What Are the Best Approaches to Postoperative Pain Management After Total Hip Replacement Surgery?

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Total hip arthroplasty (THA), with more than 400,000 cases performed annually worldwide, is a common procedure that improves the quality of life of patients with hip pain [1]. As THA is associated with moderate or high pain intensity [2], adequate postoperative pain management without side effects enables early ambulation, facilitates functional recovery, and reduces patient morbidity [1,3].

Peripheral nerve blocks are widely used for postoperative pain management after THA. Clinicians must thus have a clear understanding of the distribution of nerves in the hip joints. The hip joint is innervated by the articular branches of the femoral nerve, obturator nerve, and nerve to the quadriceps femoris. The superior gluteal, inferior gluteal, accessory obturator, and sciatic nerves also contribute to the innervation of the hip joint [4]. The anterior capsule and superior labrum, which have a higher density of nociceptors and mechanoreceptors, appear to be the sources of pain [4]. However, the mechanism of hip joint pain has not yet been clearly identified, and controlling pain with peripheral nerve blocks after THA may be more difficult due to the distribution of multiple nerves to the hip joint. Therefore, various postoperative pain control methods have been used to block the nerves that innervate the hip joint. Additionally, as motor block affects early ambulation, performing only sensory blocks that do not affect muscle strength is helpful for postoperative recovery. Among the various pain control methods after THA, the pericapsular nerve group (PENG) block and quadratus lumborum block (QLB) are used to avoid motor block [5-7].

In this issue of the *Korean Journal of Anesthesiology*, a study comparing the PENG block (PENG group), intra-articular injection (IA group), and QLB (QLB group) for postoperative pain control in patients undergoing primary total hip replacement surgery was reported by Et and Korkusuz [8]. A total of 89 patients were included in the analysis: 30 in the PENG group, 30 in the QLB group, and 29 in the IA group. The dynamic Numerical Rating Scale (NRS) scores at 3 h postoperatively were significantly lower in the PENG and QLB groups than in the IA group (P = 0.002 and P = 0.036,
respectively). At 6 h postoperatively, both the static and dynamic NRS scores in the IA group were
significantly higher than those in the PENG (P = 0.005 and P < 0.001, respectively) and QLB (P =
0.017 and P = 0.002, respectively) groups. The median (interquartile range [IQR]) time to first opioid
requirement was longer in the PENG (11 [8–14] h) and QLB (11 [6–14] h) groups than in the IA
group (7 [5–8] h) (P = 0.009 and P = 0.016, respectively). The frequency of quadriceps muscle
paralysis 3 h postoperatively was 23.3%, 63.3%, and 34.5% in the PENG, QLB, and IA groups,
respectively (P = 0.019). Postoperative mean time to mobilization was 13.2 ± 4.4 h in the PENG
group, 17.3 ± 4.9 h in the QLB group, and 15.3 ± 6.1 h in the IA group (P = 0.011). No significant
differences between the groups with respect to the Quality of Recovery-40 (QoR-40) score, patient
satisfaction, or complications were noted.

These findings suggest that the PENG and QLB techniques may provide superior postoperative
pain control at 6h postoperatively, delay opioid requirements compared to IA injection, and only
PENG technique facilitates early mobilization. However, the choice between PENG and QLB should
be made considering factors such as muscle strength and opioid consumption, and further research is
needed to determine the safety and efficacy of peripheral nerve blocks in the context of enhanced
recovery after surgery (ERAS) in THA.

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References


