

## Original Research

### Combined popliteal and saphenous nerve block vs NSAIDS for post-operative analgesia in knee surgery patients- A comparative study

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#### ABSTRACT:

**Background:** A local anesthetic is injected close to the popliteal nerve and its branches, which are situated in the back of the knee, in a procedure known as a popliteal blockade or popliteal nerve block. The present study was conducted to compare combined popliteal and saphenous nerve block vs NSAIDS for post operative analgesia in knee surgery patients. **Materials & Methods:** 60 patients scheduled for knee surgeries of both genders were divided into 2 groups of 30 each. Group I patients received a combined popliteal and saphenous nerve block and group II received intravenous NSAIDs at the end of the surgical procedure. Parameters such as time for first rescue analgesia, total diclofenac requirement, total anti-emetic requirement, post-operative VAS score, and adverse events were recorded. **Results:** The mean weight was 59.3 kgs and 60.2 kgs, height was 164.3 cms and 161.8 cms, and duration of surgery was 64.1 minutes and 57.7 minutes in group I and II respectively. The difference was non-significant ( $P > 0.05$ ). The analgesic requirement for the first time was 538.1 minutes and 314.5, VAS at the time of first analgesic requirement was 4.82 and 6.52, total consumption of diclofenac within 24 hours was 121.4 and 274.8 and post-operative score for nausea and vomiting was 1.3 and 1.9 in group I and II respectively. The difference was significant ( $P < 0.05$ ). **Conclusion:** For individuals who have knee procedures, combined popliteal and saphenous nerve block provide noticeably superior postoperative pain management than NSAIDS.

**Keywords:** popliteal blockade, saphenous nerve block, NSAIDS

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#### INTRODUCTION

A local anesthetic is injected close to the popliteal nerve and its branches, which are situated in the back of the knee, in a procedure known as a popliteal blockade or popliteal nerve block. A popular usage for this nerve block is to anesthetize and relieve discomfort during lower limb, foot, and ankle surgeries.<sup>1</sup> In some medical situations, it can also be used to manage pain. The saphenous nerve, a superficial terminal extension of the femoral nerve, supplies cutaneous innervations to the medial leg below the knee. The addition of a saphenous nerve block may be necessary for surgery, depending on the degree of the procedure.<sup>2</sup>

A local anesthetic is injected close to the saphenous nerve during a saphenous nerve block, a type of regional anesthesia.<sup>3</sup> The skin on the medial (inside) side of the lower leg and foot receives sensory innervation from the saphenous nerve, a branch of the

femoral nerve.<sup>4</sup> This nerve block is frequently used to manage pain in specific medical disorders as well as to provide anesthesia and pain relief for surgical operations involving the medial aspect of the lower leg and foot. NSAIDs have been demonstrated to be useful in orthopedic surgery; by reducing pain and inflammation, they enable patients to have a greater range of motion in their knees, resulting in a reduced duration of physical therapy.<sup>5</sup> The present study was conducted to compare combined popliteal and saphenous nerve block vs NSAIDS for post operative analgesia in knee surgery patients.

#### MATERIALS & METHODS

The present study consisted of 60 patients scheduled for knee surgeries of both genders. All gave their written consent to participate in the study.

Data such as name, age, gender, etc. was recorded. Patients were divided into 2 groups of 30 each. Group

I patients received a combined popliteal and saphenous nerve block and group II received intravenous NSAIDs at the end of the surgical procedure. Parameters such as time for first rescue analgesia, total diclofenac requirement, total anti-

emetic requirement, post-operative VAS score, and adverse events were recorded. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

**RESULTS**

**Table I Baseline parameters**

| Groups                       | Group I | Group II | P value |
|------------------------------|---------|----------|---------|
| Weight (kg)                  | 59.3    | 60.2     | 0.83    |
| Height (cm)                  | 164.3   | 161.8    | 0.47    |
| Duration of surgery (months) | 64.1    | 57.7     | 0.05    |

