

Pericapsular Nerve Group Block Effectively Controls Pain After Hip Arthroscopy: A Systematic Review

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INTRODUCTION: The pericapsular nerve group (PENG) block is an anesthetic technique that targets the anterior hip capsule. However, there is a paucity of aggregate literature reporting on outcomes of PENG block after hip arthroscopy. The purpose of this study was to review literature reporting on analgesic consumption and postoperative pain scores after hip arthroscopy in patients receiving PENG block.

METHODS: This systematic review followed The Preferred Reporting Items of Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Pubmed, Cochrane Center Register of Controlled Trials (CENTRAL), and Scopus were queried in December 2023 using the following keywords: ((pericapsular) AND (hip)). Primary research articles in English were included if they reported on pain scores and analgesic consumption (measured in Morphine Milligram Equivalent, MME) in patients undergoing hip arthroscopy with PENG block. This study was registered in Prospero (Blinded ID). Statistical significance was defined as $p < 0.05$.

RESULTS: This review included 11 articles reporting on 363 patients. There were 164 male and 178 female patients (with one study, $n=21$, not reporting sex). The mean age of patients ranged from 21.9 ± 5.4 to 37.9 ± 4.4 years. The mean time to discharge from the post anesthesia care unit (PACU) varied from 47 ± 44 to 143 ± 49 minutes. Five out of eight studies reported that patients receiving a PENG block were discharged in significantly less time when compared to a control group. Eight out of 11 studies reported a reduction between initial and final pain scores, with seven studies reporting significantly reduced pain scores at final follow-up. Two studies reported an average VAS pain score during the hospital stay of 3.5 ± 2.0 and 4.9 ± 1.4 , respectively. Additionally, mean opioid consumption in the PACU ranged from 4.1 ± 5.7 to 34.3 ± 12.1 MEE. Five out of nine studies reported

that patients receiving PENG block consumed significantly fewer opioids than a control group in the PACU.

DISCUSSION AND CONCLUSION: The PENG block is an effective analgesic technique that reduces pain and opioid consumption in patients undergoing hip arthroscopy. However, further studies should seek to standardize reporting of pain scores and analgesic consumption.

Postoperative Opioid Consumption (Morphine Milligram Equivalents):

Study	PENG	Control	P-value
Kollmorgen	34.3 +/- 12.1	50.9 +/- 11.2	0.001
Noaman	16.5 +/- 9.9	27.5 +/- 9.6	<0.05
Patel	10.7 +/- 7.6	13.9 +/- 7.5	0.01
Widmeyer	4.1 +/- 5.7	26.3 +/- 18.3	<0.001
Yusupov	14.4 +/- 11.4	31.2 +/- 20.1	<0.001
Ellis	154.03 +/- 41.99	217.6 +/- 54.67	0.001

