ORIGINAL RESEARCH

Comparison of combined popliteal and saphenous nerve block vs NSAIDS for post operative analgesia in below knee surgery patients

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Received: 14 January, 2022 Accepted: 19 February, 2022

ABSTRACT
Background: A popliteal blockade involves the injection of a local anesthetic near the popliteal nerve and its branches, which are located at the back of the knee. The present study was conducted to compared combined popliteal and saphenous nerve block vs NSAIDS for post operative analgesia in below knee surgery patients. **Materials & Methods:** 50 patients scheduled for knee and below knee surgeriesof both genderswere divided into 2 groups of 25 each. Group I patients received a combined popliteal and saphenous nerve block and group II received intravenous NSAIDS at the end of surgical procedure. Post operative VAS score, time for first rescue analgesia, total diclofenac requirement, total anti-emetic requirement and complication **Results:** The mean weight was 57.3 kgs and 58.2 kgs, height was 161.3cms and 162.5cms, duration of surgery was 62.5months and 56.4months and SA grade (I/II/III) was seen in 20/5 and 19/6 in group I and II respectively. The difference was non- significant (P>0.05). Analgesic requirement for the first time (mins.) was 652.1 and 290.5, VAS at time of first analgesicrequirement was 4.62 and 6.85, total consumption of diclofenac within 24 hours was 124.3 and 224.8 and post-operative score for nausea and vomiting was 1.2 and 1.9. The difference was significant (P< 0.05). **Conclusion:** Combined popliteal and saphenous nerve block provides significantly better postoperative pain relief than NSAIDS in patients who underwent below knee surgeries.
Key words: popliteal blockade, saphenous nerve block, NSAIDS

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INTRODUCTION

A popliteal blockade, also known as a popliteal nerve block, is a regional anesthesia technique that involves the injection of a local anesthetic near the popliteal nerve and its branches, which are located at the back of the knee.[1] This nerve block is commonly used to provide pain relief and anesthesia for surgical procedures involving the lower leg, foot, and ankle. It can also be used for pain management in certain medical conditions.[2]Cutaneous innervations of the medial leg below the knee is provided by the saphenous nerve, a superficial terminal extension of the femoral nerve. Depending on the level of surgery, the addition of a saphenous nerve block may be required for surgery.[3]

A saphenous nerve block is a regional anesthesia technique that involves the injection of a local anesthetic near the saphenous nerve. The saphenous nerve is a branch of the femoral nerve, and it provides sensory innervation to the skin on the medial (inner) side of the lower leg and foot.[4] This nerve block is commonly used to provide pain relief and anesthesia for surgical procedures involving the medial aspect of the lower leg and foot, as well as for managing pain in certain medical conditions.NSAIDs have been shown to be effective in orthopedic surgery; they decrease pain and inflammation, therefore allowing patients to have an increased knee range of motion, leading to a shorter period of physical therapy.[5]The present study was conducted to compared combined popliteal and

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saphenous nerve block vs NSAIDS for post operativeanalgesia in below knee surgery patients.

MATERIALS & METHODS

The present study consisted of 50 patients scheduled for knee and below knee surgeriesof 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 25 each. Group I patients received a combined popliteal and saphenous nerve block and group II received intravenous NSAIDS at the end of surgical procedure. Post operative VAS score, time for first rescue analgesia, total diclofenac requirement, total anti-emetic requirement and complication.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)	57.3	58.2	0.92
Height (cm)	161.3	162.5	0.84
Duration of surgery (months)	62.5	56.4	0.05
SA Grade (I/II/III)	20/5	19/6	0.16

