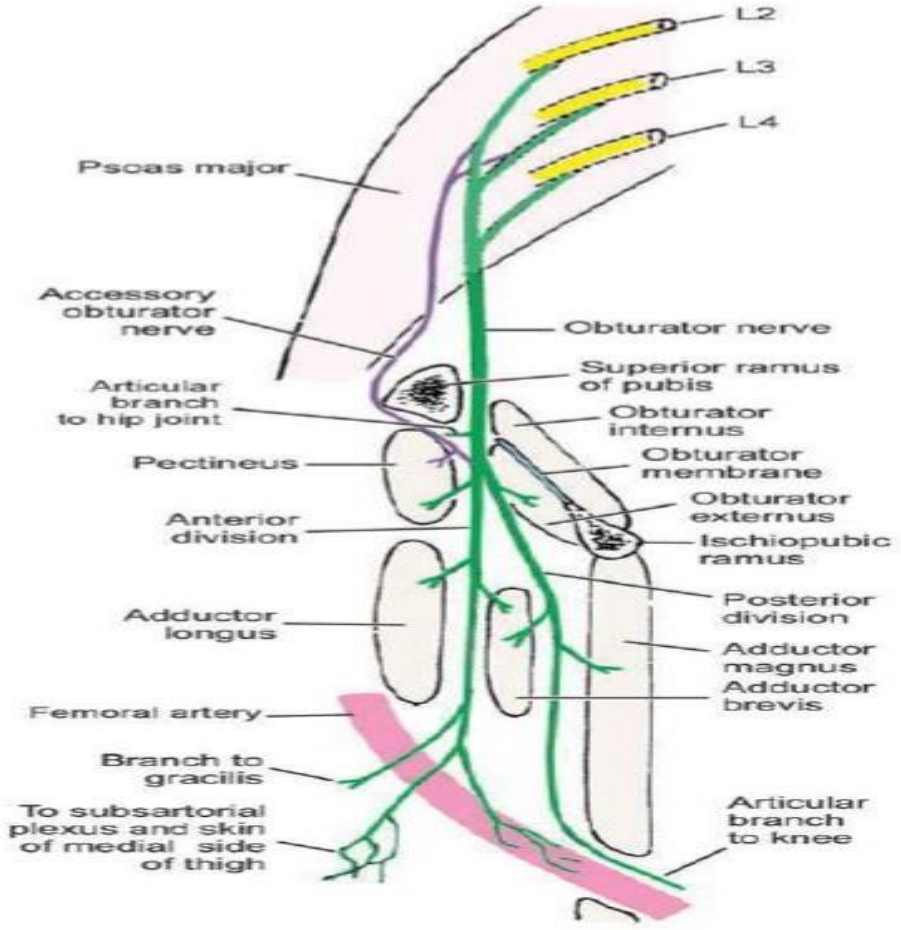
Articular branches:

Both the hip joint and the knee joint supplied by articular branches.

Vascular branches:

The femoral vessel is supplied by the anterior division.

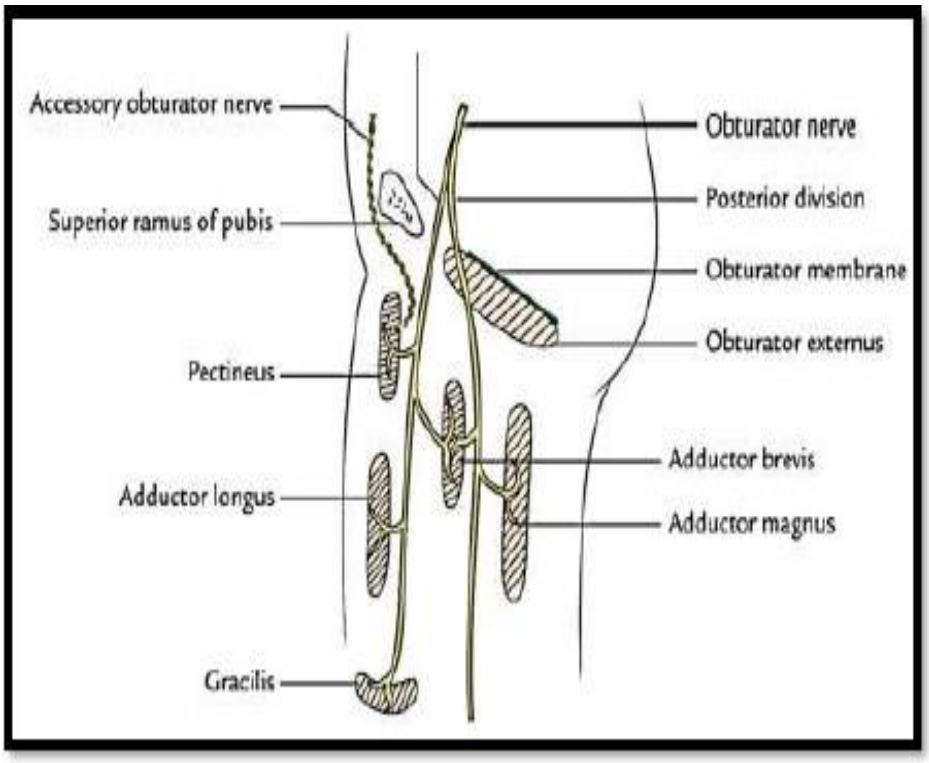
Figure 3: Anatomy Of Obturator Nerve and Branches:



ACCESSORY OBTURATOR NERVE:

L2 and L3 forms accessory obturator nerve and it runs downwards along with external iliac vessels passing Deeper to the pectineus muscle beneath the inguinal ligament, supply up to the thigh. The nerve nourishes the hip joint and pectineus, and it exclusively convey with the anterior obturator nerve segment.

Figure 4: Anatomy Of Accessory Obturator Nerve and Branches:



FEMORAL NERVE:

The ventral rami of L2, L3, and L4 produce the femoral nerve, which descends through and originates from the lateral border just superior to the inguinal ligament. In the groove between the psoas and the iliacus. It enters the thigh by crossing behind the inguinal ligament After passing lateral to the femoral artery, it separates anterior and posterior divisions.

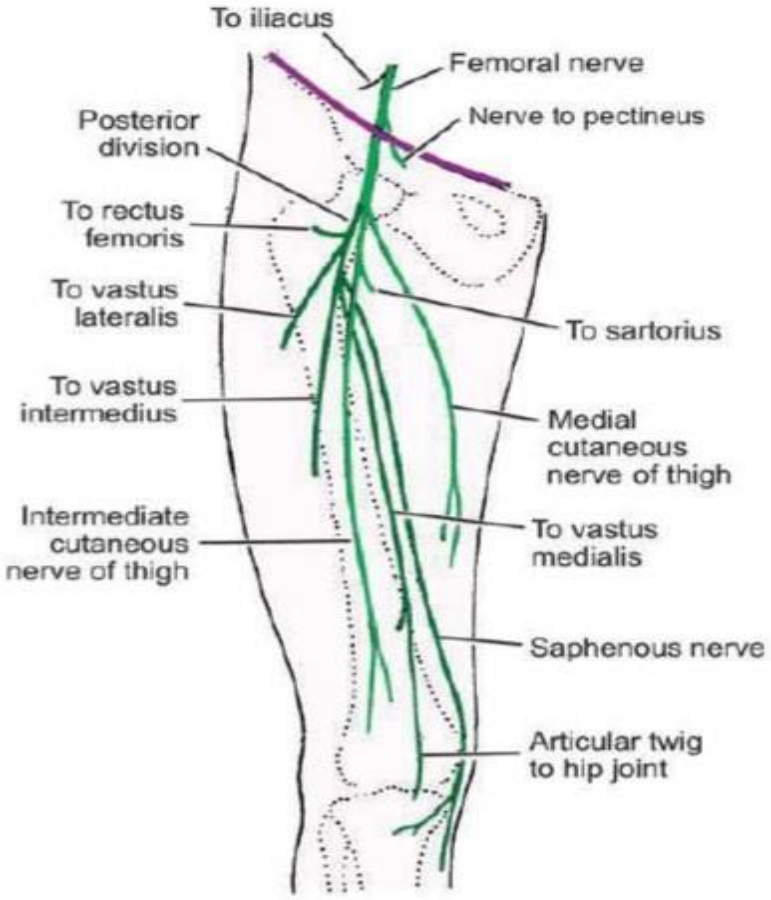
Muscular Branches:

- ❖ Branches to the iliacus muscle in abdomen,
- ❖ The femoral nerve branches above the inguinal ligament and then runs downhill and medially beyond the femoral vessels to reach the muscle of pectineus.
- ❖ The sartorius muscle is supplied by the femoral nerve's anterior division.

The posterior division supplies:

A. The muscle of rectus femoris
B. The vastus medialis muscle
C. The vastus lateralis muscle
D. The muscle of vastus inter-medius.

Figure5: Anatomy Of Femoral Nerve And Branches:



CUTANEOUS BRANCHES :

1. The anterior branch gives rise to the intermediate cutaneous nerve, and the thigh makes accessible a broad strip of skin that covers the anterior section of the thigh and the lower region of the front knee.

2. The anterior division also provides the thigh's medial cutaneous nerve.

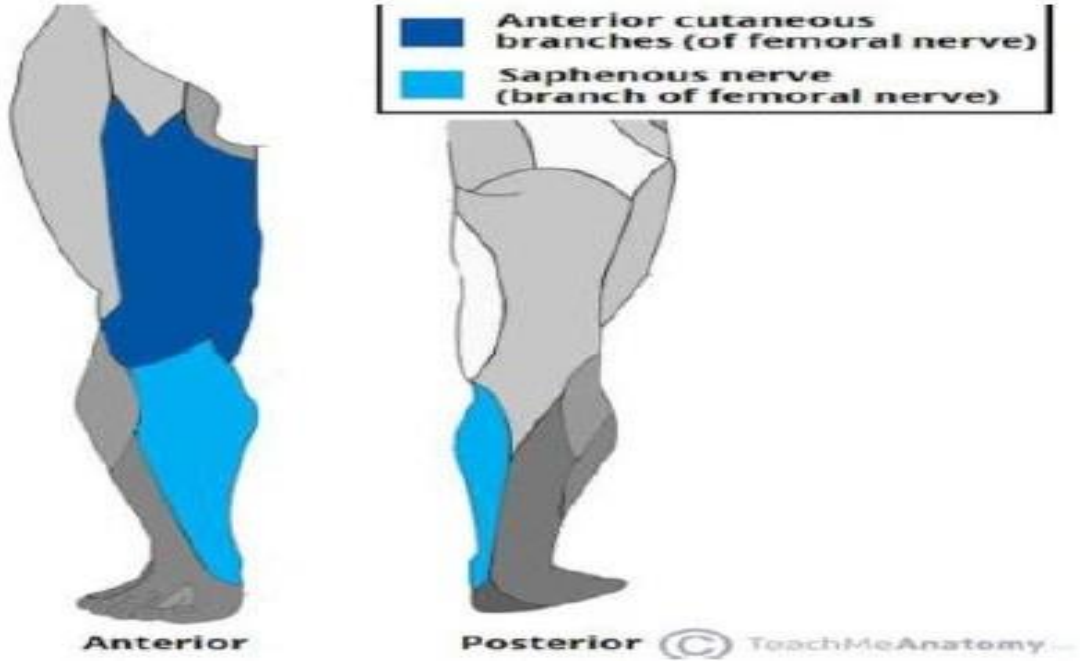
It travels lateral to the femoral artery, passing towards the apex of the triangle and branching into branches to supply the skin of the medial thigh. It forms subsartorial plexus

3. The saphenous nerve descends down the lateral section of the femoral artery through the posterior division. The nerve travels along the artery in the adductor canal from the medial to lateral aspect of the femoral artery.

4. A wide strip of skin that covers the front region of the thigh and the lower part of the front knee is made available by the thigh and the anterior branch, which gives birth to the intermediate cutaneous nerve.

FEMORAL NERVE CUTANEOUS SUPPLY

Figure 6: Anatomy Of Femoral Nerve Cutaneous Supply:



Articular branches

The femoral nerve's posterior division delivers fibres towards the vastus medialis through the nerve. Some fibres connect the hip joint to the rectus femoris nerve.

THE FASCIA ILIACA

It extends from the front of the thigh to the lower thoracic vertebrae. It forms the posterior wall of the femoral sheath and protects the femoral veins, lining the iliacus and psoas muscles, as well as the back of the belly and pelvis. The femoral triangle is covered by the muscle of the fascia lata.

ATTACHMENTS:

lateral attachment of the thoracolumbar fascia, the vertebral column and pectineal fascia are joined medially, and the inguinal ligament is attached anteriorly.

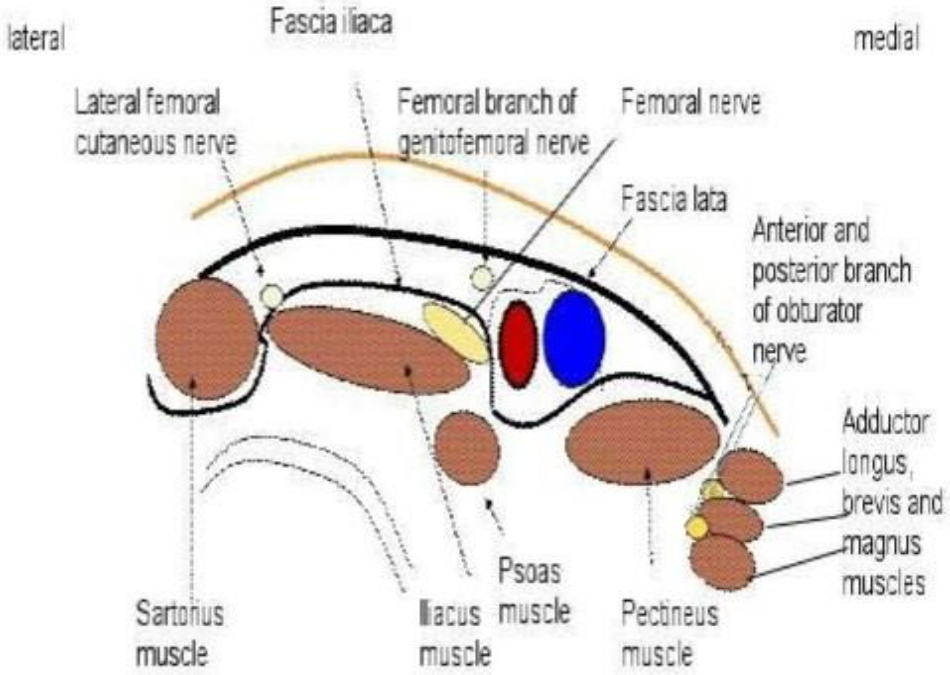
NEUROVASCULAR RELATIONS

Femoral vessels are located above the inguinal ligament, anterior to the fascia iliaca. The region behind the inguinal ligament is split in medial and lateral halves It includes the muscles of the psoas major, iliacus muscle, and femoral nerve, and forms the top of the lacuna musculorum laterally and the posterior wall of the femoral canal medially.

THE FASCIA ILIACA COMPARTMENT

Anteriorly, the iliacus and psoas major muscles are covered by the iliac fascia. The psoas major muscle and the anterior surface of the iliacus are situated posteriorly. The spinal column is located medially. It is connected to the inner lip of the iliac crest laterally, and it forms the gap between the quadratus lumborum and its fascia medially.

Figure 7: Anatomy Of Fascia Iliaca Compartment:



BUPIVACAINE:

Figure 8: The Bupivacaine 0.25%

Bupivacaine is one of the homologous series developed by Ekenstam in 1957, and LJ Telivuo was the first to use it. the first to employ it in clinical practice in 1963. Bupivacaine is a tertiary amine that is separated from an aromatic ring system by a chain in the form of bupivacaine hydrochloride, which is a monohydrate of two piperidine carboxamide, one butyl N-2, and six dimethyl phenyls. a benzene ring, is. It is categorized as an aminoamide molecule since the chain has an amide bond (-NHCO-). The amide bond improves the anaesthetic substance's potency.**[29-31]**

Because of higher lipophilicity, The safe dosage for bupivacaine is 2-3 mg/Kg, which is more potent and produces blocks that last longer.

