

BIOMEDICAL & VETERINARY SCIENCES GRADUATE PROGRAM



ANNOUNCES

The Master of Science Seminar and Examination
of

Jenna Elizabeth Giangarra, DVM

**“Effect of a single intra-articular
injection of bupivacaine on synovial
fluid PGE₂ concentrations in normal
canine stifles”**

**Friday, May 4, 2018
8:00 am
VMIA Classroom 220**

Bio



Jenna Giangarra of Omaha, Nebraska earned bachelor degrees in animal science with honors and in veterinary and biomedical science with honors from the University of Nebraska in 2008. She then received her DVM from Kansas State University College of Veterinary Medicine in 2013. Following graduation, Dr. Giangarra completed a rotating small animal medicine and surgery internship at Angell Animal Medical Center in Boston, MA followed by a surgical specialty internship at Gulf Coast Veterinary Specialists in Houston, TX before beginning her small animal surgical residency in July of 2015. Following completion of the residency program, Dr. Giangarra will join a small animal private specialty hospital in Connecticut.

Funded by

Virginia–Maryland College of Veterinary Medicine
VMCVM Office of Research and Graduate Studies

Lay Language Abstract

Intra-articular bupivacaine is a popular pain relief medication commonly used in joint surgery. Despite its historically wide use, bupivacaine has been scrutinized due to its potentially toxic effects on joint cartilage. Currently, the mechanism of this toxicity has not been identified though it may be associated with inflammation. Prostaglandin E₂ (PGE₂) is an important molecule produced by the joint and is considered an indicator of joint inflammation. The purpose of this study was to quantify the concentration of PGE₂ within the joint fluid following a single injection of bupivacaine in the normal canine stifle as compared to a saline control. Eight healthy beagles were used for this study. Stifles were randomized into treatment (bupivacaine) or control (saline) groups such that each dog had one stifle infused with bupivacaine and the opposite stifle with saline. Joint fluid was collected at various time points: before injection (T0), 30 minutes, 60 minutes, 24 hours and 48 hours. Samples were analyzed in duplicate for PGE₂ concentration. There was no significant effect of treatment group (bupivacaine vs saline) or time on joint fluid PGE₂ concentration. The number of sampling attempts did have an effect, samples acquired with only one attempt had significantly lower PGE₂ concentrations than samples which required 3 or more sampling attempts (p=0.001). When adjusted for number of attempts, PGE₂ concentrations were significantly higher 24 and 48 hours after injection compared to baseline within the bupivacaine group but not within the saline group. Intra-articular bupivacaine injection did not result in increased joint fluid PGE₂ concentration compared to saline control. Our data indicate that joint fluid PGE₂ concentration is highly sensitive to fluid collection attempts.

Publications

Giangarra JE, Barry SL, Dahlgren LA, Lanz OI, Benitez ME, Werre SR. Effect of a single intra-articular injection of bupivacaine on synovial fluid prostaglandin E₂ concentrations in normal canine stifles. *BMC Res Notes.* 2018;11:255

Presentations

Effect of a single intra-articular injection of bupivacaine on synovial fluid PGE₂ concentrations in normal canine stifles, Podium Presentation, BMVS Research Symposium March 2018

Effect of a single intra-articular injection of bupivacaine on synovial fluid PGE₂ concentrations in normal canine stifles, Podium Presentation, ACVS Surgery Summit, October 2017

Effect of a single intra-articular injection of bupivacaine on synovial fluid PGE₂ concentrations in normal canine stifles, Poster Presentation, BMVS Research Symposium, March 2017

Awards and Academic Achievements

Outstanding Master's Oral Presentation, BMVS Research Symposium, March 2018

Outstanding Master's Poster Presentation, BMVS Research Symposium, March 2017

Examination Graduate Committee

Major Advisor/Chair

Sabrina Barry, DVM, DACVS
Clinical Assistant Professor
Department of Small Animal Clinical Sciences

Graduate Advising Committee Members:

Otto Lanz, DVM, DACVS
Professor, Surgery
Department of Small Animal Clinical Sciences

Linda Dahlgren, DVM, PhD, DACVS
Associate Professor, Large Animal Surgery
Department of Large Animal Clinical Sciences

