

# Sciatic Nerve Block for Total-Knee Replacement: Is it Really Necessary in All Patients?

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To the Editor:

We have read with great interest the study by Pham-Dang et al.<sup>1</sup> about the value of adding a sciatic block to continuous femoral block for analgesia after total-knee replacement (TKR). Although we agree that some patients have severe pain that originates from the sciatic territory and that in such cases, a sciatic nerve block can be very useful, we advise caution about the routine use of sciatic block in all patients before TKR.

Sciatic nerve injury after TKR is a well-established complication with an overall incidence of 0.2% to 2.4%.<sup>2-4</sup> Some risk factors, such as valgus deformity  $\geq 10^\circ$ , total tourniquet time  $\geq 120$  minutes, preexisting neuropathy, and postoperative bleeding, have been described.<sup>2</sup> Moreover, electromyographic study done before and after TKR shows almost 30% incidence of new neural damage<sup>4</sup> that is undetectable clinically, which thus illustrates the vulnerability of the sciatic nerve in knee surgery. Furthermore, in one study, half of the sciatic-nerve injuries show incomplete recovery after 5 years.<sup>3</sup> However, surgical treatment of nerve palsy after TKR could possibly improve the prognosis of such injuries.<sup>5</sup>

Considering that knee surgery can place significant stress on the sciatic nerve and that blood supply to the nerve can be decreased by additional perioperative factors such as tourniquet use, vasoconstrictor use, and intraneural injection, we believe that significant benefits should outweigh the risks related to sciatic nerve block before TKR. Not only could preoperative sciatic nerve block theoretically increase risk of neural injury but, most importantly, also could delay diagnosis and treatment of that injury. Thus, the question: Do all patients benefit from combined femoral-sciatic nerve block preoperatively in TKR?

In our institution, we use perioperative continuous femoral nerve block to provide analgesia after TKR. We inject 20 mL of 0.75% ropivacaine preoperatively and use a PCA pump to deliver ropivacaine 0.2% with the following program: 3 to 5 mL/h infusion, 5-mL bolus, and 30-minute

lockout. Unless contraindicated, the patient systematically receives paracetamol, intravenously, 1 g every 6 hours and ketoprofen, intravenously, 100 mg every 12 hours. Breakthrough pain (VAS > 3) is treated with oral tramadol or intravenous morphine. Patients with severe pain (VAS ≥ 6) in the PACU receive single-shot lateral sciatic nerve block with 20 mL of 0.75% ropivacaine after integrity of the sciatic nerve is ensured. We retrospectively reviewed the last 200 TKR procedures performed in a 15-month period and found the following: 25 patients (12.5%) needed addition of a sciatic nerve block in PACU; the mean consumption of morphine in PACU was 6.9 mg; and mean consumption of tramadol and morphine over the next 48 hours was 108.0 mg and 9.1 mg, respectively. The mean VAS scores at 2, 4, 12, 24, and 48 hours were 2.2, 1.7, 1.6, 1.8, and 1.3, respectively. Patients assessed the quality of their postoperative analgesia as 3.7 out of 4 (1 = totally unsatisfied, 4 = totally satisfied).

In their study, Pham-Dang et al.<sup>1</sup> showed that in the continuous femoral nerve group, the mean VAS (crude value) dropped below 3 between 2 and 6 hours postoperatively and never rose above that level for the rest of the study period, despite relatively low use of rescue morphine. The somewhat higher pain score observed in their continuous femoral block group, as compared with our results, may be explained by the small percentage of patients with severe pain from the sciatic territory, who received sciatic nerve block in PACU at our institution.

Our data show that good quality postoperative analgesia after TKR could be achieved with continuous femoral nerve block and multimodal analgesia, while avoiding sciatic nerve block and its associated risks in more than 85% of patients. Clinicians should consider the risk-to-benefit ratio of routine sciatic nerve block in their analgesia protocol, particularly in patients at higher risk for sciatic nerve injury after TKR, as defined by Horlocker et al.<sup>2</sup> in their retrospective review.

## References

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