The following formulations are utilized in clinical settings:

- For Infiltration - 0.125% to 0.25%,
- For peripheral nerve blocks- 0.25% to 0.5%,
- Surgical or obstetrical epidural- 0.125%-0.75%,
- Subarachnoid blocked- 0.5% heavy.

Pharmacodynamics: [32].

Majority of the tissue uptake of drug is by lipophilic absorption. By inhibiting sodium channels, local anaesthetics prevent neurons from firing [33-35]. To inhibit impulses, it lowers currents in voltage-activated Na + channels. Although it does diminish K+ currents, the inhibition is not specific. Bupivacaine stops voltage-gated Na+ channels from opening by binding to specific sites on the channels and preventing conformational changes.

Pharmacokinetics: [30,31,36)

The blood concentration of bupivacaine is determined by a number of factors including the site, dose, rate of administration, distribution in tissue and biotransformation of the drug. Vasoconstrictors used sometimes along with also determine the blood concentration and so the excretion rate. Highly perfused tissues have higher concentrations of drug with lungs extracting the drug quickly and skeletal muscles containing highest percentage of local anaesthetic dose injected.

Enzymatic degradation of bupivacaine is done by liver however, excretion is by kidneys. After conversion into its metabolites, 95% of the drug is eliminated in urine, and the leftover drug is excreted unchanged. Protein binding capability and urine pH determine the drug’s renal clearance.

Side effects [37,38]

At right dose, there is low risk of side effects however, It is worsened by hypoxia, pregnancy, and hypercarbia and is even more cardiotoxic than lignocaine.

Toxicity is more common in central nervous system with Hearing, visual problems accompany dizziness and lightheadedness as the initial symptoms. In some patients, shivering, perioral numbness and muscular twitching are observed. With higher blood concentrations, there is a risk of respiratory and cardiac arrest.

Inhibition of fast phase of depolarization in purkinje fibre and ventricular muscles is more by bupivacaine than by lignocaine and also recovery from dependent block is slower. Due to the limited restoration of Vmax during nerve impulses at high rates, lignocaine has an arrhythmogenic effect and bupivacaine an antiarrhythmic effect. Lignocaine increase the ventricular tachycardia it reduced by Bupivacaine.

Respiratory depression can occur sometimes when high plasma level is attained and can result into medullary respiratory center depression.

In preganglionic beta fibres, the impulse conduction is faster and hence are more sensitive to local anesthetics. Preganglionic sympathetic fibres are engaged in central neuraxial blocks, resulting in significant vasodilation and consequent hypotension. Bupivacaine causes sensory block at a higher rate than motor block, when it is used for conduction block.

ULTRASONOGRAPHY

Sound waves having a frequency more than 20,000 cycles every second are referred to be ultrasound.

HISTORY OF ULTRASOUND GUIDANCE FOR NERVE BLOCKS:

Ting and Sivagnana Ratnam [39] is the first to conduct blocks using ultrasonography in 1989. They continuously observed the nerves around the subclavian artery, the needle point, and the distribution of local anaesthesia and had a 100% success rate with axillary nerve blocks.

Kapral et al[40] Ultrasound guiding during supraclavicular blocks was found to be both safer and more efficient than axillary nerve blocks in 1994. In 1997, they demonstrated that "three-in-one" ultrasound-assisted hip joint and lower limb blocks were more effective than nerve stimulation [41]. Under ultrasound guidance, the amount of local anaesthesia required to execute an efficient nerve block also became reduced[42]. The greater brachial plexus pictures produced by ultrasound-based research in Toronto have enhanced the use of ultrasonography for nerve location [43].

PRINCIPLE OF ULTRASONOGRAPHY :

Sound waves are used in ultrasonography to produce pictures of the objects they pass through. Ultrasonic waves are created by piezoelectric crystals inside the ultrasound transducer probe. When these crystals are exposed to an electric current, they rapidly change form, vibrate, and generate ultrasonic waves. The piezoelectric effect transfers electrical energy into mechanical energy. These waves move at varying speeds through tissues of varying densities, transducer return the signal The piezoelectric effect occurs when the mechanical energy of returning echoes is converted by the crystals into an electric current, This is then converted into a two-dimensional grayscale display. As a result, the same crystals are employed to send and receive sound waves.

FASCIA ILIACA COMPARTMENT BLOCK

Dalens et al. [44] used landmark technique first time describe the FIC Block in children. It can be performed during emergency medicine care, in the urgent care, and in the operating room. It is a simple, secure, and successful technique[45]. to provide femur breakage patients with perioperative analgesia. Ultrasound guiding will improve the block's success rate[46]. In order to block the femoral and lateral femoral cutaneous nerves, as well as the obturator nerve, a local

anaesthetic is injected just beneath the fascia iliaca. The danger of neurovascular issues is quite low because the injection is done away from the femoral vessel [47].

INDICATIONS:

This compartment block can be used in conjunction with any painful trauma or surgery with in lower extremity within the above-mentioned neural distribution. It is especially useful when opioids are not suitable or are contraindicated. It may also be used concert with opioids to treat severe pain. Pelvic fracture, femoral shaft fractures, and burns are among the specific indications that have been explored.

CONTRA-INDICATIONS [47]

- Patient refusal
- Allergy to local anaesthetics or a past allergic response to local anaesthetic.
- Inflammation or inflammation around the injection site.
- Previous femoral bypass surgery or proximity to a graft site.
- Studies on abnormal coagulation.

Complications [47]:

- Intravascular injection
- Failure of block
- Damage of nerve
- Infection

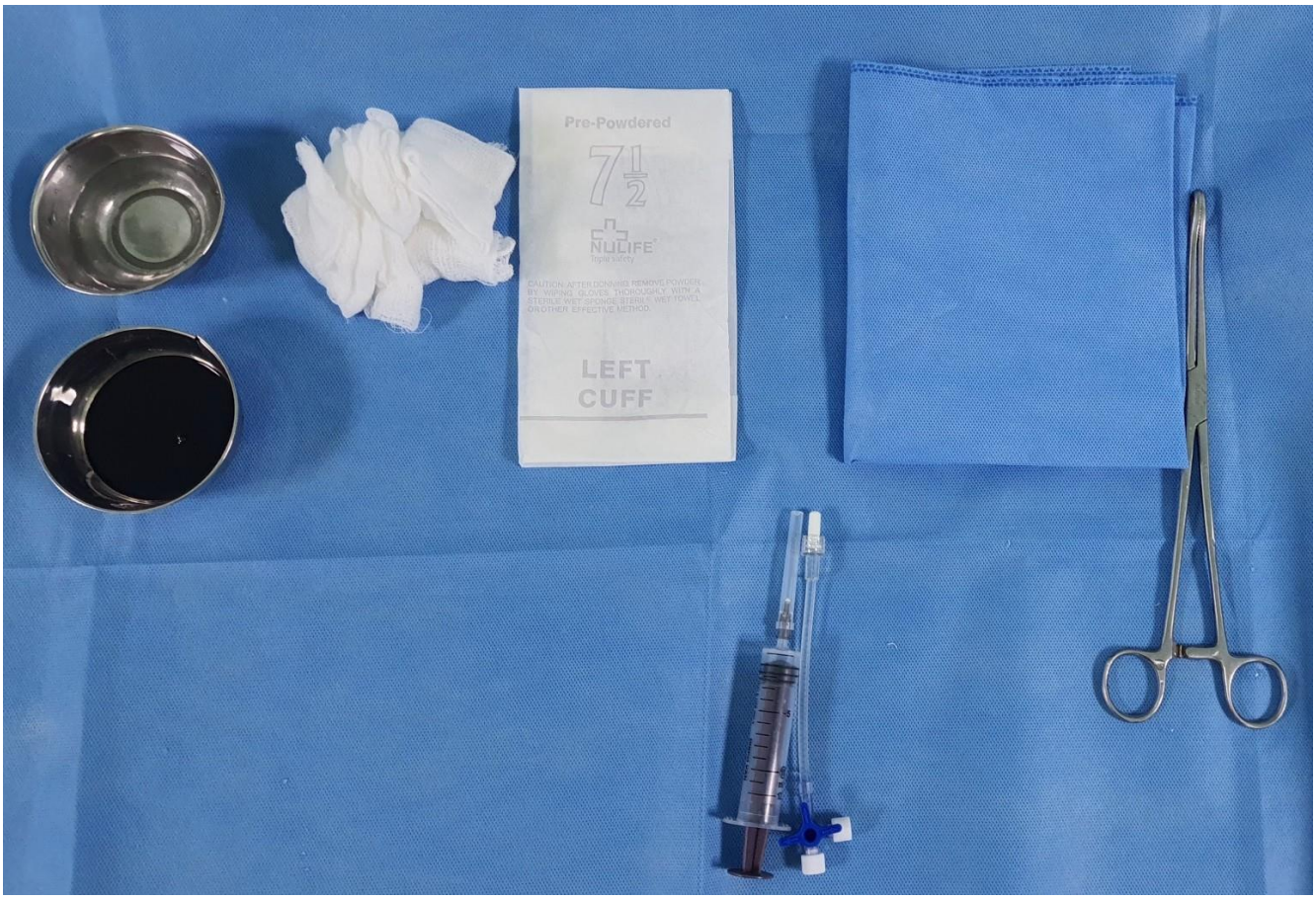
Equipment's required[47]:

Tool needed for fascia iliaca block :

The ultrasound machine includes a linear transducer probe (5-15 MHz), a sterile sleeve, and gel,

- Nerve block tray.
- 10-mL syringes containing local anesthetic,
- 10 cm extension,
- 70- to 90-mm, 22–24-gauge needle.

Figure 9: Equipment's required for Block:



Ultrasound Technique [47].

- ☐ The process is same when using ultrasound guidance.
- ☐ The local anaesthetic is placed in the proper plane by carefully monitoring the needle placement and local anaesthetic distribution.
- ☐ Transverse, lateral, and below the inguinal ligament with a focus on the femoral artery are the positions of the transducer.
- ☐ Goal: Local anesthetic spread of underneath the fascia iliaca.
- ☐ Local anaesthetic-Inject 20 mL of 0.25% bupivacaine.
- ☐ The mid inguinal point is where the femoral artery is located. If the vessel is plainly not visible, moving the transducer laterally and medially will make it visible.

- ☐ A sizable hypoechoic structure, the iliopsoas muscle is situated deep and lateral towards the femoral vessels. A hyperechoic fascia that separates the muscle from the superficial subcutaneous tissue can be seen surroundings.
- ☐ The hyperechoic femoral vessel should be visualised lateral to the femoral artery between both the iliopsoas muscle and the fascia iliaca.
- ☐ Fascia lata muscle is thinner and may have many layers in the subcutaneous layer.
- ☐ Placing the transducer laterally a few millimetres reveals the sartorius muscle, which is surrounded by fascia along with the fascia iliaca.
- ☐ The ASIS is revealed by further lateral transducer movement.

Figure 10: Sonoanatomy Of Fascia Iliaca Block

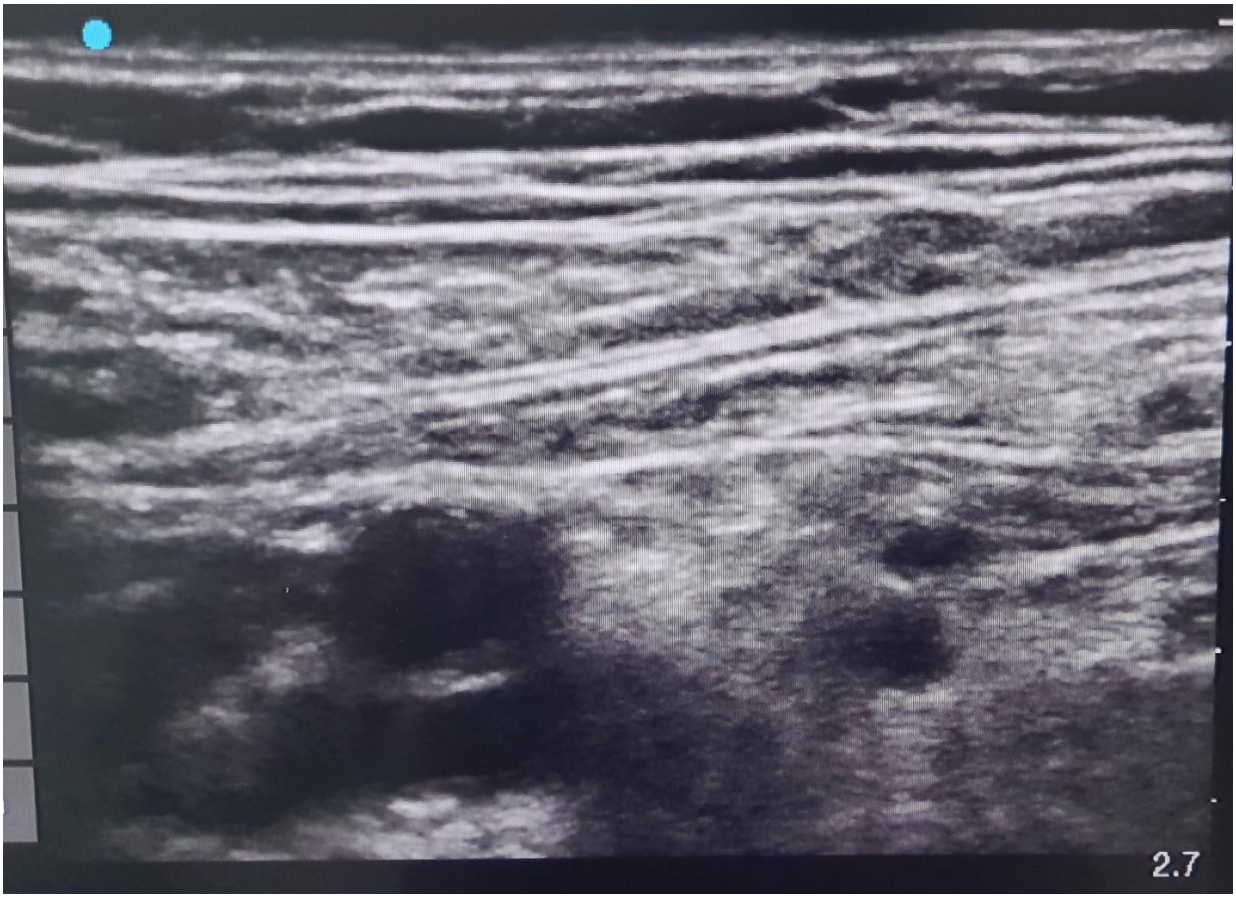
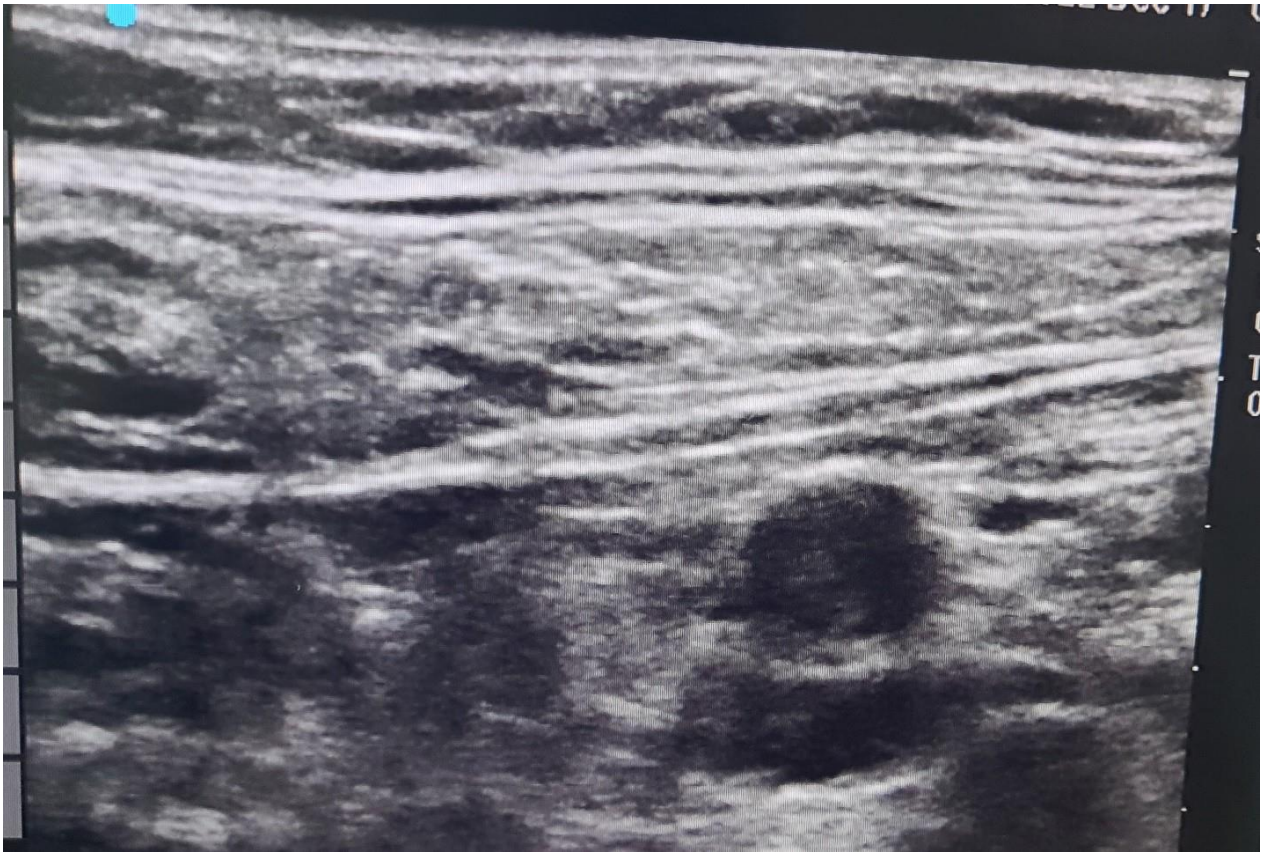


Figure 11: Sonoanatomy Of Fascia Iliaca Block With zipping of fascia:



PATIENT POSITIONING AND LANDMARKS [47]:

☐ This study Block is conducted by the patient supine and table flattened to provide for maximum accessibility to the inguinal region.

