

Samaritan orthopedic residents and surgeons actively conducting clinical research looking at a different method to control post-operative pain for patients undergoing a total knee replacement

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The Samaritan orthopedic team's clinical research titled "Adductor Canal Block Versus Liposomal Bupivacaine Peri-articular Injection in Total Knee Arthroplasty: A Randomized Controlled Trial" is currently in production to be published in the journal *Arthroplasty Today*. Authors of this study include Justin Than, DO; Babe Westlake, DO; Jun Kim, DO; Olivia Pipitone, MPH; and James Ryan, MD. The execution of this project was made possible with the support and teamwork of individuals at Samaritan, including Keri Ballenger, Tiara Packer, the orthopedic residents, and staff from the research department, pharmacy department, and anesthesia department. We thank Pacira BioSciences, Inc. for providing the liposomal bupivacaine medication for this study.

This randomized controlled trial was performed at Good Samaritan Regional Medical Center. The ultimate goal of the study was to compare post-operative pain control and clinical outcomes between pre-operative adductor canal block and intra-articular liposomal bupivacaine in total knee arthroplasty (TKA) patients. Adductor canal block was the preferred peripheral nerve block method for the attending surgeon author at our institution at this time. However, we were interested in liposomal bupivacaine peri-articular injection for its extended effects and ease of administration into all areas of the knee. No previous published literature had directly compared the effectiveness of liposomal bupivacaine peri-articular injection to adductor canal block. We felt that this study would produce results that are important for

both surgeons and patients to understand as they consider the different peri-operative pain control modalities in TKA.

The study was started in 2017 after obtaining approval from the Institutional Review Board. A total of 57 patients and 60 TKA procedures were included in the study, with 30 TKA procedures randomized to receive the standard pre-operative adductor canal block and 30 TKA procedures randomized to the intra-articular liposomal bupivacaine injection group. We found that patients treated with liposomal bupivacaine performed similarly to patients treated with an adductor canal block with respect to post-operative pain, Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) scores, knee range of motion, ambulation distance on post-operative day 1, hospital length of stay, and opioid use. No patients had serious adverse events related to either treatment modality.

This randomized controlled trial found that, when compared to the standard adductor canal block, liposomal bupivacaine peri-articular injection offered similar post-operative pain control and functional outcomes without additional risks for TKA patients. To our knowledge, this is the first randomized control trial directly comparing the two pain control methods in TKA. We hope the publication of this clinical trial will provide patients and surgeons with a better understanding of the different pain control modalities for TKA.



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