Pericapsular Nerve Group Block in Total Hip Arthroplasty Reduces Peri-operative Complications

Nicholas Newcomb BS¹, Colin Carroll BS¹, Michael Warren MD¹, Michael Nammour MD¹, Bhumit Desai MD¹, Matthew Patterson MD², Leslie Thomas MD¹, George Chimiento MD¹
¹University of Queensland-Ochsner Clinical School, New Orleans, Louisiana, USA
²Ochsner Hospital, New Orleans, Louisiana, USA

Introduction

Improving pain control after Total Hip Arthroplasty (THA) has been shown to lead to better outcomes and decreased length of stay [1]. These efforts are further reduced by decreasing opioid consumption [2]. Patient controlled epidural analgesia (PCA) provides excellent post-operative analgesia following posterior THA. However, potential for urinary retention, necessary indwelling Foley catheter, and motor blockade risk exist.

The Pericapsular Nerve Group (PENG) block is a novel nerve blockade that has been effective in reducing pain after hip fracture surgery [3]. Using the PENG block coupled with a spinal anesthetic in patients undergoing THA may reduce both post-operative pain and narcotic consumption, leading to improved clinical outcomes and patient experiences without the associated side effects of PCA. A recent case series of two patients has investigated a potential role for this block in THA patients [4]. The purpose of this study is to determine if the PENG block can provide satisfactory pain control without the side effects associated with PCA.

Methods

100 consecutive patients who received a single shot PENG block and spinal anesthesia were retrospectively compared to the previous 100 patients who had PCA, which was continued until 0630 post-op day 1. Primary outcome measures were Visual Analgesia Scores (VAS) and opioid requirements measured in Morphine milliequivalents (Mgeq). Secondary outcomes were incidence of urinary tract infection (UTI), urinary retention, falls, and length of stay (LOS).

Statistical analysis involved students’ t test and multivariate linear regression with α = 0.05. Approval was obtained from the Institutional Review Board for this retrospective study.

Results

The groups were similar demographically. Pain was well controlled in both groups, however the PCEA group demonstrated decreased Mgeq and VAS in the PACU (p < 0.01; p < 0.01) and at 12 hours (p < 0.01; p < 0.01), while the epidural was in place. VAS scores in the PENG group progressively decreased from 5.07 in PACU, 4.84 at 12 hours, and 4.07 at 24 hours post-op. VAS scores in the PCA group were 2.55 in PACU, 2.00 at 12 hours, and 3.80 at 24 hours. There was no difference in Mgeq and VAS at 24 hours, once the epidural had been discontinued (p = .056, p = .357), and in LOS (p = .359).

There was no difference in incidence of urinary retention (p = 1.0). The PENG group demonstrated less UTIs at two weeks post-operative (p < 0.001) and less inpatient falls at 24-hours post-operative (p = .044).

Discussion

As expected, there was less pain in the PCEA group while the epidural was in place, however, the pain was well controlled in the PENG group and there was no difference once the epidural was discontinued. With less UTIs and falls, the PENG block coupled with spinal anesthesia may be a preferable option in patients undergoing posterior approach THA.

References