☐ Although a femoral pulse is a valuable marker, it is not necessary because the artery may be detected immediately by placing the transducer transversely on the inguinal crease, followed by gradual migration laterally or medially.

☐ The hyperechoic muscles of fascia iliaca, which is located proximal to the hypoechoic muscle of iliopsoas , can be found by pressing while tilting the probe..

☐ Medially, caudal to the fascia, and laterally to the artery, the femoral nerve is discernible. The Sartorius muscle may be identified laterally thanks to its distinctive triangular shape under transducer pressure.

TECHNIQUE[47]

The transducer probe is placed to detect the femoral artery, the iliopsoas muscle, and the fascia iliaca while the patient is lying supine. The skin is cleaned and disinfected. The sartorius muscle is identified by pushing the transducer laterally. Then making a skin wheal, the needle keept in plane.

The fascia iliaca is initially noticed pierced by the needle as it travels through it. A "pop" may be felt as the needle gradually pierces the fascia, and the fascia may appear to "snap" back on the ultrasound picture. After negative aspiration, 1–2 mL of local anesthetic is injected to confirm the proper injection.

The plane formed by the fascia and the iliopsoas muscle. Additional needle repositioning and injections may be required if local anaesthetic dissemination develops above the fascia or inside the composition of the muscle itself. As the needle penetrates the fascia A properly injected local anaesthetic will separate the fascia iliaca in the medial-lateral direction from the place of injection, as stated. Releasing the transducer's pressure may lessen injection resistance and increase local anaesthetic distribution. For effective blockage in an older patient, 20 mL of local anaesthetic is generally necessary1.2 ML/kg is commonly used in adults. The efficiency of the block is determined by measuring the dispersion of LA medially and laterally below the sartorius muscle. An needle out-of-plane method preferred in obese people. After hip surgery, an alternate supra inguinal approach may lead in a greater proximal spread and probably more effective analgesia.

FEMORAL NERVE BLOCK[48]

Advantages:

☐ Analgesic for use after surgery.

☐ the request for a one-sided block.

Dis-advantages:

☐ Uncertain success rate,

☐ extended commencement time.

☐ Higher incidence of LA toxicity

INDICATIONS:

- ❖ Patient positioning pain unawareness in a neck of femur bone discontinuity,
- ❖ Post-operative Pain Management patellar bone discontinuity, femoral neck bone discontinuity, femoral midshaft fracture;
- ❖ Ignorance of post-amputation discomfort,
- ❖ Polyneuropathy,
- ❖ Arthritis.

CONTRAINDICATIONS:

- ❖ Tissue inflammation of the injection region,
- ❖ Hematoma at the site,
- ❖ coagulation disorders,
- ❖ Hemorrhagic diathesis,
- ❖ Patients with femoral bypass,
- ❖ Adjacent peripheral nerve injury.

POSITIONING:

- ❖ Supine

LANDMARK TECHNIQUE:

- ❖ By pressing together the index and middle fingers, one may feel the femoral vessel 1-2 cm distal to the inguinal ligament,
- ❖ 1-1.5 cm away from the artery, inject the drug

- The patient is then given 20 mL of 0.25% bupivacaine injection with periodic negative aspiration.

CONTRAINDICATIONS:

- Tissue inflammation of the injection site,
- Hematoma at the site,
- coagulation disorder,
- The adjacent Local nerve injury.

EQUIPMENT:

The following apparatus are indicated for a femoral nerve block:

- Ultrasonography equipment (5-15 MHz linear transducer probe), sterile glove, and gel,
- Nerve block tray,
- 10-mL disposable syringe one,
- A needle with a diameter of 50 to 100 mm with a gauge of 22 to 24,
- Sterile gloves,
- 10cm extension.

ULTRASOUND TECHNIQUE:

- Position of the transducer probe: transverse to the femoral crease,
- The goal was to apply LA around the femoral nerve,
- Local anesthetic: 20ml of inj bupivacaine 0.25%.

ULTRASOUND ANATOMY:

Orientation starts with identifying the femoral vessel at mid-inguinal point. The femoral artery and the inner thigh artery are frequently seen. In this scenario, slide the transducer proximally until femoral vessel visible. The fascia iliaca covers the femoral nerve, which runs lateral to the artery. It is frequently hyperechoic and oval-shaped. The femoral nerve is usually found at a depth of 2-4 cm.

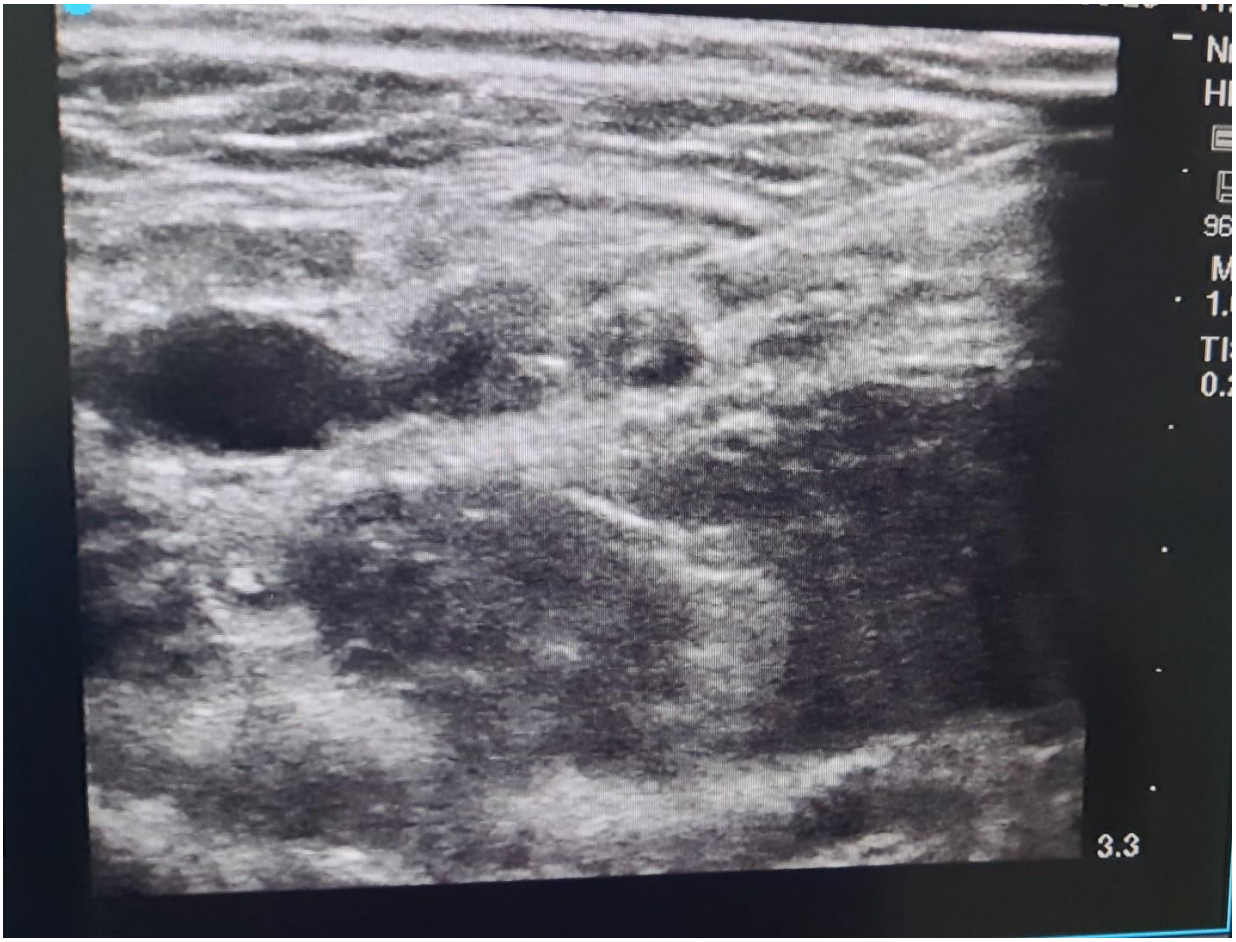
DISTRIBUTION OF ANESTHESIA:

The anterior and medial thighs are anaesthetized, as is a varied strip of skin on the medial leg and foot. It also sends sensory information to the hip and femur joints.

PATIENT POSITIONING AND LANDMARKS

The study procedure is done the patient in supine and the table flattened to allow the operator maximum access to the inguinal region. A needle measuring 50 to 100 mm in diameter and 22 to 24 gauge.

Figure 12: Sonoanatomy Of Femoral Nerve Block With Femoral Artery:



TECHNIQUE

The skin above the mid-inguinal point is sterilized, and the linear transducer probe is adjusted to detect the femoral vessel while the patient is supine. The iliacus muscle nerve and more superficial adipose tissue may often be seen and highlighted by moving the transducer probe proximally or distally. When doing so, try to distinguish between the fascia lata and the iliacus muscle and fascia because if an injection is made beneath the wrong fascial sheath, a block may not be successful. The femoral nerve has been located. One centimetres away from the transducer's lateral edge, A skin bleb of local anaesthetic is generated. The needle is pushed toward the femoral nerve in a lateral-to-medial plane.

A needle penetration felt by when parsing the fascia iliaca. The needle point next to the nerve (above, below, or lateral). After aspiration, 1-2 mL of local anaesthetic is administered to ensure appropriate needle insertion. The femoral nerve will be pushed away from the target site if the injection is done correctly. Repositioning of needle and injections are performed if necessary. In elder patient, 20ml of Inj bupivacaine 0.25% local anaesthetic is sufficient for an effective block.

REVIEW OF LITERATURE

Jain N[47] et al conducted a comparative study of ultrasound-guided FNB versus FICB patients with fracture femur for decreasing pain and positioning for subarachnoid block. Group A [FNB] (7.60 0.57) and Group B [FICB] (7.44 0.50) had comparable VAS scores for pain prior to peripheral nerve block (P = 0.30). When comparing Group A to Group B, the VAS score for discomfort in sitting posture for subarachnoid block substantially lower in Group A (1.88 0.83). (2.40 ± 0.57) (P = 0.01) The mean reduction in pain VAS score in Group A (5.72 0.73) was similarly bigger than in Group B (5.04 0.73) (P = 0.00). No complications were observed in both groups. In patients having surgery for a fractured femur, ultrasound guided FNB is much more effective than ultrasound guided FICB in minimising discomfort associated with placement (sitting) for subarachnoid block.

Ghimire [48] According to a research that contrasted the analgesic effects of the femoral nerve block and fascia iliaca block before executing a sitting subarachnoid block on patients with proximal femoral fracture, The visual analogue scale values during central neuraxial blockade placement less in FIB group than FNB group (1.01.1 vs 2.10.8; P0.05). Central neuraxial blocked took less time in FIB than in FNB (109.628.1 seconds against 134.831.9 seconds; P0.05).

Meeta Gupta [49] inside their The visual analogue scale scores after the FIB were discovered to be 5.1 1.1, 4.1 1.3, and 2.8 0.8, respectively; after the FNB, they were discovered to be 4.4 1.1, 3.3 1.1, and 2.1 1.4, with P 0.05 being regarded statistically significant. The FIB had a mean first interventional analgesia time of 7.1 2.1 hours, whereas the FNB had a time of 5.2 0.7 hours. There was a significant difference, as indicated by the P value of less than 0.001.

Reavley P[50], A sum of 178 patients were assigned at random, with 162 of those being included in the primary analysis. At 60 minutes, the FIB arm had a mean 100 mm VAS score of 38 mm, whereas the 3-in-1 arm had a score of 35 mm. The adjusted difference between arms was 3 mm, with a 95% confidence range (4.7 to 10.8) omitting clinically significant differences between the two regimens.

Shukla U [51] In their study, 105 patients were randomly assigned to one of three groups and prepped for either a dynamic hip screw or proximal femoral nail insertion while being sedated. Historically noteworthy. For postoperative pain treatment, Group 1 had a femoral nerve block (FNB), while Group 2 received a FICB. Ultrasonography was used to guide these blocks. The control group was Group 3, which received no blocks. The Visual Analogue Scale used to quantify patients' aching at rest , during passive movement of thigh. Rescue analgesia delivered. VAS score surpassed three. Total analgesic usage of first 24 hours recorded. They discovered that Both groups had same durations of analgesia

of roughly 8 hours P value = 0.727. Analgesic study groups was comparable (P = 0.648). In comparison to group 3, these groups experienced less pain, used fewer analgesics, and had more stable hemodynamics. The use of block has no negative consequences. Because of its ease of application and lack of invasiveness, FICB can be a feasible optional to FNB. As a result, FICB offers great potential as an effective postoperative analgesic.

Bantie M et al[52]. A randomised controll trial (RCT conducted on 72 adult study groups who had a femoral bone fracture and had to undergo elective surgery. The patients, who ranged in age from 18 to 65 and had ASA I and II, divided in three study groups at random. The intravenous fentanyl (IVFE) group received 1 g/kg IV fentanyl, the FNB group received nerve stimulator-guided FNB with 30 mL of 1% lidocaine with adrenaline, and the FICB group received FICB with 30 mL of 1% lidocaine with adrenaline. There was a significant reduction in NRS pain score during positioning FNB and FICB groups as compared to IVEF group [median (IQR)]; 2 (1–2.5), 2 (2–3) vs. 3 (3–4), respectively; P 0.001 and P = 0.001, but there was a significant difference between study groups of FNB and FICB (P = 1.000). FNB and FICB had significantly better quality positioning than the IVEF group (p 0.001). It was concluded that Both Study groups reduced the analgesia score preoperatively during positioning to perform subarachnoid block anesthesia, improved patient positioning, Increased patient acceptance in a patient undergoing elective proximal femoral and hip joint fracture surgery.

Li XD et al[53]. In a meta-analysis, 14 RCTs involving 1179 patients were included. They observed that as compared to the FICB, the FNB reduced the occurrence of several side effects such as nausea, vomiting, and sleepiness, as well as the VAS ratings postoperatively at 24 hours of rest (P 0.05). However, there was no noticeable difference between the FNB and the FICB in terms of postoperative VAS ratings at any of the succeeding time periods (2 min, 20 min, 2 h, 24 h at movement, 48 h at rest, and 48 h at movement). After 24 hours, mean arterial pressure, SA time, and patient satisfaction were similar in both groups of patients' narcotic needs (P > 0.05). We concluded that FNB had a bigger benefit in decreasing VAS ratings postoperatively after 24 hours of rest and in reducing the chance of certain undesirable effects.

