Comparison of Lidocaine versus Bupivacaine Neuraxial Anesthesia in Total Hip Arthroplasty: A Randomized, Double-Blind, Prospective Study

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INTRODUCTION:
Neuraxial anesthesia (NA) is commonly used in total hip arthroplasty (THA). However, there are many anesthetic options, and a clear gold-standard has not been identified. The objective of this study is to compare two NA medications, lidocaine and bupivacaine, with respect to postoperative outcomes.
METHODS:
This was a single-center, prospective, randomized controlled, double-blind study where patients were randomized by a computer algorithm to receive either lidocaine or bupivacaine spinal anesthesia prior to THA. Patients 18 to 90 years of age who were undergoing THA for radiographic signs of osteoarthritis were included. Data was then collected from patient charts including transient neurological symptoms (TNS), urinary retention, hypotension, ambulation, and length of hospital stay. Continuous data was analyzed using student's t-test and categorical data was analyzed using fisher's exact test.
RESULTS:
A total of 105 subjects were analyzed with 54 patients receiving Bupivacaine and 51 receiving Lidocaine NA. There was a total of 13 patients that had urinary incontinence, all of those being patients who received bupivacaine (34%). There were no significant differences in time to ambulation and length of stay. There were no significant differences found in time to normal sensation, urinary retention, and the percentage of patients with transient neurological symptoms. The only transient neurologic symptom where patients reported a difference between the two groups was difficulty with urination and defecation with 13.0% of patients receiving bupivacaine reporting issues compared to 0 patients receiving lidocaine.
DISCUSSION AND CONCLUSION:
The use of spinal anesthesia has been increasing in THA. Our data suggest that lidocaine has a more favorable side effect profile when used for NA in THA. With increasing rates of outpatient THA, the decreased duration of action and reduced cost of lidocaine may provide added benefits not fully captured in this study.