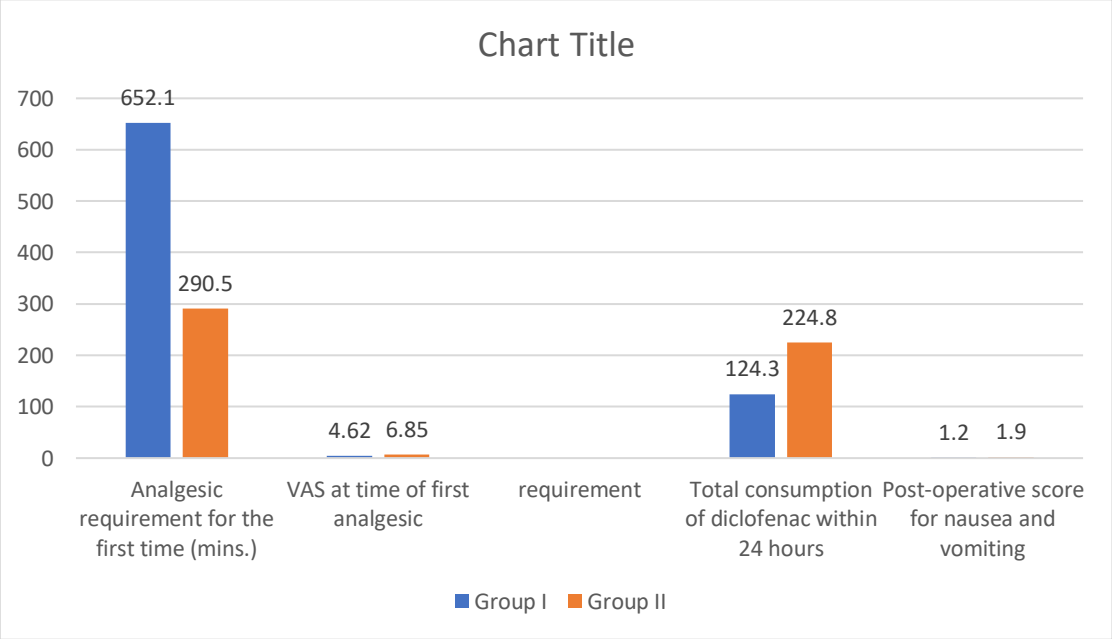
Table I shows that mean weight was 57.3 kgs and 58.2 kgs, height was 161.3cms and 162.5cms, duration of surgery was 62.5monthsand 56.4months and SA grade (I/II/III) was seen in 20/5 and 19/6 in group I and II respectively. The difference was non- significant (P>0.05).

Table II Comparison of parameters

Parameters	Group I	Group II	P value
Analgesic requirement for the firsttime (mins.)	652.1	290.5	0.01
VAS at time of first analgesic requirement	4.62	6.85	0.04
Total consumption of diclofenac within 24 hours	124.3	224.8	0.01
Post-operative score for nausea and vomiting	1.2	1.9	0.05

Table II, graph I shows that analgesic requirement for the first time (mins.) was 652.1 and 290.5, VAS at time of first analgesicrequirement was 4.62 and 6.85, total consumption of diclofenac within 24 hours was 124.3 and 224.8 and post-operative score for nausea and vomiting was 1.2 and 1.9. The difference was significant (P< 0.05).

Graph I Comparison of parameters



DISCUSSION

Saphenous nerve blocks are commonly used for procedures such as ankle surgery, foot surgery, and some knee surgeries involving the medial aspect of the leg. They offer localized pain relief and can reduce the need for systemic pain medications.[6] As with any medical procedure, there are potential risks and complications associated with saphenous nerve blocks, including infection, bleeding, nerve damage, and allergic reactions to the local anesthetic.[7]It's