Yu B et al. [54] conducted a prospective study. In a randomised controlled clinical trial, 60 elderly patients undergoing hip replacement surgery were randomly allocated to either a

continuous fascia iliaca compartment block or a continuous femoral nerve block .At 6 hours following surgery, it was noted that tsignificant difference between study groups' mean VAS scores at rest: 1.0 1.3 in FNB group vs. 0.5 0.8 in FICB group (P 0.05). In terms of postoperative analgesia, the FICB group outperformed the FNB group on the medial and lateral portions of the thigh, respectively. Nothing else notably differed the groups. They concluded that the new cannula-over-needle approach and ultrasound-guided continuous FNB provide effective anaesthesia and postoperative analgesia for elder hip replacement patients.

Newman B et al[54] performed a RCT assess the analgesic effectiveness and opioid sparing impact of fascia iliaca compartment block against nerve stimulator-guided femoral nerve block in patients requiring surgery for a femoral neck fracture. One hundred and ten patients were randomly assigned. They observed that following the block, the reduction in the mean VAS pain score was 0.9 (95% CI 0–1.8) greater in the femoral nerve block group compared with the fascia iliaca compartment block group. Patients receiving less morphine FNB than FICB (p=0.041).

Fan X et al[55] conducted a meta analysis which included 7 RCTs involving 508 patients. In comparison to the FNB group, they found that the FICB group did not benefit from the vas at 12 hours, 24 hours, or 48 hours (SMD = 0.02, 95% CI, -0.15 to 0.19; P =.820, -0.02, and -0.22 to 0.18, respectively). There were no discernible variations in the overall amount of morphine consumed (SMD = -0.07, 95% CI, -0.29 to 0.15; P =.533). Additionally, No correlation (P >.05) between duration of hospital stay and prevalence of nausea and vomiting. It was determined that when compared to FNB, FICB had equal pain management and morphine-sparing effectiveness.

Liang Y[56] In a randomized controlled trial, 46 patients were randomly assigned two study groups: FNB / FICB Prior to spinal anaesthesia, patients were administered FNB with 15 mL of 0.5% ropivacaine or FICB in 40 mL of 0.5% ropivacaine. They observed that the VAS ratings in FNB group were significantly lower than in FICB group 3 and 5 minutes later analgesic delivery (P=0.000). After 8 or 10 minutes, or while placement, no significant differences in VAS were seen between groups. In patients with femoral neck fractures, FNB and FICB were found to have equal analgesic effects; however, FNB provides a faster start of pain relief.

Cooper AL [57] conducted A randomized controlled study with double-blinding was carried out. One active and one placebo block was given to each participant. 52 individuals obtained an active FICB, while another 48 received an active FNB. They said that clinically significant mean pain

score decreases were attained with both FICB and FNB (2.62 for FICB and 2.3 for FNB). Between the two cohorts, there was no discernible difference in the decrease of pain scores (P = 0.408). In patients with a neck of femur or proximal femur fracture, ultrasound-guided FNB and ultrasound-guided FICB both facilitate a comparable analgesic effect, hence none is superior than the other.

Temelkovska-Stevanovska M [58] In their study, Sixty hip fracture patients were recruited, and two groups of 30 patients were randomly assigned to FNB/ FICB study Groups. They discovered that the values of VAS in rest and movement significantly lower in patients with FNB block compared to patients of FICB block at 24-hour gap (46.67% vs 0% felt moderate pain), 36-hour intervals (43.33% vs 0% felt moderate pain), and 48-hour intervals (46.67% vs 3.33% felt moderate to severe pain. Patients who had FNB block experienced considerably less supplementary analgesia than those who had FIC block: 23.3% vs. 50% (P = 0.05). The adverse effects reported, nausea, vertigo, and drowsiness; statistically, the FIC group had these symptoms more frequently (P = 0.05). They came to the conclusion that in patients with hip fractures, pain alleviation in postoperative period greater in the FNB study group compared to FIC group at rest and movement.

Zhou Y [59] The study included Patients with hip joint dis-continuity fractures diagnosed under the age of 65 (n=154) who underwent surgery within 48 hours of being admitted to the hospital were divided into two groups and given ultrasound-guided nerve blocks, the FNB group (n=77) and the FICB group (n=77). When compared to before both nerve block operations, the VAS ratings were considerably lower after both nerve block procedures (P 0.05), although there were no differences on the second day following nerve block. At 30 minutes and one day following nerve block, the FNB group's VAS scores at rest and during activity were considerably lower than those of the FICB group (P 0.05). In comparison to the FICB group, the FNB group's need for postoperative analgesic medications was considerably reduced (P=0.048). The frequency of nausea and dizziness was substantially greater in the FICB group compared to the FNB group (P=0.031 and P=0.034, respectively). The quality of postoperative function was noticeably better for patients in the FNB group (P=0.029). They came to the conclusion that older people with hip fractures may manage their pain with both FNB and FICB. However, compared to FICB, FNB produced much better analgesia with a lower need for analgesic medications.

Faiz SHR et al [60] weighed the pros and cons of fascia iliaca compartment (FIC) block over femoral nerve block. Methods: In this clinical study, 68 patients has femoral shaft bone

discontinuity fractures who having surgery were randomly assigned to 2 groups: FNB and FIC. During the nerve block, there was a significant difference in pain levels between the FIC and FNB groups (2.50.6, 3.60.8, and P = 0.001. The pain mean substantially lower in FNB group than FIC group while spinal anaesthesia was being administered (2.7 1.1, 3.4 0.6, and P = 0.001). 40.7% of patients in the FNB group said that they were extremely satisfied with their placement, compared to none in the FIC group. The difference between the FNB group and the FIC group's sensory block completion times was substantial (P = 0.001). Despite the fact that FIC is typically administered more easily and painlessly than FNB, the FNB appears to offer the patient a superior level of analgesia during spinal anaesthesia. The advantage of this technique for creating the ideal circumstances for spinal anaesthesia in an emergency situation may be shown by shorter completion times for sensory and motor block in the FNB group.

MATERIALS AND METHODS

SOURCE OF DATA:

This study was carried out in the Department of Anaesthesiology, B.L.D.E. (Deemed to be University) Shri B. M. Patil Medical College, Hospital and Research Centre, Vijayapur.

METHOD OF COLLECTION OF DATA:

Study Design: A prospective randomised comparative study.

Study Period: One and half year.

Sample Size:

- The anticipated Mean±SD of reduction in VAS score for pain in Femoral Block 5.72±0.73 and in Compartment Block of facia iliaca 5.04±0.73 resp. [ref] the required minimum sample size is 45 per group (i.e. a total sample size of 90, assuming equal group sizes) to achieve a power of 99% and a level of significance of 5% (two sided),for detecting a true difference in means between two groups.

$$N = 2\left(\frac{(Z_a + z_\beta) * S}{d}\right)^2$$

Z_a Level of significance=95%

Z_β--power of the study=90%

d=clinically significant difference between two parameters

SD= Common standard deviation

Study population: 90 patients of both gender randomly divided into two groups of 45 each.

Randomization:

Using computer-generated random number tables, the 90 research participants chosen and split A,B groups, each with 45 participants (Group A- femoral nerve block; Group B-

Fascia Iliac Compartment Block). All research participants had proximal femur fracture surgery with the intention of anaesthetizing them with a central neuraxial block.

Group A – Femoral nerve block group

Group B -- Fascia iliaca compartment block group

- The study was double blinded where the anesthetist who performed Ultrasound-guided femoral nerve block/ fascia iliac compartment block was not involved in performing of central neuraxial block and the evaluation and recording of study parameters.
- Once the patient was shifted to operation theatre monitors were attached which included ECG leads, noninvasive blood pressure, pulse oximeter.
- Baseline vital parameters were noted.
- 20G IV Cannula was secured and patient was premedicated with Injection Ondansetron 0.15mg/kg.

INCLUSION CRITERIA:

- Patients aged between 20-70 years.
- Patients of both male and female sex.
- Patients with ASA Grade I & II.
- Patients selected for elective or emergency lower limb orthopedic surgeries.

EXCLUSION CRITERIA:

- Patient denial
- Pregnant women.
- Patients with H/o Cardio-Respiratory disorders
- Patients with Hepatic and Renal diseases.
- Patients with H/o convulsions & neurological deficits, head injury.
- Patients with Spinal deformities & Psychiatric diseases.
- Patients with ASA Grade III & above.

METHODOLOGY:

Pre-anaesthetic evaluation: Patients participated in the study after a complete pre-operative examination that comprised the following:

History:

- A history of medical disease, past surgery, prior anaesthesia experience and hospitalisations was obtained.

- **Physical examination**:

1. General condition of the patient, Vital signs (heart rate, blood pressure, respiratory rate), Examination of cardiovascular system, respiratory system, central nervous system and the vertebral system.
2. Airway assessment by Mallampati grading, thyromental distance, neck movement.

Femoral Nerve Block:

- The patient was positioned supine. The groin was prepared and draped under aseptic conditions.
- A linear 7-13 MHz ultrasound guided probe (Sonosite M-Turbo ,USA) was used in-plane approach of needle .
- Probe was moved laterally or medially or front and back until good quality image was obtained.
- Mark on the probe was always kept on lateral side for image orientation.
- Best optimal gain and depth and focal point was set to view anatomical structures
- Before injection, femoral nerve was identified via ultrasound guided probe which was lateral to femoral artery at the level of femoral crease after which injection of 20ml of 0.25% bupivacaine was done adjacent to femoral nerve after careful aspiration.
- Volume of drug 20ml of 0.25% bupivacaine was injected.

Fascia Iliac Compartment Block:

- In ultrasound guided fascia iliac compartment block landmark was identified by femoral vessel , iliopsoas muscle and Sartorius followed by injection of 0.25% bupivacaine 20ml after careful negative aspiration between fascia iliac and iliopsoas muscle.
- Volume of drug 20ml of 0.25% of injection bupivacaine .
- The Monitoring in the preoperative room was continued after the procedure was completed.
- Visual analog scale (VAS) consisted of a 10 cm line marked at 1cm intervals on which the patient put a mark that reflected the level of pain he/she was feeling. The number '0' indicated no discomfort, while the number '10' denoted the worst conceivable suffering. The patient's values were interpreted as pain intensity units. (10)
- **VAS Score Intensity of pain**

  0 – 2 No pain to slight pain

  2 – 5 Mild pain.

  5 – 7 Moderate pain.

  7 – 9 Severe pain.

  10- Worst possible pain.

- Following observations were recorded:

I. The primary outcome was the patient's VAS at 3 ,5 ,8 ,10 ,15 minutes after study intervention.

II. The secondary outcomes included the patient positioning quality for central neuraxial blockade, complications and side effects like Nausea, vomiting, Hypertension, respiratory depression and Block site hematoma.

Scoring for optimal positioning for central neuraxial block:

Optimal positioning of central neuraxial blockade was assessed by the anesthesiologist performing the procedure and graded according to the following scores

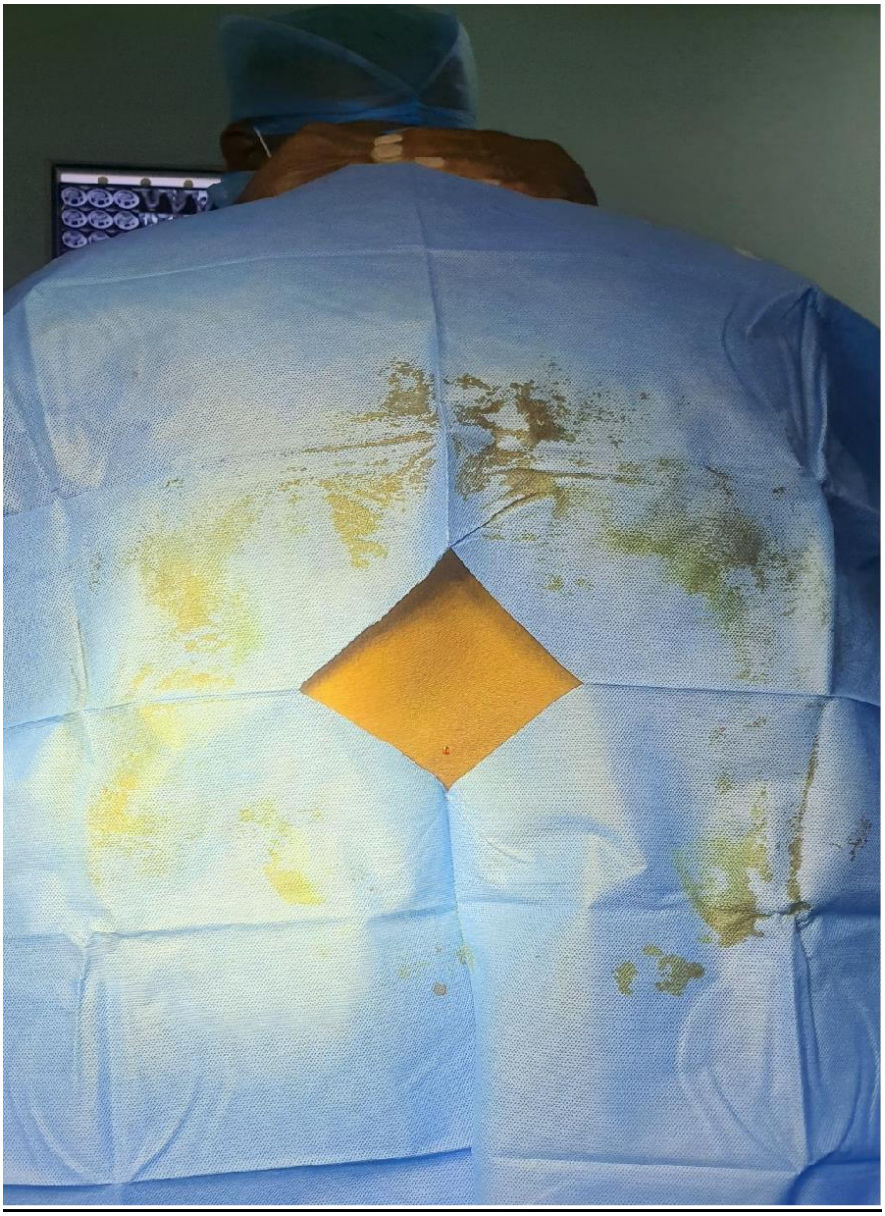
.

i. Score 0: Unsatisfactory.

ii. Score 1: Satisfactory
iii. Score 2: Good
iv. Score 3: Optimal

Onset of analgesia: is the time interval from administration of the study drug (VAS score of >4) till VAS score came down to < 4.

Figure 13: Positioning for Central neuraxial block



Results and observations:

The study was conducted for a period of one and half years on patients between 20-70 years undergoing hip and femur joint orthopedic surgeries. The information needed to generate the findings for the study's aforementioned objectives was gathered, collated, and evaluated.

The following observations were made :

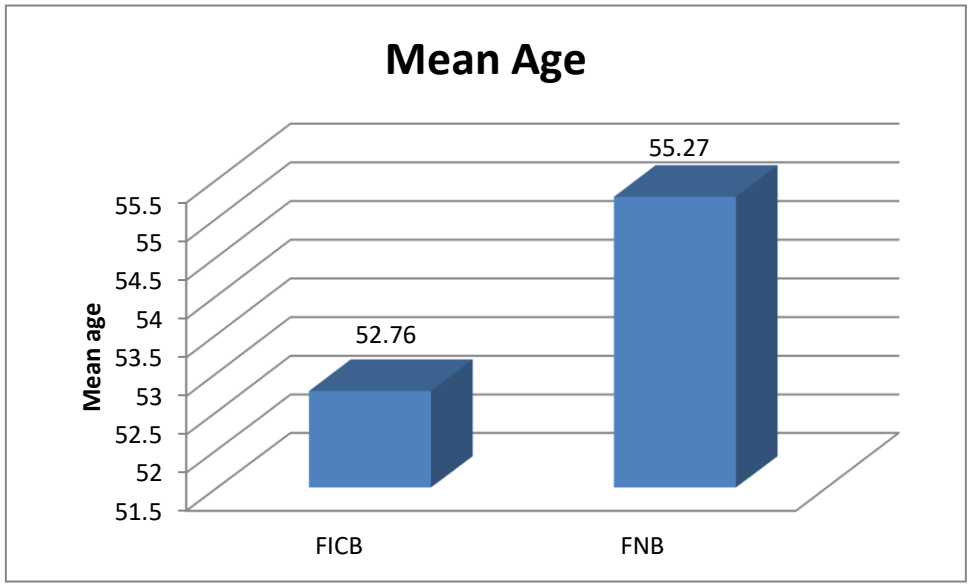
Age distribution among study groups:

The mean age(years) of patients in FICB group was 52.76±15.23 and those in FNB group had a mean age of 55.27±14.37 In terms of mean age, the groups were comparable. with a p value of 0.423.

