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

Constantinos Ketonis, MD, PhD
Rothman Institute at Thomas Jefferson University

Nayoung Kim, BS
Rothman Institute at Thomas Jefferson University

Frederic Liss, MD
Rothman Institute at Thomas Jefferson University

Benjamin Zmistowski, MD
Rothman Institute of Orthopedics, Thomas Jefferson University Hospital

Jonas L. Matzon, MD
Rothman Institute of Orthopedics, Thomas Jefferson University Hospital
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Authors

Constantinos Ketonis, MD, PhD; Nayoung Kim, BS; Frederic Liss, MD; Benjamin Zmistowski, MD; Jonas L. Matzon, MD; Charles Leinberry, MD; Mark L. Wang, MD, PhD; Christopher Jones, MD; William Kirkpatrick, MD; and Asif M Ilyas, MD



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

Constantinos Ketonis, MD, PhD(n); Nayoung Kim, BS (n); Frederic Liss, MD (2,5-Pacira); Benjamin Zmistowski, MD (n); Jonas L. Matzon, MD (n); Charles Leinberry, MD (1,2,3B, 4- Knee Creations; 3C- SegWay Orthopedics; 1,2,4-Zimmer); Mark Wang, MD (n); Christopher Jones, MD (n); William Kirkpatrick, MD (n); Asif Ilyas, MD (7-Jaypee Medical Publishers)

Investigation performed at the Rothman Institute at Thomas Jefferson University, Philadelphia, PA.



ROTHMAN INSTITUTE

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 there have been no reports of its use in ambulatory hand surgery. In this study we prospectively evaluated the efficacy of Lidocaine, Marcaine, or bupivacaine with post-operative Exparel in controlling pain, opioid usage, and adverse reactions following TF surgery.

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 5-10 ml of local anesthetic delivered subcutaneously and superficial to the flexor tendon sheath. The injectate consisted of either a) 1% Lidocaine, b) 0.5% Marcaine, or 0.5% bupivacaine with post-operative injection of 5cc of Exparel into the closed surgical site. Patients were instructed to record their medication use, their pain levels using a Visual Analog Scale (VAS) scoring system and any adverse reactions experienced. An analysis of variance was used to detect significant differences between groups.

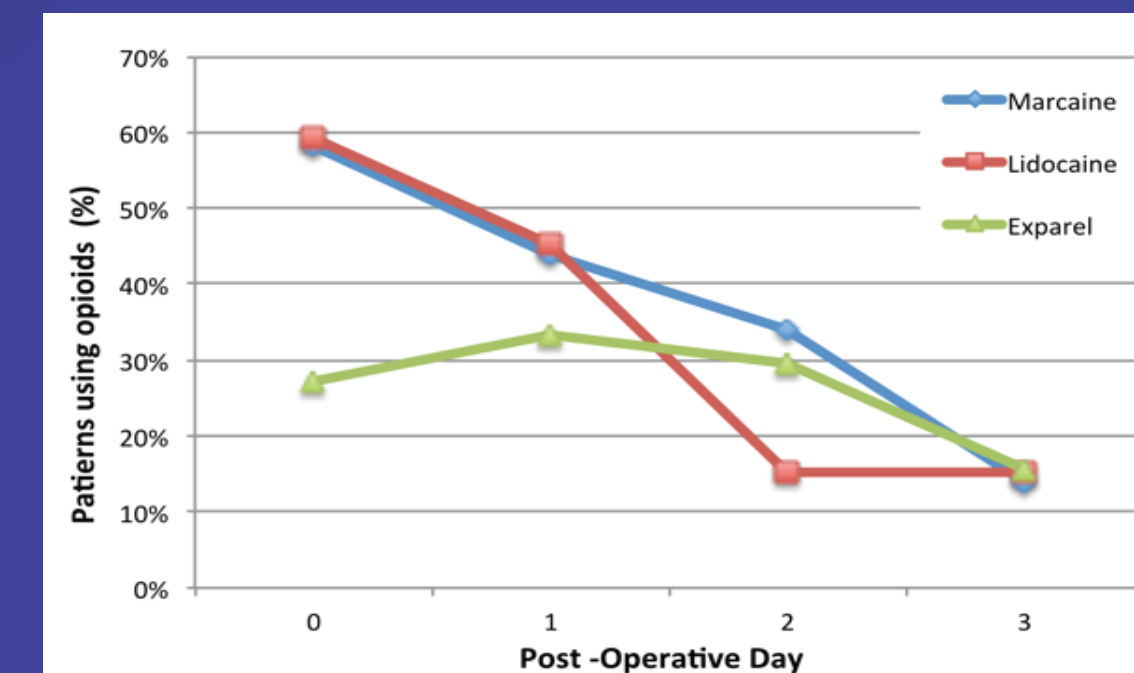
RESULTS

DEMOGRAPHICS

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 with average age of 61.3, the Lidocaine group included 53 patients with average age of 65, and the Exparel group included 51 patients with average age of 64.