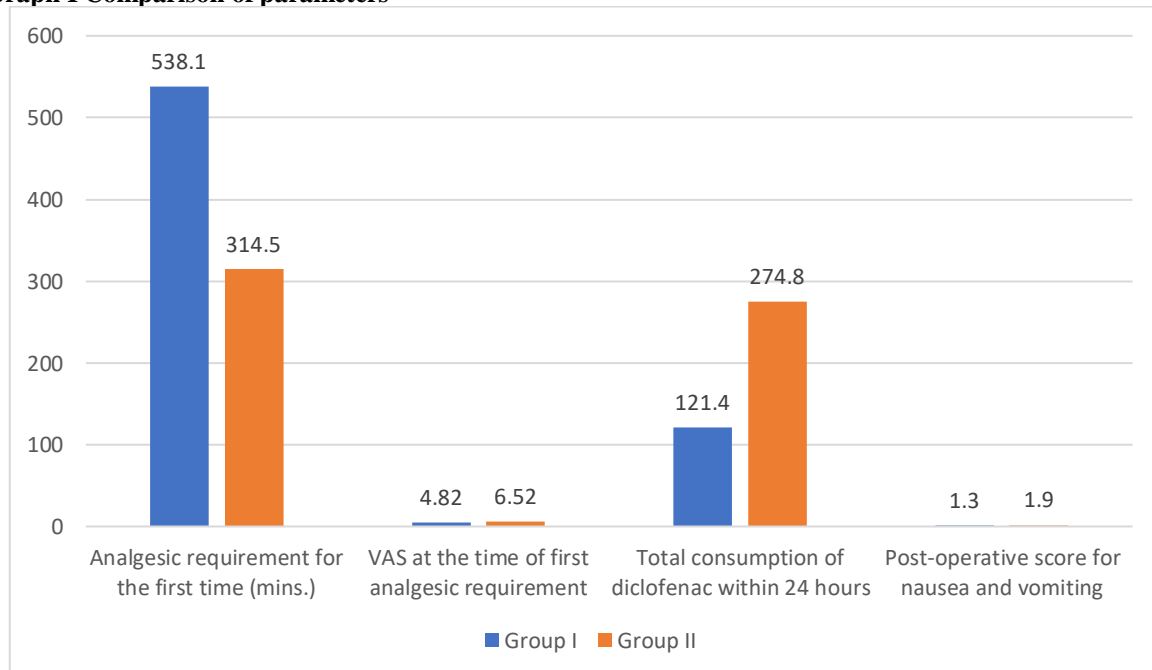
Table I shows that mean weight was 59.3 kgs and 60.2 kgs, height was 164.3cms and 161.8cms, duration of surgery was 64.1months and 57.7months in group I and II respectively. The difference was non-significant (P>0.05).

**Table II Comparison of parameters**

| Parameters                                      | Group I | Group II | P value |
|---|---------|----------|---------|
| Analgesic requirement for the firsttime (mins.) | 538.1   | 314.5    | 0.01    |
| VAS at the time of first analgesicrequirement   | 4.82    | 6.52     | 0.02    |
| Total consumption of diclofenac within 24 hours | 121.4   | 274.8    | 0.03    |
| Post-operative score for nausea and vomiting    | 1.3     | 1.9      | 0.05    |

Table II, graph I show that the analgesic requirement for the first timewas 538.1minutes and 314.5, VAS at the time of first analgesicrequirement was 4.82 and 6.52, total consumption of diclofenac within 24 hours was 121.4 and 274.8 and post-operative score for nausea and vomiting was 1.3 and 1.9 in group I and II respectively. The difference was significant (P< 0.05).

