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Trigger Finger Release Performed Wide Awake: Prospective Comparison of Local Anesthetics

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INTRODUCTION

Trigger finger (TF) is one of the most common conditions treated by hand surgeons with a lifetime risk up to 10% in patients with diabetes. If conservative management fails, surgical treatment is undertaken, with or without sedation and a tourniquet, via a small incision to release the A1 pulley. A number of local anesthetics are readily available including Lidocaine, Ropivacaine and Marcaine as well as encapsulated formulations thereof such as Exparel. Since its approval in 2011, there have been numerous reports of successfully achieving prolonged pain relief with locally injected Exparel after various procedures, but to the best of our knowledge this is the first report on the comparative efficacy of local anesthetics in ambulatory hand surgery specifically comparing Lidocaine, Marcaine, and Exparel.

MATERIALS AND METHODS

After obtaining institutional review board (IRB) approval, all consecutive patients scheduled to undergo single digit TF surgery were invited to participate. All procedures were performed under local anesthesia without sedation by one of seven fellowship-trained hand surgeons. The technique for injection was that of a single volar injection at the level of the A1 pulley with a volume of 5-10ml of local anesthetic delivered subcutaneously and superficial to the flexor tendon sheath. The injectate consisted of either 1% Lidocaine, 0.5% Marcaine, or 0.5% bupivacaine with post-operative Exparel in controlling pain, opioid usage, and adverse reactions following TF surgery.

METHODS

Patients were instructed to record their medication use, their pain levels using a Visual Analog Scale (VAS) scores, and adverse reactions following TF surgery. Patients were randomized to receive Lidocaine, Marcaine, or Exparel. Demographics

RESULTS

Patients were enrolled over a 6 month period in 2014. The study consisted of a total of 163 patients (85 women and 78 men), with only 9 patients lost to follow up for an overall attrition rate of 5.5%. After excluding patients lost to follow up, the Marcaine group included 50 patients (85 women and 78 men), the Lidocaine group included 51 patients with average age of 65, and the Exparel group included 51 patients with average age of 64.

OPIOID CONSUMPTION: NUMBER OF TABLETS

A similar trend is seen when the average total number of opioid pills consumed in all groups is analyzed. The only statistically different pill consumption was observed on POD 0 where opioid usage in the Lidocaine group consumed an average of 2.62 pills compared to 1.08 (p=0.014) and 0.70 (p=0.013) pills in the Marcaine and Exparel group, respectively. Total pill consumption on POD 0-3 in all groups.

ADVERSE EFFECTS

The percentage of patients reporting any adverse reactions at any time in the first 3 days after surgery was significantly lower in the Exparel group (3%) as compared to the Marcaine 13% (p = 0.007) and Lidocaine 10% (p = 0.133). The most common reactions reported included dry mouth, nausea, lack of energy and itching whereas the least common reactions were dizziness, coughing and a sensation of bloating.

DISCUSSION

To the best of our knowledge this is the first report on the comparative efficacy of local anesthetics in ambulatory hand surgery specifically comparing Lidocaine, Marcaine, and Exparel. Our results suggest that patients treated with Marcaine attain better pain control than those treated with Lidocaine on POD 0-1, but only patients that receive Exparel maintain the lowest pain levels through POD 0-3. More importantly, this is achieved while using little-to-no opioid medications and with less adverse reactions than with Lidocaine or Marcaine alone. In agreement with what has been reported in other series, Exparel generally appears to make most of the difference in pain perception in the first 1-2 days after surgery. Overall, pain following trigger finger release surgery performed wide awake and without a tourniquet is low. However, longer pain relief, decreased opioid consumption, and a better adverse reaction profile is a goal that physicians and patients strive to achieve. More studies are needed to validate both the efficacy and cost of Exparel versus other local anesthetic agents in patients undergoing more extensive and painful hand and orthopaedic surgical procedures.

OPIOID CONSUMPTION: PERCENT OF PATIENT USAGE

On POD 0, 38% (p=0.01) and 59% (p=0.004) of patients that received Marcaine and Lidocaine, respectively, used opioids for pain control as compared to 27% of patients in the Exparel group. By POD 1, Exparel patients maintained the lowest opioid consumption at 33.3%, where 44% (p=0.271) and 45% (p=0.213) of the Lidocaine and Marcaine patients used opioids. At POD 2 the percentage of patients using opioids continued to decrease in all groups and converged to about 15% by POD 3.

PAIN-FREE PATIENTS WITHOUT OPIOIDS

An analysis of patients that were deemed pain-free (VAS score ≤2) while also not using any opioid medication revealed that on POD 1, 50% of patients that received Exparel were pain-free without requiring opioids, which was statistically higher than Lidocaine (16% (p=0.002) and Marcaine at 21% (p=0.017). This trend continued on POD 1 with Exparel at 47% (p=0.474), Marcaine at 40% and Lidocaine at 32% (p=0.118). By POD 2-3, the patients in this category converged with no statistical differences.

FIGURES 1 - 5

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