Table 1: Shows age distribution each study group is.

Comparison between two groups	FICB		FNB		T test	P value
	Mean	SD	Mean	SD		
Age (years)	52.76	15.23	55.27	14.37	0.804	0.423*
* Statistically non significant						

Figure 14: Age distribution among study group.



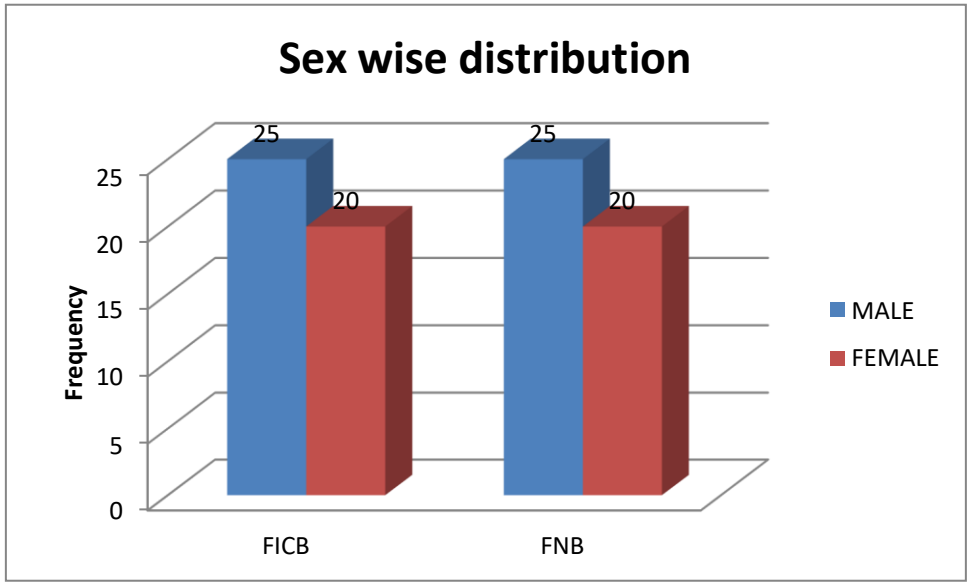
Sex distribution among study group:

There were 25 males and 20 females in both the groups. The groups were comparable in terms of sex distribution (p value =0.584).

Table 2: Study group sex distribution

SEX	FICB		FNB		Chi square test	P value
	N	%	N	%		
MALE	25	55.55	25	55.55	0	0.584*
FEMALE	20	44.44	20	44.44		
* Statistically non significant						

Figure 15: Sex Distribution among study groups



Study group divided among Diagnosis:

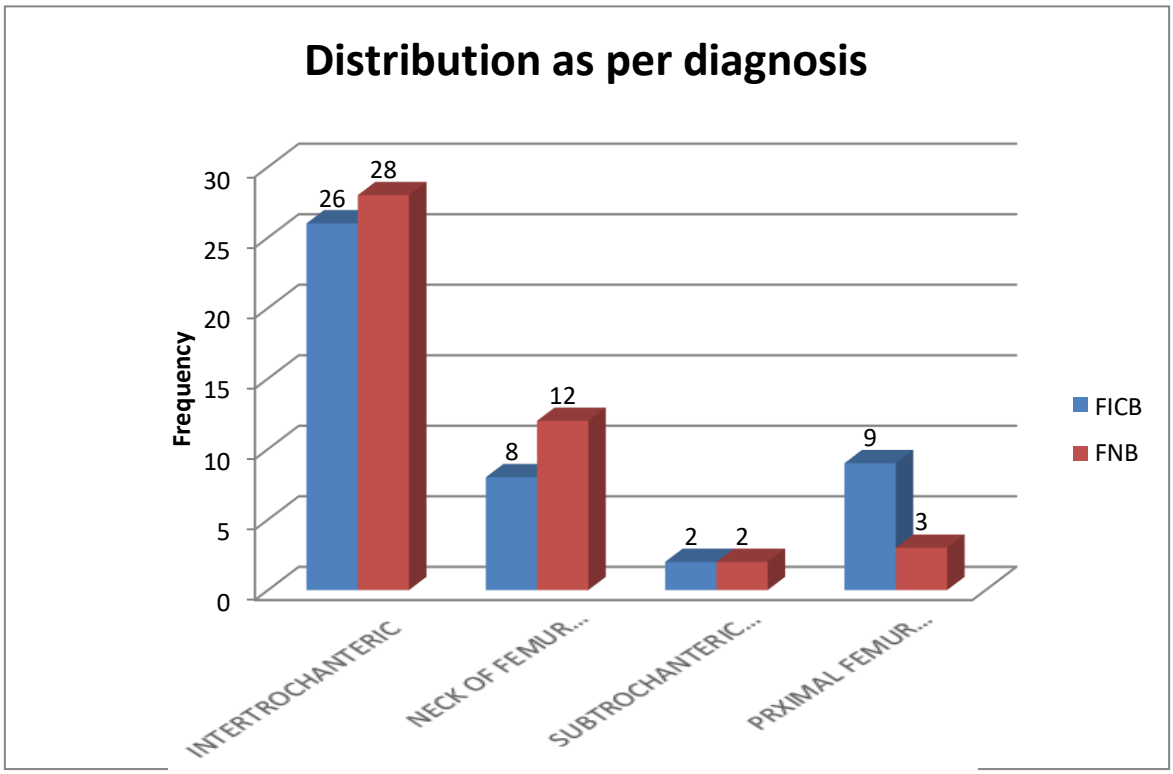
There were 26 (57.77%) patients in FICB group who had intertrochanteric fracture and 28 (62.2%) patients in FNB group had inter trochanteric fracture. Proximal femur fracture was present in 9 (20%) patients in FICB group and in 3 (6.6%) patients in FNB group. There was no statistically significant difference between the groups in terms of diagnosis (p value= 0.275).

Table 3: Diagnosis wise distribution study group.

DIAGNOSIS	FICB		FNB		Chi square test	P value
	N	%	N	%		
INTERTROCHANTERIC FRACTURE	26	57.77	28	62.2	3.87	0.275*
NECK OF FEMUR FRACTURE	8	17.77	12	26.66		

SUBTROCHANTERIC FRACTURE	2	4.4	2	4.4		
PROXIMAL FEMUR FRACTURE	9	20	3	6.6		
*Statistically insignificant						

Figure 16: Study group divided among Diagnosis.



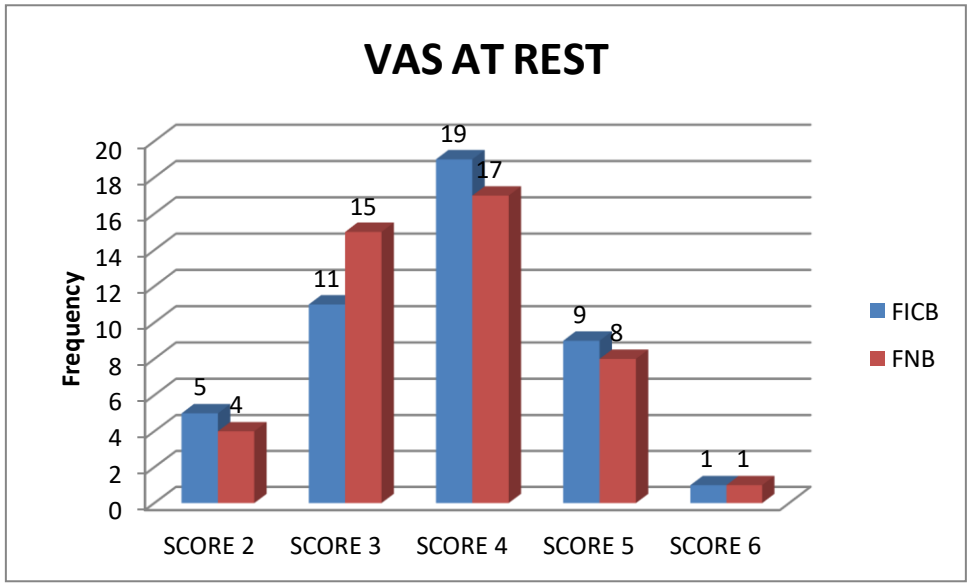
VAS at rest:

At rest, the VAS score of 2 was observed in 5 (11.11%) patients in FICB group and in 4 (8.8%) patients in FNB group. 19 (42.22%) patients in FICB group and 17 (37.77%) patients in FNB group had a score of 4. The groups were comparable in terms of VAS score at rest with a p value of 0.925.

Table 4: compares the two groups' VAS Score at rest:

VAS AT REST	FICB		FNB		Chi square test	P value
	N	%	N	%		
2	5	11.11	4	8.8	0.896	0.925*
3	11	24.44	15	33.33		
4	19	42.22	17	37.77		
5	9	20	8	17.77		
6	1	2.2	1	2.2		
*Statistically insignificant						

Figure 17: compares the two groups' VAS Score at rest.



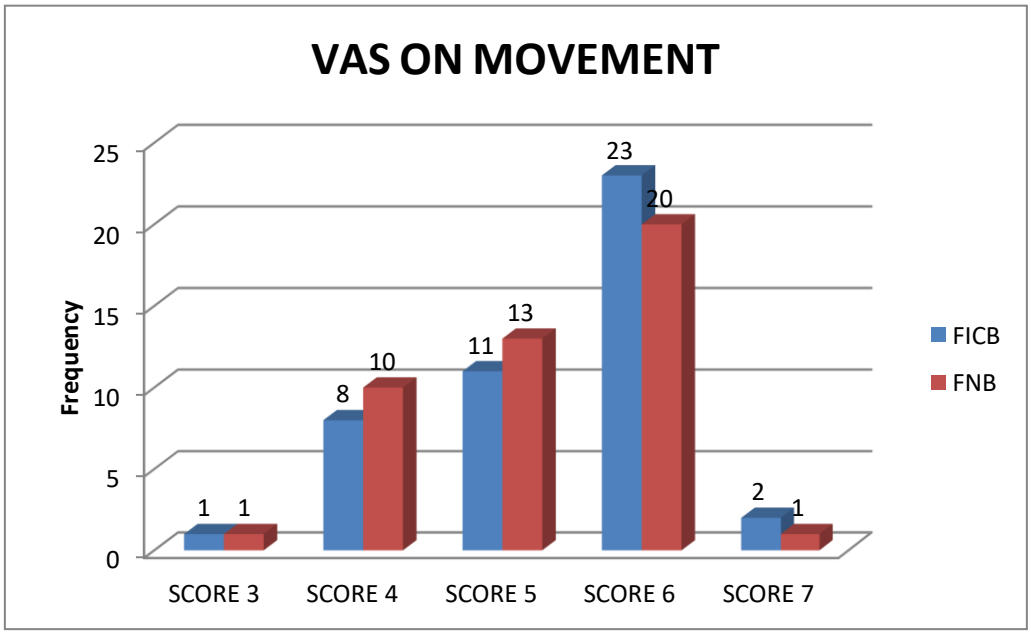
VAS on movement:

VAS score of 6 was observed in 23 (51.11%) patient sin FICB group and in 20 (44.44%) patients in FNB group. Maximum score of VAS on movement observed was 7 which was observed in 2 (4.44%) patient in FICB group and in 1 (2.22%) patient in FNB group. There was no statistically significant difference between the groups in terms of VAS score on movement (p value= 0.919).

Table 5: VAS score on movement in between two groups:

VAS ON MOVEMENT	FICB		FNB		Chi square test	P value
	N	%	N	%		
3	1	2.22	1	2.22	0.931	0.919*
4	8	17.77	10	22.22		
5	11	24.44	13	28.88		
6	23	51.11	20	44.44		
7	2	4.44	1	2.22		
*Statistically insignificant						

Figure 18: compares the two groups' VAS Score on movement



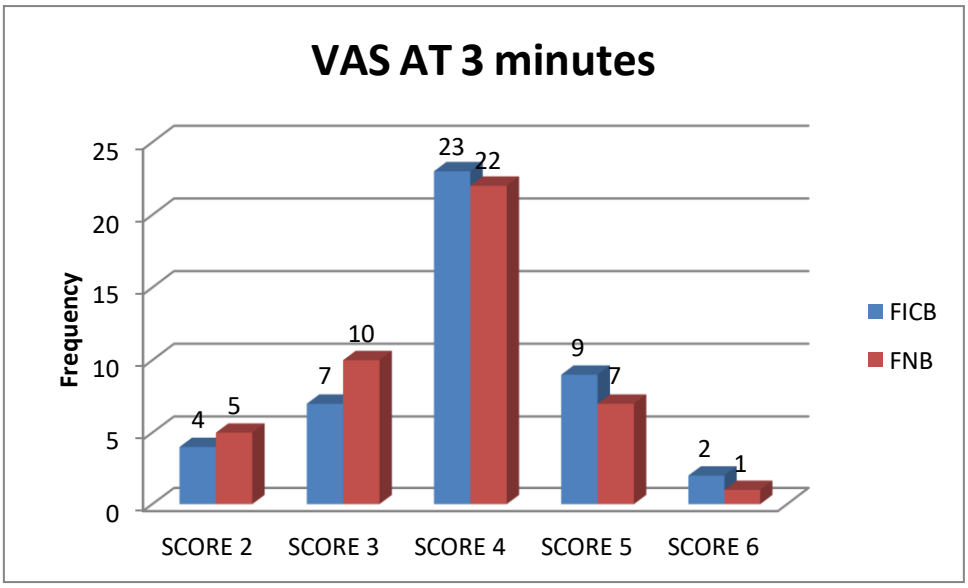
VAS at 3 min:

At 3 minutes, minimum VAS score of 2 was observed in 4 (8.88%) patients in FICB group and in 5 (11.11%) patients in FNB group. The most common score observed was 4, which was observed in 23 (51.11%) patients in FICB group and in 22 (48.88%) patients in FNB group. There was no statistically significant difference between the groups in terms of VAS score at 3 minutes (p value = 0.87).

Table 6: compares the two groups' VAS Score at 3 minutes.

VAS AT 3 MIN	FICB		FNB		Chi square test	P value
	N	%	N	%		
2	4	8.88	5	11.11	1.24	0.87*
3	7	15.55	10	22.22		
4	23	51.11	22	48.88		
5	9	20	7	15.55		
6	2	4.44	1	2.22		
*Statistically insignificant						

Figure 19: compares the two groups' VAS Score at 3 minutes:



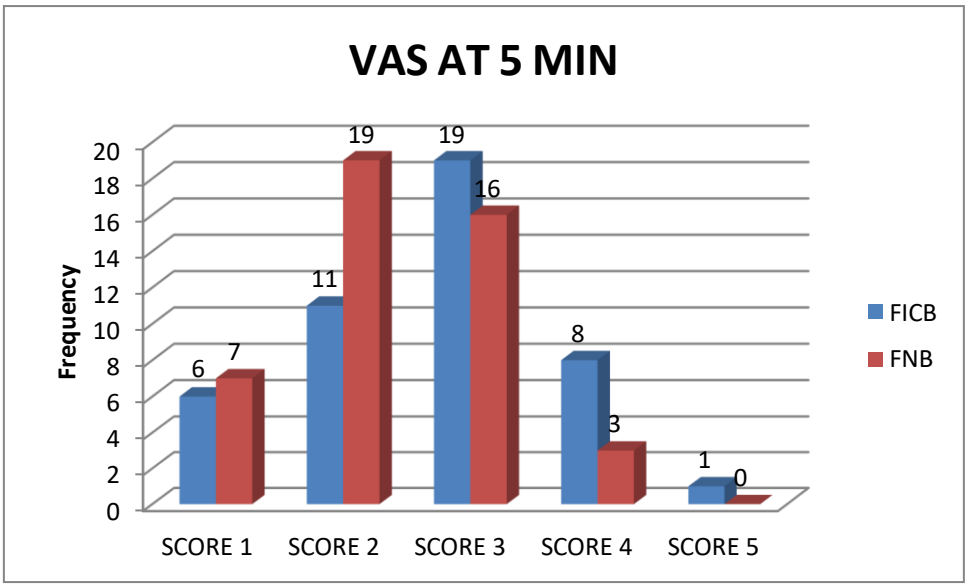
VAS score at 5 minutes:

11 (24.44%) patients in FICB group and 19 (42.22%) in FNB group had a VAS score of 2 at 5 minutes while a score of 3 was observed in 19 (42.22%) patients in FICB group and in 16 (35.55%) patients in FNB group. 1 (2.22%) patient in FICB group had a score of 5 while in FNB group there was no patient with a score of 5. There was no statistically significant difference between the groups in terms of VAS score at 5 minutes (p value = 0.219).