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important to discuss the potential benefits, risks, and alternatives of a saphenous nerve block with your healthcare provider before undergoing the procedure.[8]
The present study was conducted to compared combined popliteal and saphenous nerve block vs NSAIDS for post operative analgesia in below knee surgery patients.
We found that mean weight was57.3 kgs and 58.2 kgs, height was 161.3cms and 162.5cms, duration of surgery was 62.5months and 56.4months and SA grade (I/II/III)was seen in 20/5 and 19/6 in group I and II respectively. Gupta et al[9]compared the efficacy of combined popliteal and saphenous nerve block with NSAIDS for postoperative pain relief in below knee surgery patients. All patients underwent an elective orthopaedic procedure below knee under spinal anaesthesia. Thirty- five patients had received a combined popliteal and saphenous nerve block and the rest thirty-five received intravenous NSAIDS at the end of surgical procedure. Patients with a combined popliteal and saphenous nerve block had significantly less pain at six hours, twelve hours and twenty- four hours.
We found that analgesic requirement for the first time (mins.) was 652.1 and 290.5, VAS at time of first analgesicrequirement was 4.62 and 6.85, total consumption of diclofenac within 24 hours was 124.3 and 224.8 and post-operative score for nausea and vomiting was 1.2 and 1.9. Seo et al[10]compared adductor canal block (ACB) alone and a combination of ACB and sciatic nerve block (SNB) to control early postoperative pain after total knee arthroplasty.One hundred patients received continuous ACB alone (group A), and another 100 patients received continuous ACB and single popliteal SNB (group B). Pain was evaluated at rest and 45° knee flexion using the numeric rating scale (NRS). The number of times the patient pressed the intravenous patient-controlled analgesia (PCA) button, total PCA volume infused, and the total dosage of additional analgesics were evaluated. We also investigated complications associated with each pain control technique.The NRS score on postoperative day 1 was significantly lower in group B than in group A. The number of times patients pressed the PCA button on postoperative day 1 and the total infused volume were significantly lower in group B than in group A. Thirty-five (35%) patients in group B developed foot drop immediately after surgery; but they all fully recovered on postoperative day 1.
The limitation the study is small sample size.

CONCLUSION

Authors found that combined popliteal and saphenous nerve block provides significantly better postoperative pain relief than NSAIDS in patients who underwent below knee surgeries.

REFERENCES

1. Klein SM, Nielsen KC, Greengrass RA. Ambulatory discharge after long-acting peripheral nerve blockade: 2382 blocks with ropivacaine. AnesthAnalg. 2002;94:65–70.
2. Sites BD, Taenzer AH, Herrick MD. Incidence of local anesthetic systemic toxicity and postoperative neurologic symptoms associated with 12,668 ultrasound-guided nerve blocks: an analysis from a prospective clinical registry. Reg Anesth Pain Med. 2012;37:478–82. 6.
3. Jeng CL, Torrillo TM. Rosenblatt MA Complications of peripheral nerve blocks. Br J Anaesth. 2010;105(1):97–107.
4. Capdevila X, Pirat P, Bringuier S. Continuous peripheral nerve blocks in hospital wards after orthopedic surgery: a multicenter prospective analysis of the quality of postoperative analgesia and complications in 1,416 patients. Anesthesiology. 2005;103:1035–45.
5. Christopherson R, Beattie C. Perioperative morbidity in General or Regional anaesthesia for lower extremity surgery. Anaesthesiology. 1993;179:422–434.
6. Fischer HBJ. Acute pain relief - The role of regional anaesthesia. CACC. 1995;6(2):422.
7. Hassan A, Paschou V, Sethuraman R. The role of Popliteal and Saphenous nerve blocks in postoperative pain relief, in ankle replacement surgery. World Congress on Regional Anesthesia & Pain Medicine. 2018;.
8. Xu J, Chen XM, Ma CK, Wang XR. Peripheral nerve blocks for postoperative pain after major knee surgery. Cochrane Database of Systematic Reviews. 2014;(12).
9. Gupta A, Maheshwari S, Saxena AK, Mishra S, Pandey A. Combined popliteal and saphenous nerve block vs NSAIDS for post operative analgesia in below knee surgery patients: A cross-sectional study. Indian J Clin Anaesth 2021;8(4):556-560.
10. Seo JH, Seo SS, Kim DH, Park BY, Park CH, Kim OG. Does combination therapy of popliteal sciatic nerve block and adductor canal block effectively control early postoperative pain after total knee arthroplasty?. Knee Surgery & Related Research. 2017 Dec;29(4):276.

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