VISUAL ANALOG SCALE (VAS) SCORES

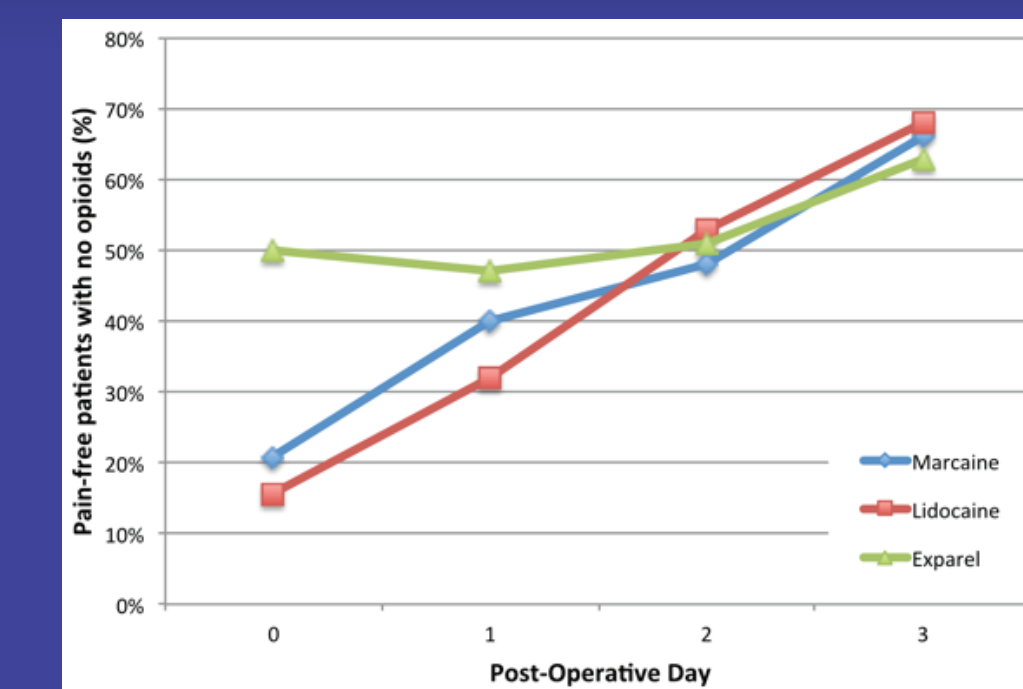
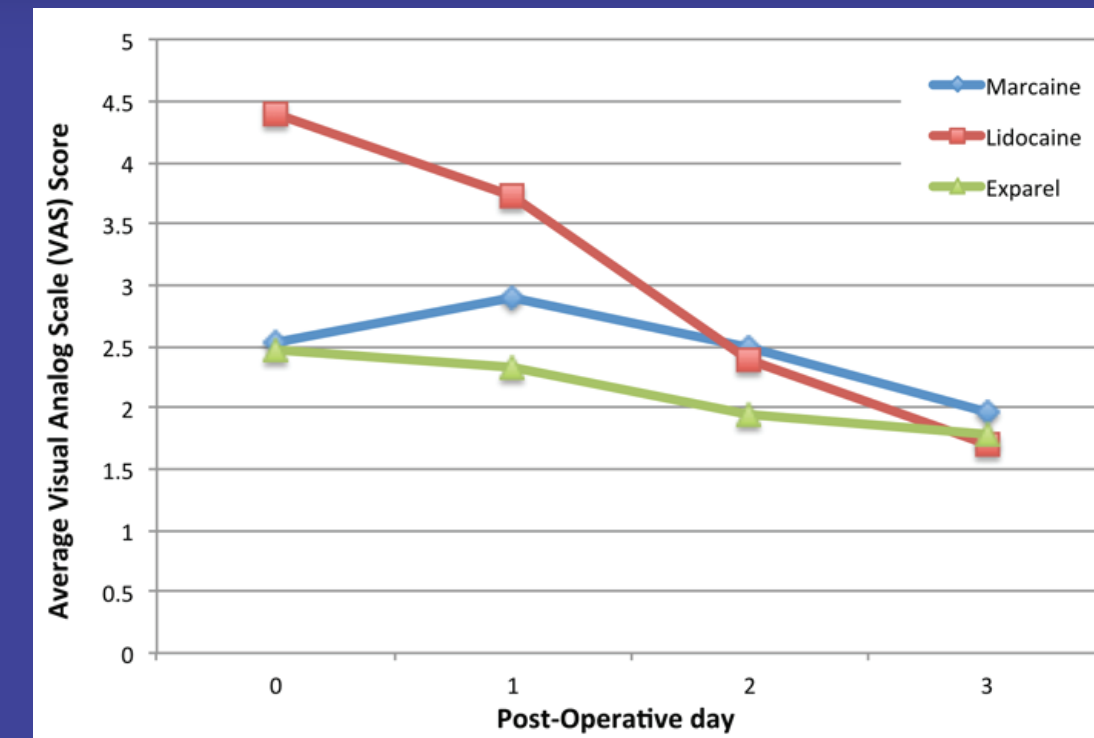
Patients were contacted on POD 3 and asked about their pain levels over POD 0-3. On POD 0 patients in the Lidocaine group reported the most pain. On POD 1 this difference was maintained with the lidocaine group at 3.73 as compared to the Marcaine and Exparel groups at 2.90 (p=0.116) and 2.33 (p=0.003), respectively. Only the Exparel group maintained significance on POD 1. In contrast, on POD 2 and POD 3 the differences were more subtle and did not reach statistical significance.