Table 7: compares the two groups' VAS score at 5 minutes.

VAS AT 5 MIN	FICB		FNB		Chi square test	P value
	N	%	N	%		
1	6	13.33	7	15.55	5.74	0.219*
2	11	24.44	19	42.22		
3	19	42.22	16	35.55		
4	8	17.77	3	6.66		
5	1	2.22	0	0		
*Statistically insignificant						

Figure 20: compares the two groups' VAS score at 5 minutes.



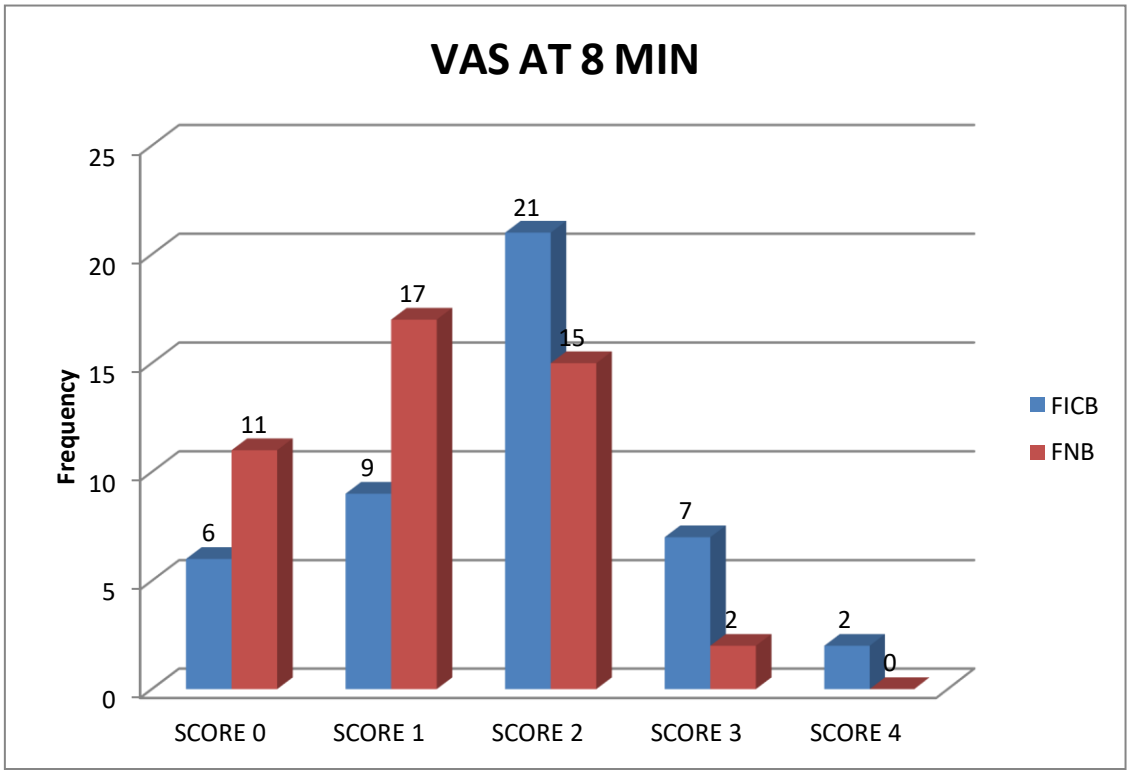
VAS at 8 minutes:

21 (46.66%) patients in FICB group and 15 (33.33%) in FNB group had a VAS score of 2 at 8 minutes while a score of 3 was observed in 7 (15.55%) patients in FICB group and in 2 (4.44%) patients in FNB group. 2 (4.44%) patients in FICB group had a score of 4 while in FNB group there was no patient with a score of 4. There was a statistically significant difference between the groups in terms of VAS score at 8 minutes (p value = 0.045).

Table 8: compares the two groups' VAS score at 8 minutes.

VAS AT 8 MIN	FICB		FNB		Chi square test	P value
	N	%	N	%		
0	6	13.33	11	24.44	9.7	0.045*
1	9	20	17	37.77		
2	21	46.66	15	33.33		
3	7	15.55	2	4.44		
4	2	4.44	0	0		
*Statistically significant						

Figure 21: compares the study groups' VAS score at 8 minutes.



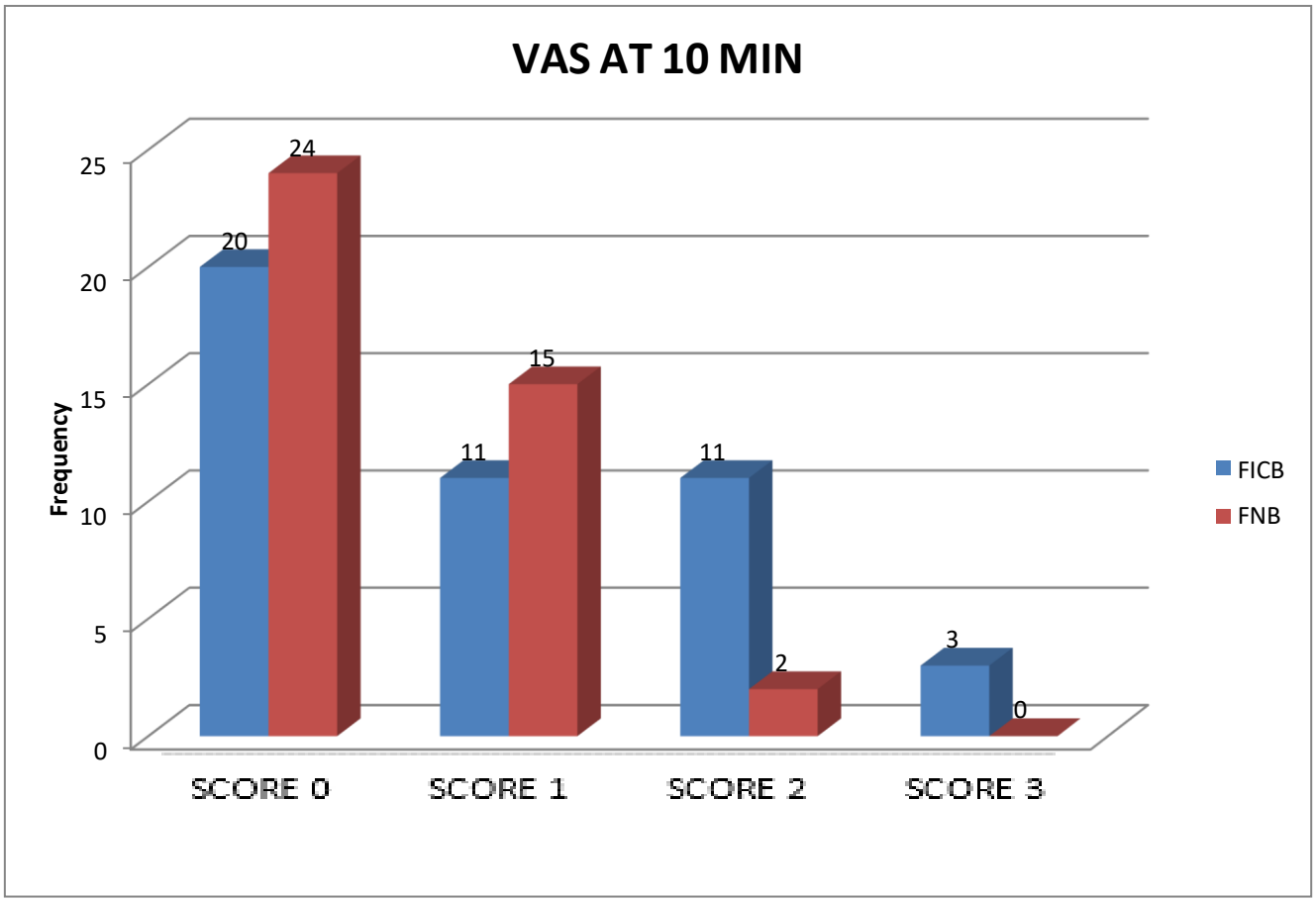
VAS at 10 minutes:

At 10 minute, it was observed that 20 (44.44%) patients in FICB group had a score of 0 while 24 (53.33%) patients in FNB group had a score of 0. 11 (24.44%) patients in FICB group had a score of 2 and 3 each and 15 (33.33%) and 2 (4.44%) patients in FNB group had a score of 1 and 2 respectively. There was a statistically significant difference between the groups in terms of VAS score at 10 minutes (p value 0.018).

Table 9: compares the two groups' VAS score at 10 minutes.

VAS AT 10 MIN	FICB		FNB		Chi square test	P value
	N	%	N	%		
0	20	44.44	24	53.33	10.04	0.018*
1	11	24.44	15	33.33		
2	11	24.44	2	4.44		
3	3	6.66	0	0		
*Statistically significant						

Figure 22: compares the two groups' VAS score at 10 minutes.



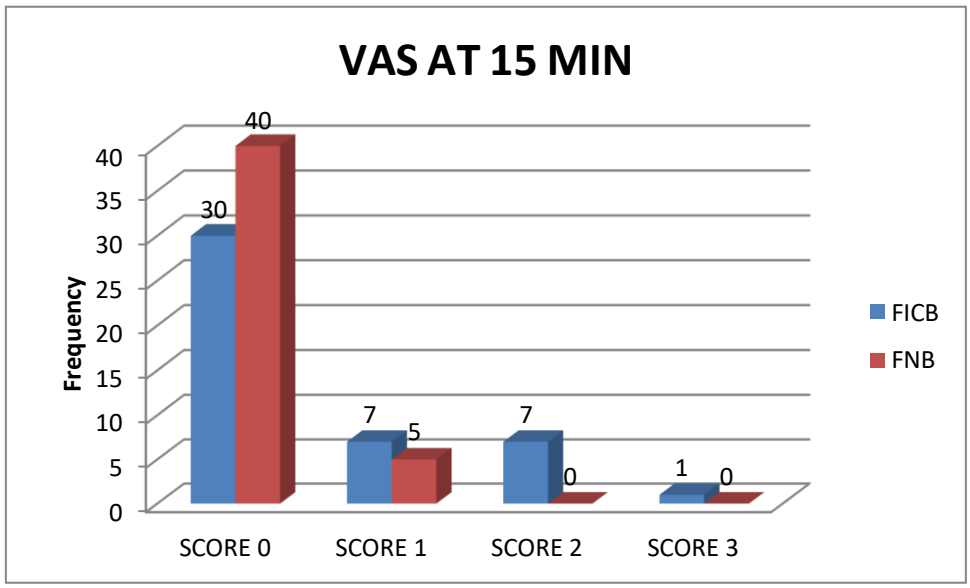
VAS at 15 minutes:

At 15 minutes, 30 (66.66%) patients in FICB group and 40 (88.88%) patients in FNB group has a VAS score of 0. A score of 2 and 3 was observed in 7 (15.55%) and 1 (2.22%) patient in FICB group while in FNB group, none had a score of 2 and 3In terms of VAS score at 15 minutes, there was a statistically significant difference between two groups (p value 0.02).

Table 10: compares the two groups' VAS score at 15 minutes

VAS AT 15 MIN	FICB		FNB		Chi square test	P value
	N	%	N	%		
0	30	66.66	40	88.88	9.76	0.02*
1	7	15.55	5	22.22		
2	7	15.55	.0	0		
3	1	2.22	0	0		
*Statistically significant						

Figure 23: compares the study groups' VAS score at 15 minutes.



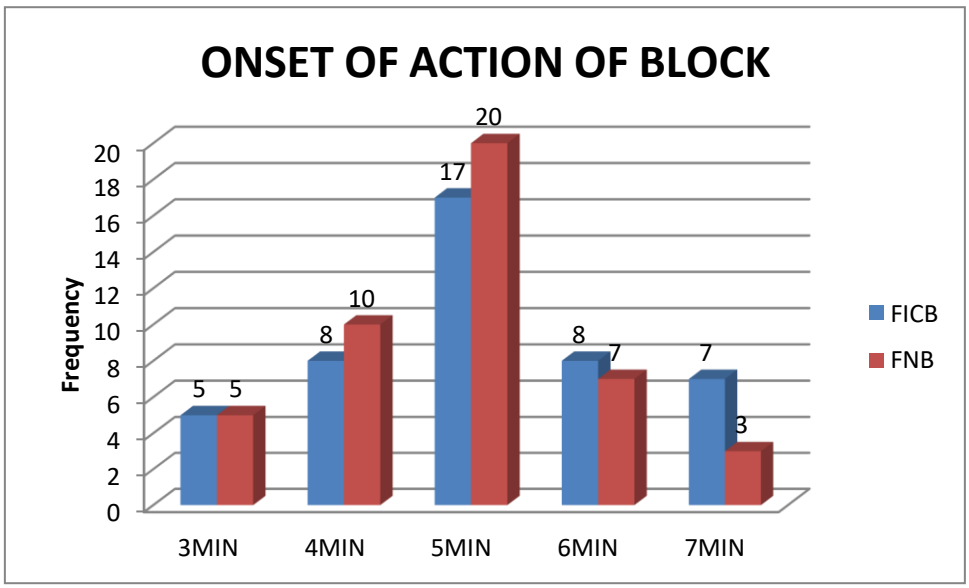
Onset of action of block:

Onset of action of block was of 3 minutes in 5 (22.22%) patients in each group while a time duration of 4 minutes was observed in 8 (17.77%) patients in FICB group and in 10 (22.22%) patients in FNB group. Maximum duration observed was of 7 minutes in 7 (15.55%) patients in FICB group and in 3 (6.66%) patients in FNB group. There was no statistically significant difference between the groups in terms of Onset of action of block duration with a p value of 0.711.

Table 11: compares the two groups' Onset of action of block.

ONSET OF ACTION OF BLOCK	FICB		FNB		Chi square test	P value
	N	%	N	%		
3MIN	5	22.22	5	22.22	2.13	0.711*
4MIN	8	17.77	10	22.22		
5MIN	17	37.77	20	44.44		
6MIN	8	17.77	7	15.55		
7MIN	7	15.55	3	6.66		
*Statistically insignificant						

Figure 24: compares the study groups' Onset of action of blocks.



QUALITY OF PATIENT POSITIONING:

The scores for quality of positioning for central neuraxial blockade as assessed by the anesthesiologist performing the procedure were recorded.

A score of 0 i.e. unsatisfactory positioning was observed in 5 (22.22%) patients in FICB group but none in FNB group had a score of 0. Best positioning with a score of 3 was observed in 15 (33.33%) patients in FICB group and in 32 (71.11%) patients in FNB group. There was a statistically significant difference between the groups in terms of quality of patient positioning score with a p value of <0.001.

Table 12: Mean Score Comparison between the two groups for Onset of action of block.

QUALITY OF PATIENT POSITIONING SCORING	FICB		FNB		Chi square test	P value
	N	%	N	%		
0	5	22.22	0	0		<0.001*
1	6	13.33	1	2.22		
2	19	42.22	12	26.66		
3	15	33.33	32	71.11		
*Statistically significant						

Figure 25: compares the two groups' Quality of patient positioning scoring.