**Graph I Comparison of parameters**



**DISCUSSION**

Procedures including ankle, foot, and some knee surgeries involving the medial part of the leg sometimes use saphenous nerve blocks. In addition to providing regional pain relief, they may lessen the requirement for systemic painkillers. Like any medical operation, saphenous nerve blocks carry some risks and problems.<sup>6,7</sup> These include the possibility of infection, hemorrhage, injury to nerves, and allergic

responses to the local anesthetic. Before undergoing a saphenous nerve block, it is crucial to discuss with your healthcare professional the possible advantages, dangers, and available options.<sup>8</sup>The present study was conducted to compare combined popliteal and saphenous nerve block vs NSAIDs for post-operative analgesia in knee surgery patients.

We found that the mean weight was 59.3 kgs and 60.2 kgs, height was 164.3 cms and 161.8 cms, and

duration of surgery was 64.1 months and 57.7 months in group I and II respectively. Capdevila et al<sup>9</sup> in their study patients scheduled to undergo orthopedic surgery performed with continuous peripheral nerve block (CPNB) were included. Efficacy of postoperative analgesia, bacteriologic cultures of the catheter, and acute neurologic and infectious adverse events were evaluated after surgery in 1,416 patients at arrival in the post-anesthesia care unit, at hour 1, and every 24 hours up to day 5.56 hours was the median length of CPNB. For 73.6 percent of the patients, both CPNB and general anesthesia were administered. While 96.3% of patients experienced appropriate postoperative analgesia, there was a rise in pain levels at hour 24 ( $P = 0.01$ ). 1.5% experienced paresthesia, and 3% and 2.2%, respectively, experienced hypoesthesia or numbness. Following a continuous femoral nerve block, three neural lesions (0.21%) were observed. A block method was used to anesthetize two of these patients. Three hours to ten weeks later, the nerve injury had fully healed. 28.7% of the catheters had positive cultures. There were symptoms of local inflammation in 3% of the individuals. Gram-negative bacillus (21.6%) and coagulase-negative staphylococcus (61%) were the most commonly detected bacterial species. One diabetic woman had a *Staphylococcus aureus* psoas abscess (0.07%). One diabetic woman had a *Staphylococcus aureus* psoas abscess (0.07%). Age under 40 years old, use of bupivacaine, and postoperative monitoring in intensive care were independent risk factors for paresthesia/dysesthesia. Male sex, catheterization for longer than 48 hours, postoperative monitoring in intensive care, and lack of antibiotic prophylaxis were risk factors for local inflammation/infection.

We observed that the analgesic requirement for the first time was 538.1 minutes and 314.5, VAS at the time of first analgesic requirement was 4.82 and 6.52, total consumption of diclofenac within 24 hours was 121.4 and 274.8 and post-operative score for nausea and vomiting was 1.3 and 1.9 in group I and II respectively. Paul et al<sup>10</sup> compared the analgesia outcomes in randomized controlled trials that compared FNB (with and without sciatic nerve block) with epidural and patient-controlled analgesia (PCA). They identified 23 randomized controlled trials that compared FNB with PCA or epidural analgesia. These studies included 1,016 patients, 665 with FNB, 161 with epidural, and 190 with PCA alone. All 10 studies of single-shot FNB (SSFNB) used concurrent PCA opioids. SSFNB was found to reduce PCA morphine consumption at 24 h (-19.9 mg, 95% credible interval [CrI]: -35.2 to -4.6) and 48 h (-38.0 mg, 95% CrI: -56.0 to -19.7), pain scores with activity (but not at rest) at 24 and 48 h (-1.8 visual analog pain scale, 95% CrI: -3.3 to -0.02 at 24 h; -1.5 visual analog pain scale, 95% CrI: -2.9 to -0.02 at 48 h) and reduce the

incidence of nausea (0.37 odds ratio, 95% CrI: 0.1 to 0.9) compared with PCA alone. SSFNB had similar morphine consumption and pain scores compared with SSFNB plus sciatic nerve block, and SSFNB plus continuous FNB.

The limitation of the study is the small sample size.

## CONCLUSION

Authors found that for individuals who have knee procedures, combined popliteal and saphenous nerve block provide noticeably superior postoperative pain management than NSAIDs.

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