OPIOID CONSUMPTION: NUMBER OF TABLETS

A similar trend is seen when the average total number of opioid pills consumed by these groups is analyzed. The only statistically different pill consumption was observed on POD 0 where opioid users in the lidocaine group consumed an average of 1.62 pills as compared to 1.08 (p=0.214) and 0.70 (p=0.013) pills in the Marcaine and Exparel group, respectively. Total pill consumption on POD 1-3 was similar in all groups.

FIGURES 1 - 5

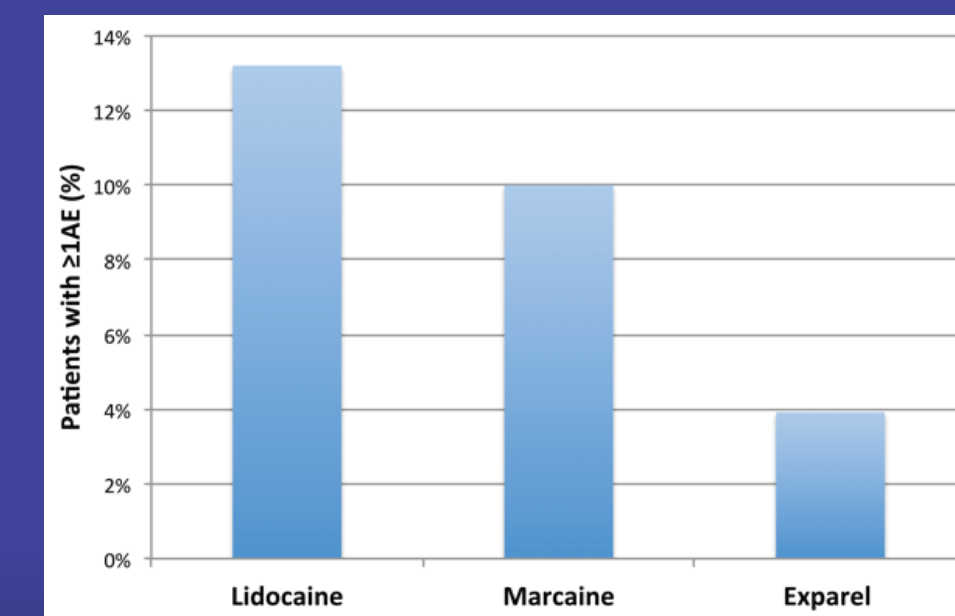


PAIN-FREE PATIENTS WITHOUT OPIOIDS

An analysis of patients that were deemed pain-free (VAS score ≤2) while also not using any opioid medication revealed that on POD 0, 50% of patients that received Exparel were pain-free without requiring opioids, which was statistically higher than Lidocaine at 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.

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 = 0.017) and Lidocaine 10% (p=0.133) group. 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.