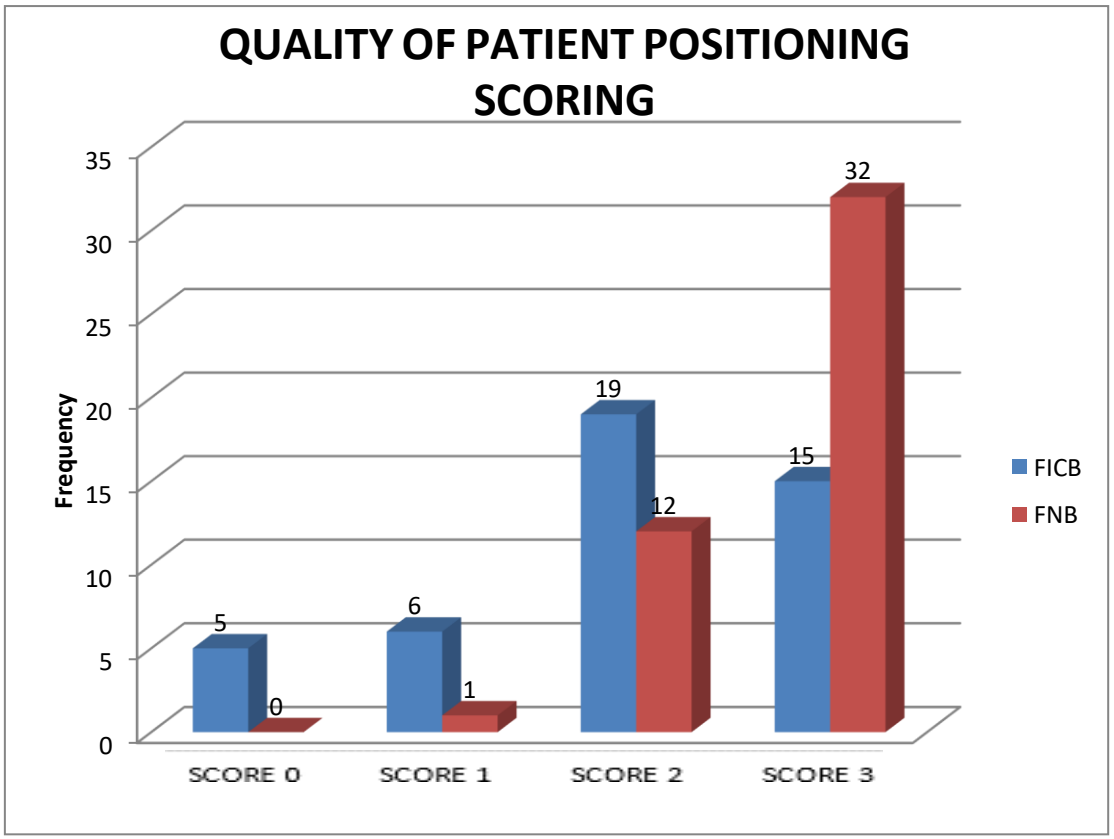


Table 13: Association between Quality of patient positioning scoring:

QUALITY OF PATIENT POSITIONING SCORING	FICB		FNB		Chi square test	P value
	N	%	N	%		
GOOD	17	37.77	12	26.66		0.001*
OPTIMAL	16	35.55	32	71.11		
SATISFACTORY	6	13.33	1	2.22		
UNSATISFACTORY	5	22.22	0	0		
*Statistically significant						

STATISTICAL ANALYSIS

All of the characteristics were thoroughly detailed. For continuous variables, mean and standard deviation (SD) summary statistics were utilized. Numbers and percentages were utilized to create data summaries and diagrammatic displays of categorical data. The chi-square test was employed as a qualitative data test of significance for the link between two category variables. Categorical data were given in the form of frequency (%) and graphs, whilst numerical variables were presented as mean and standard deviation. To compare numerical variables between groups, the unpaired T test or Mann-Whitney U test was employed, while the Chi square or Fisher's exact test was used to analyzed categorical variables.

DISCUSSION

As there is advancement in the field of medical sciences, the lifespan of the population is increasing and hence the geriatric population. With increasing age, the probabilities of traumatic hip fractures increase which lead to significant pain, especially in the geriatric population. So a good analgesic technique is much required to reduce the agony of the patient presenting with hip fracture.

The most common anesthetic technique being used in patients who present with hip fractures includes neuraxial blocks, of which central neuraxial blockade is frequently used technique[50,54].

In comparison to general anesthesia, these regional anesthetic techniques are more beneficial, however, positioning of patient of hip fracture for these blocks can cause severe pain. A number of systemic analgesics like opioids, are used for pain relief during patient positioning but there are known side effects of these drugs including urinary retention, cognitive impairement and respiratory depression, especially in geriatric age group patients. Nerve blocks like femoral nerve block, fascia iliaca compartment block are an alternative approach as they not only provide pain relief but also reduce post operative inflammatory response and improve positioning[55,56].

A survey on the postoperative care of patients with broken femurs was carried out by Sandby-Thomas et al. in their research. They observed during patients positioning for sub arachanoid block, the most frequently used drugs were midazolam, ketamine and profol. They reported that to aid positioning, nerve blocks were used very less and any sedation or analgesia was not being given in around 15.1% of patients[54]. Another survey which was done in 2012, reported that only 33% of attending physicians in emergency performed regional nerve blocks in hip fracture patients and the one performing often were 6% only[57]. According to a 2009 UK survey, 55% of

emergency departments routinely employ regional anaesthesia procedures for treating hip and femur fractures [58].

In 2002, soon after becoming admitted to the hospital, a Cochrane comprehensive evaluation of nerve blocks for hip and femur fractures found that they significantly reduced pain levels and the need for parenteral or oral analgesics to control pain after the fracture or during surgery [59].

Later National Institute for Health and Clinical Excellence regulations recommended that nerve blocks be taken into account to minimize opioid dose and provide additional analgesia[60].

While patients in Group B had an ultrasound-guided femoral nerve block with 20ml of Inj 0.25% bupivacaine, those in Group A received a fascia iliac compartment block under USG guidance.

The age group of the participants in this research was 20 to 70. The difference between the means for Group A 52.7615.23 and Group B 55.2714.37, was statistically insignificant.

Twenty of the 45 people in Group A were female and 25 were male. Twenty-five of the 45 members of Group B were female and twenty were male. Age and sex were represented by P values of 0.423 and 0.584, respectively. Because of this, neither group's demographic information was statistically significant, and also the groups' distributions of age and gender were comparable.

Both study groups had similar type of patients on the basis of type of fractures with 26 patients in group A and 28 patients in group B having inter-trochanteric fractures. There was no statistically significant difference between the groups in terms of diagnosis (p value= 0.275).

The block action time in both the groups was similar with minimum time of 3 minutes in 5 (22.22%) patients in each group and maximum time of 7 minutes in 7 (15.55%) patients in FICB group and in 3 (6.66%) patients in FNB group.

With a P value of 0.711, the time that block had an effect was not significantly different between the groups. This implies that the amount of time needed for an impact to manifest in both techniques is the same.

In our research, there was no statistically significant difference between study groups' VAS scores at rest, during activity, and at 3, and 5 minutes. However, at 8, 10 and 15 minutes, there was statistically significant difference between both the groups in terms of VAS score with p value of 0.045, 0.018 and 0.02 respectively. The FNB was significantly more effective in pain reduction during positioning. Similarly, Newman[61] et al also observed a mean post block VAS score of 4.4 for FNB and a score of 5.4 for FICB with a statistically significant difference. Jain N[62] et al also observed that FNB had better pain reduction with significantly less VAS score than FICB post block. Ultrasound guided bupivacaine deposition in the vicinity of femoral nerve which also innervates The hip and femur joint increases the possibility of nerve blockage. This might explain why FNB is more effective in providing analgesia than FICB.

We observed that with FNB there was improved patient positioning in comparison to FICB. In FNB group there were 32 (71.11%) patients who had optimal positioning while in FICB group only 15 (33.33%) patients had optimal positioning. Statistically FNB group patients had better positioning than patients in FICB group with a significant difference (p value <0.001).

Similarly, Faiz SHR et al[63] Also noted: In contrast to the FIC group, where no patients responded "excellent," 40.7% of patients with FNB rated their satisfaction with implantation prior to spinal anaesthesia as exceptional. We found no issues or negative consequences from any of the methods.This reduced number of complications can be due to the use of ultrasound guided block in comparison to anatomical landmark approach. Previous literature also suggested that ultrasound guided blocks are safe, have decreased onset time and are more effective than anatomical landmark

approach or nerve stimulator approach and also reduce the need for local anaesthetic agent[58]. Ultrasound guidance is a greater tool for seeing anatomical features during nerve block administration and may be utilized to check the positioning of FNB and FICB.

CONCLUSION :

This study's findings suggest that ultrasound-guided FNB is superior to ultrasound-guided FICB for providing central neuraxial blockade for hip joint operations because it results in more effective pain relief for patients with proximal femur fractures.

FNB provides a better analgesia than FICB in terms of optimal positioning for patients with femur fracture and can be performed without complications as is done under ultrasound and also provides good comfort to patients.

SUMMARY

"A comparative study of ultrasound-guided femoral nerve block versus fascia iliaca compartment block in patients with proximal femur fracture for reducing pain associated with positioning for subarachnoid block" was carried out from 11/1/2021 duration 11/7/2022 (One and half years) in the Department of Anaesthesiology at B.L.D.E (Deemed To Be University) Shri. B. M. Patil Medical College and Hospital, Vijayapur.

The study was designed to compare the two techniques of administering Central neuraxial block i.e., USG guided FICB and USG guided FNB technique in patients posted for lower limb orthopedic surgery with respect to following parameters: analgesic efficacy, duration of analgesia, preoperative patient comfort and complications.

For the purpose of this study 90 patients were recruited and divided by computer generated random number tables into two groups of 45 each. The patients were aged 20-70 years and belonged to ASA grade I and II. Both groups consisted of patients posted for lower limb surgeries and received subarachanoid block with 20ml of 0.25% bupivacaine; group A were given the block using USG guided FICB technique while group B patients received the block using USG guided FNB.

Observations made during the study period were recorded, tabulated and analysed. They were as follows:

- The demographic data of the two groups was comparable.
- The groups were comparable in terms of VAS score at rest, at movement, at 3 minutes and 5 minutes with a p value of 0.925, 0.919, 0.87and 0.219 respectively.

- At 8 minutes, 10 minutes, and 15 minutes in this study, there was a statistically significant difference between the groups in terms of VAS score, with p values of 0.045, 0.018, and 0.02 respectively.

- There was no statistically significant difference between the groups in terms of block acted time duration with a p value of 0.711.

- There was a statistically significant difference between the groups in terms of quality of patient positioning score with a p value of <0.001.

- There were no post-operative problems in either group of patients in this study.

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ETICAL CLEARANCE CERTIFICATE:

IEC/NO-09/2021
22/01/2021

B.L.D.E. (DEEMED TO BE UNIVERSITY)

(Declared vide notification No. F.9-37/2007-U.3 (A) Dated. 29-2-2008 of the MHRD, Government of India under Section 3 of the UGC Act, 1956)

The Constituent College

SHRI. B. M. PATIL MEDICAL COLLEGE, HOSPITAL AND RESEARCH CENTRE

INSTITUTIONAL ETHICAL CLEARANCE CERTIFICATE

The Institutional ethical committee of this college met on 11-01-2021 at 11am to scrutinize the synopsis of Postgraduate students of this college from Ethical Clearance point of view. After scrutiny the following original/corrected and revised version synopsis of the Thesis has been accorded Ethical Clearance

Title: A Study of ultrasound-guided femoral nerve block and fascia Iliaca block for positioning for centralneuraxial blockade in patients with proximal femur fracture Surgeries.

Name of PG student: Dr Nirmal Kumar S Department of Anaesthesiology

Name of Guide/Co-investigator: Dr Renuka Holyachi, Associate Professor of Anaesthesiology

DR .S.V.PATIL
CHAIRMAN, IEC

Institutional Ethical Committee
B L D E (Deemed to be University)
Shri B.M. Patil Medical College,
VIJAYAPUR-586103 (Karnataka)

Following documents were placed before Ethical Committee for Scrutinization:

1. Copy of Synopsis / Research project
2. Copy of informed consent form
3. Any other relevant documents.

INFORMED CONSENT FORM

B.L.D.E(Deemed to be University)

SHRI B.M PATIL MEDICAL

COLLEGE HOSPITAL AND RESEARCH

CENTRE, VIJAYPURA-586103, KARNATAKA

TITLE OF THE PROJECT: "A STUDY OF ULTRASOUND-GUIDED FEMORAL NERVE BLOCK AND FASCIA ILIACA BLOCK FOR POSITIONING FOR CENTRALNEURAXIAL BLOCKADE IN PATIENTS WITH PROXIMAL FEMUR FRACTURE SURGERIES"

PRINCIPAL INVESTIGATOR: **DR. NIRMALKUMAR S**

Department of Anesthesiology

BLDE (Deemed to be University)

Shri B.M Patil Medical College and Research Centre,

Sholapur Road Vijaypura-586103

PG GUIDE DR. RENUKA HOLYACHI

Professor

Department of Anesthesiology

BLDE(Deemed to be University)

Shri B.M Patil Medical College Research Centre,

Sholapur Road Vijaypura-586103

I have been informed that this study is "**“**A Study Of Ultrasound-Guided Femoral Nerve Block And Fascia Iliaca Block For Positioning For Centralneuraxial Blockade In Patients With Proximal Femur Fracture Surgeries” I have been explained about this study in the language which I understand. I have been explained about the reason for doing this study and selecting me/my ward as a subject for this study. I have been told that my participation in the above study is voluntary, and I am aware that I can opt-out of the study at any time without having to give any reasons for doing so. I am also informed that my refusal to participate in this study will not affect my treatment by any means.

I agree to participate in the above study and cooperate fully. I agree to follow the doctor’s instructions about my treatment to the best of my knowledge.

CONFIDENTIALITY:

I understand that medical information produced by this study will become a part of this Hospital records and will be subjected to the confidentiality and privacy regulation of this hospital. Information of a sensitive, personal nature will not be a part of the medical records but will be stored in the investigator's research file and identified only by a code number. The code key connecting the name to numbers will be kept in a separate secure location.

If the data are used for publication in the medical literature or teaching purposes, no names will be used, and other identifiers such as photographs and audio or videotapes will be used only with my special written permission. I understand that I may see the photograph and videotapes and hear audiotapes before giving this permission.

REQUEST FOR MORE INFORMATION:

I understand that I may ask more questions about the study at any time, and Dr NIRMALKUMAR S available to answer my questions or concerns. I understand that I will be informed of any significant new findings discovered during the course of this study, which might influence my continued participation.

If during this study, or later, I wish to discuss my participation or concerns regarding this study with a person not directly involved, I am aware that the social worker of the hospital is available to talk with me and that a copy of this consent form will be given to me for my careful reading.

REFUSAL OR WITHDRAWAL OF PARTICIPATION:

I understand that my participation is voluntary, and I may refuse to participate or may withdraw consent and discontinue participation in the study at any time without prejudice to my present or future care at this hospital.

I also understand that Dr. NIRMALKUMAR S will terminate my participation in this study at any time after she has explained the reasons for doing so and has helped arrange for my continued care by my own physician or therapist.

INJURY STATEMENT:

I understand that in the unlikely event of injury to me/my ward, resulting directly to my participation in this study, if such injury were reported promptly, then medical treatment would be available to me, but no further compensation will be provided.

I understand that by my agreement to participate in this study, I am not waiving any of my legal rights.

I have been explained the purpose of this research, the procedures required, and the possible risks and benefits, in my own language.

I have been explained all the above in detail, and I understand the same. Therefore I agree to give my consent to participate as a subject in this research project.

Patient's Signature: Witness Signature :

Name :

Date :

DR. RENUKA HOLYACHI **DR.NIRMALKUMAR S**

(Guide) (Investigator)

PROFORMA

A STUDY OF ULTRASOUND – GUIDED FEMORAL NERVE BLOCK AND FASCIA ILIACA BLOCK FOR POSITIONING FOR CENTRAL NEURAXIAL BLOCKADE IN PATIENTS WITH PROXIMAL FEMUR FRACTURES SURGERIES

Name: Age/ Sex:

I.P No: DATE

Group allotted by randomization: Group A / Group B

1. Type of surgery:

2. Indication:

Significant History:

General Physical Examination:

Pallor Y/N	Icterus Y/N	Cyanosis Y/N	Clubbing Y/N
Koilonychia Y/N	Lymphadenopathy Y/N	Edema Y/N	Teeth Y/N
Dentures Y/N			

Vital Parameters

Pulse (beats per minute): Blood Pressure:

Respiratory Rate: Temperature:

Systemic Examination

1. CVS 2.RS:

3. C.N.S. 4.Per Abdomen:

Airway Assessment:

Mallampati Grade: Cervical Spine:

Mouth opening: Neck Movement:

A.S.A. Grade:

Investigation

Hemoglobin: TLC:

S. Urea: S. Creatinine:

RBS: Platelet count:

Urine Routine:

Chest Xray: ECG:

Block time:

Anesthesia start time:

Surgery start time:

Surgery end time:

VAS SCORE	VAS SCORE
At Rest	
On Movement	
3 minutes	
5 minutes	
8 minutes	
10 minutes	
15 minutes	

Scoring:

Score 0: Unsatisfactory.

Score 1: Satisfactory

Score 2: Good

Score 3: Optimal

Quality of Patient Positioning	
0	
1	
2	
3	

DR RENUKA HOLYACHI **Dr. NIRMAL KUMAR S**

(Guide) (Investigator)

FEMORAL NERVE BLOCK MASTER CHART:

S NO	NAME	IP NUME	AGE	SEX	DIAGNO	PROCEI	GROUP	VAS SCI	ON MOV	3MIN	5MIN	8MIN	10MIN	15MIN	QUALITY	OF PAT	BLOCK	COMPLICATIONS
1	SIDDAPI	117927	60	MALE	RIGHT	INTERTRO	FNB	4	6	4	3	1	0	0	2	GOOD	3MIN	NO
2	SAHADE	119351	60	MALE	RIGHT	NECK OF F	FNB	4	4	2	2	1	0	0	2	GOOD	4MIN	NO
3	NINGAN	20908	60	MALE	LEFT IN	CRIF WI	FNB	5	4	3	2	2	1	0	2	GOOD	5MIN	NO
4	KASALA	29784	66	FEMALE	LEFT IN	CRIF WI	FNB	3	5	4	3	2	1	0	3	OPTIMA	3MIN	NO
5	KAMALA	307719	60	FEMALE	RIGHT N	BIPOLAI	FNB	4	4	2	1	0	0	0	3	OPTIMA	4MIN	NO
6	SABIN K	304489	35	MALE	RIGHT IN	CRIF WI	FNB	5	4	3	2	1	0	0	3	OPTIMA	5MIN	NO
7	SHRIDH	96233	60	MALE	LEFT IN	CRIF WI	FNB	4	6	4	3	2	1	1	1	SATISFA	7MIN	NO
8	SIDDAPI	117927	66	MALE	RIGHT IN	CRIF WI	FNB	5	6	4	2	1	0	0	3	OPTIMA	5MIN	NO
9	BASAVA	19284	45	MALE	LEFT IN	CRIF WI	FNB	3	4	2	1	0	0	0	2	GOOD	6MIN	NO
10	PARVAT	4E+06	69	FEMALE	RIGHT IN	CRIF WI	FNB	4	5	3	2	1	3	0	3	OPTIMA	5MIN	NO
11	KHATAN	324451	60	FEMALE	RIGHT IN	CRIF WI	FNB	3	6	4	3	2	1	0	2	GOOD	4MIN	NO
12	SUNIL	107208	32	MALE	RIGHT IN	CRIF WI	FNB	4	5	3	2	2	1	0	2	GOOD	3MIN	NO
13	SHRISH	43563	20	MALE	LEFT PF	CRIF WI	FNB	5	5	2	1	0	0	0	2	GOOD	5MIN	NO
14	GUNAB/	200344	69	FEMALE	LEFT NE	BIPOLAI	FNB	3	5	3	2	1	0	0	3	OPTIMA	5MIN	NO
15	BASAMI	394636	66	FEMALE	RIGHT IN	CRIF WI	FNB	3	6	4	3	2	0	0	3	OPTIMA	7MIN	NO
16	SURESH	294051	45	MALE	LEFT IN	CRIF WI	FNB	4	6	4	3	2	1	0	3	OPTIMA	6MIN	NO
17	ANUSYA	333788	70	FEMALE	RIGHT P	BIPOLA	FNB	3	4	3	2	1	0	0	3	OPTIMA	5MIN	NO
18	LALAN S	210939	50	MALE	RIGHT IN	CRIF WI	FNB	4	6	4	2	1	0	0	3	OPTIMA	5MIN	NO
19	SHANTA	206809	55	FEMALE	RIGHT IN	CRIF WI	FNB	3	5	4	3	2	1	0	3	OPTIMA	4MIN	NO
20	HANUM/	22621	60	MALE	LEFT IN	CRIF WI	FNB	3	5	4	3	2	0	0	3	OPTIMA	6MIN	NO
21	SIDRAM	169405	70	MALE	RIGHT IN	CRIF WI	FNB	3	5	4	3	2	1	0	3	OPTIMA	5MIN	NO
22	GANGAI	299306	55	FEMALE	RIGHT P	BIPOLA	FNB	3	6	4	2	1	0	0	3	OPTIMA	4MIN	NO
23	MUBAR/	290843	20	MALE	RIGHT IN	CRIF WI	FNB	4	6	5	4	3	1	0	3	OPTIMA	4MIN	NO
24	ASIF MU	198837	28	MALE	LEFT NE	BIPOLAI	FNB	4	6	5	4	3	2	0	3	OPTIMA	4MIN	NO
25	BASAPF	286299	60	MALE	RIGHT IN	BIPOLAI	FNB	4	6	4	3	2	1	0	3	OPTIMA	5MIN	NO
26	SIDDALI	301000	58	FEMALE	LEFT NE	BIPOLAI	FNB	4	7	5	3	2	1	0	3	OPTIMA	5MIN	NO
27	BASALI	368701	60	FEMALE	LEFT IN	CRIF WI	FNB	4	4	2	2	1	0	0	2	GOOD	5MIN	NO
28	GURUP/	368603	60	MALE	LEFT IN	CRIF WI	FNB	3	4	2	1	1	0	0	3	OPTIMA	6MIN	NO
29	GANGAI	374836	70	MALE	RIGHT IN	CRIF WI	FNB	4	5	4	2	2	0	0	2	GOOD	5MIN	NO
30	BASALI	137058	65	FEMALE	RIGHT IN	CRIF WI	FNB	4	6	5	4	3	2	0	2	GOOD	7MIN	NO
31	SHANTI	374779	70	FEMALE	LEFT IN	CRIF WI	FNB	4	6	4	3	2	0	0	3	OPTIMA	6MIN	NO
32	DHANAE	110892	65	FEMALE	LEFT NE	BIPOLAI	FNB	5	6	5	4	2	1	0	3	OPTIMA	5MIN	NO
33	KANTHA	304246	65	FEMALE	RIGHT P	BIPOLAI	FNB	4	6	4	3	2	0	0	3	OPTIMA	5MIN	NO
34	VEERAC	89487	70	MALE	LEFT NE	BIPOLAI	FNB	3	6	4	3	2	0	0	3	OPTIMA	5MIN	NO
35	LAXMI	186433	65	FEMALE	LEFT IN	CRIF WI	FNB	3	6	5	4	2	0	0	3	OPTIMA	3MIN	NO
36	SUMITHI	358459	70	FEMALE	LEFT NE	BIPOLAI	FNB	3	5	4	3	2	1	0	3	OPTIMA	4MIN	NO
37	ADEVAF	233545	70	MALE	RIGHT IN	CRIF WI	FNB	4	6	5	4	2	1	0	3	OPTIMA	5MIN	NO
38	MALIKAI	223628	55	MALE	RIGHT IN	CRIF WI	FNB	3	5	4	3	2	0	0	3	OPTIMA	4MIN	NO
39	MALLAF	209857	65	MALE	LEFT IN	CRIF WI	FNB	2	5	4	3	2	1	0	3	OPTIMA	5MIN	NO
40	YALLAV	213781	70	FEMALE	LEFT NE	BIPOLAI	FNB	3	6	3	2	1	0	0	2	GOOD	6MIN	NO
41	DHAREF	36290	70	MALE	RIGHT N	BIPOLAI	FNB	3	5	4	3	2	1	0	3	OPTIMA	5MIN	NO
42	KANTUI	34421	64	FEMALE	RIGHT IN	CRIF WI	FNB	3	4	3	2	1	0	0	2	GOOD	5MIN	NO
43	BHIVAS	325785	62	MALE	LEFT NE	BIPOLAI	FNB	3	4	3	2	1	0	0	3	OPTIMA	4MIN	NO
44	SHARAI	330739	62	FEMALE	RIGHT IN	CRIF WI	FNB	3	6	4	3	2	1	0	3	OPTIMA	3MIN	NO
45	BHIMRO	333288	70	MALE	RIGHT N	BIPOLAI	FNB	3	4	3	2	0	0	0	3	OPTIMA	6MIN	NO

FASCIA ILIACA COMPARTMENT BLOCK:

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
NO	NAME	IP NO	AGE	SEX	DIAGNO	PROCEI	FICB	AT RES	ON MOV	3MIN	5MIN	8MIN	10 MIN	15MIN	QUALIT	PATIEN	BLOCK	COMPLICATIONS	
1	SUNIL	107208	32	MALE	RIGHT IN	ORIF W	FICB	4	6	4	3	2	2	2	1	UNSATI	5MIN	NO	
2	KASHIB	309264	55	FEMALE	RIGHT IN	CRIF W	FICB	5	6	4	3	2	1	0	2	GOOD	4MIN	NO	
3	NINGAN	20908	60	MALE	LEFT IN	CRIF W	FICB	2	4	3	2	0	0	0	2	GOOD	5MIN	NO	
4	NARSIN	27623	60	MALE	RIGHT IN	CRIF W	FICB	5	6	5	4	2	1	0	3	OPTIMA	6MIN	NO	
5	SAHADE	119351	58	MALE	RIGHT IN	CRIF W	FICB	4	6	4	3	2	1	0	3	OPTIMA	4MIN	NO	
6	DHANAE	110892	60	FEMALE	LEFT NE	HEMIOF	FICB	4	3	2	2	0	0	0	2	GOOD	3MIN	NO	
7	SHRISH	43563	20	MALE	LEFT PF	BIPOLA	FICB	4	6	4	3	3	2	2	0	UNSATI	7MIN	NO	
8	ASHABI	31359	60	FEMALE	RIGHT IN	CRIF W	FICB	5	6	5	4	3	2	0	2	OPTIMA	5MIN	NO	
9	BASAVA	19611	58	MALE	RIGHT IN	CRIF W	FICB	2	4	2	2	0	0	0	2	GOOD	4MIN	NO	
10	YALAGL	207027	48	MALE	LEFT IN	CRIF W	FICB	2	4	2	2	0	0	0	2	GOOD	3MIN	NO	
11	YALAGL	266737	34	MALE	RIGHT F	BIPOLA	FICB	2	4	2	2	1	1	1	1	SATISF	7MIN	NO	
12	SADDAI	204204	30	MALE	RIGHT F	BIPOLA	FICB	4	6	4	3	2	2	1	1	SATISF	6MIN	NO	
13	JALEND	203204	30	MALE	RIGHT N	BIPOLA	FICB	4	6	4	3	3	2	2	0	UNSATI	7MIN	NO	
14	HANAM	30391	60	MALE	RIGHT IN	CRIF W	FICB	4	6	4	4	3	2	2	0	UNSATI	5MIN	NO	
15	SHIVAB	294622	60	FEMALE	RIGHT IN	CRIF W	FICB	3	5	4	3	2	0	0	2	GOOD	4MIN	NO	
16	MALLAF	296094	60	MALE	RIGHT IN	CRIF W	FICB	4	5	4	3	2	0	0	3	OPTIMA	3MIN	NO	
17	SUBASH	293143	52	MALE	RIGHT IN	CRIF W	FICB	3	5	3	2	1	0	0	3	OPTIMA	3MIN	NO	
18	SHRISH	43563	20	MALE	4 DAY O	BIPOLA	FICB	4	6	4	3	2	0	0	2	GOOD	5MIN	NO	
19	YALLAV	29103	65	FEMALE	LEFT IN	CRIF W	FICB	5	7	5	4	3	2	1	1	SATISF	6MIN	NO	
20	VIMALA	58231	71	FEMALE	LEFT IN	CRIF W	FICB	4	5	3	2	1	0	0	2	GOOD	4MIN	NO	
21	MAHADE	25440	55	MALE	RIGHT S	BIPOLA	FICB	4	5	4	3	2	1	0	2	GOOD	6MIN	NO	
22	SANDEE	311481	22	MALE	RIGHT F	BIPOLA	FICB	4	6	5	4	3	2	2	0	UNSATI	7MIN	NO	
23	YALLAF	313062	38	FEMALE	RIGHT IN	CRIF W	FICB	6	7	5	4	3	2	2	1	SATISF	6MIN	NO	
24	SHANTA	194720	65	FEMALE	LEFT NE	BIPOLA	FICB	3	6	4	3	2	1	0	3	OPTIMA	4MIN	NO	
25	BASAVA	190600	52	MALE	LEFT IN	CRIF W	FICB	5	6	4	3	2	0	0	3	OPTIMA	5MIN	NO	
26	IRAVVA	187477	70	FEMALE	RIGHT N	BIPOLA	FICB	4	6	4	3	2	1	0	3	OPTIMA	3MIN	NO	
27	PUTALA	177002	70	FEMALE	RIGHT IN	CRIF W	FICB	4	4	3	2	2	2	1	0	UNSATI	7MIN	NO	
28	PARVAT	368521	55	FEMALE	RIGHT N	BIPOLA	FICB	5	6	4	4	3	2	2	1	SATISF	5MIN	NO	
29	SUNITH	324102	30	FEMALE	RIGHT N	BIPOLA	FICB	3	5	4	3	2	1	0	3	OPTIMA	2MIN	NO	
30	UDAYKU	324202	50	MALE	RIGHT F	BIPOLA	FICB	4	6	4	3	3	1	1	2	SATISF	6MIN	NO	
31	MUMTA	140375	55	FEMALE	RIGHT F	BIPOLA	FICB	2	4	2	1	1	0	0	3	OPTIMA	4MIN	NO	
32	MALLIN	2049067	65	MALE	RIGHT	NECK OF	FICB	4	6	4	2	1	0	0	2	GOOD	4MIN	NO	
33	MALLIK	107301	48	MALE	RIGHT	PROXIMA	FICB	3	4	2	2	1	0	0	3	OPTIMA	3MIN	NO	
34	BADU CI	183641	59	MALE	LEFT IN	CRIF W	FICB	5	6	4	3	2	1	0	2	GOOD	4MIN	NO	
35	GUNABA	200344	70	FEMALE	LEFT IN	CRIF W	FICB	4	6	3	2	1	0	0	2	GOOD	3MIN	NO	
36	SHIVA E	199385	70	FEMALE	RIGHT IN	CRIF W	FICB	3	4	2	2	0	0	0	2	GOOD	3MIN	NO	
37	SHAKUI	138248	62	FEMALE	RIGHT IN	CRIF W	FICB	4	5	3	2	1	0	0	2	GOOD	3MIN	NO	
38	NAGARA	196061	54	MALE	LEFT IN	CRIF W	FICB	5	6	4	3	2	1	0	3	OPTIMA	4MIN	NO	
39	SOMASI	192757	39	MALE	LEFT IN	CRIF W	FICB	3	5	4	3	2	1	0	2	GOOD	3MIN	NO	
40	GAJANA	191431	53	MALE	RIGHT IN	CRIF W	FICB	4	5	3	2	1	0	0	3	OPTIMA	5MIN	NO	
41	SANGAI	186713	64	FEMALE	RIGHT S	CRIF W	FICB	4	5	2	1	0	0	0	3	OPTIMA	4MIN	NO	
42	KARAN	189405	25	MALE	RIGHT F	BIPOLA	FICB	4	5	4	3	2	0	0	3	OPTIMA	4MIN	NO	
43	NAGAMI	181702	70	FEMALE	RIGHT IN	CRIF W	FICB	4	6	4	3	2	1	0	2	GOOD	3MIN	NO	
44	ASHABI	313596	70	FEMALE	RIGHT IN	CRIF W	FICB	5	6	4	3	2	1	0	2	GOOD	6MIN	NO	
45	KASTUF	314767	70	FEMALE	RIGHT N	BIPOLA	FICB	4	6	4	3	2	0	0	3	OPTIMA	3MIN	NO	

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