

FOCUS Local Anesthetic for Castration: Maintaining a Balance

Balanced anesthesia (ie, combining different drug classes and regional anesthesia techniques) may reduce hypotension and hypercarbia from excessive anesthetic drugs and provide additional perioperative analgesia. Forty-two dogs were divided into 2 groups: group L received intratesticular lidocaine injections 5 minutes before surgical castration, and group S received an equal volume of saline. There were no significant differences in baseline heart rate (HR), mean arterial pressure (MAP), or respiratory rate (RR). Dogs in group L had lower maximum values for HR and MAP compared with dogs in group S and smaller increases in HR during exteriorization of the first testis. Differences in MAP existed during all surgical events and time points, with less change in MAP for group L during skin excision, exteriorization of the first testis, and clamping of both spermatic cords. Although there was no significant difference in magnitude of increase of intraoperative RR, group S reached its highest RR earlier than group L. There were no significant differences in requiring additional propofol or rescue analgesia. Lidocaine effects likely wore off before completing surgery, explaining why there were no significant differences in HR and RR during second testis removal or in the magnitude of intraoperative RR or requirement for rescue analgesia. However, intratesticular lidocaine did provide decreased response to noxious stimuli based on HR, RR, and MAP.



■ Commentary

Unfortunately, locoregional anesthetic techniques are slow to gain popularity in small animal practice. Intratesticular infusion of local anesthetics before castration, routine in large animal medicine, is gaining interest in small animal practice. Although this study lacked sufficient numbers, it does support anecdotal evidence that intratesticular local anesthetic infusion before surgical castration in dogs provides intraoperative analgesia. This technique can be a simple, inexpensive, and quick analgesic option in canine surgical castration.—*Andrew Claude, DVM, DACVAA*

■ ■ Source

Intratesticular lidocaine reduces the response to surgical castration in dogs. Huuskonen V, Hughes JM, Bañon EE, West E. *VET ANAESTH ANALG* 40:74-82, 2013.

Tissue Sources for Arthritis Repair

The relatively recent appreciation of stem cells in native tissue has stimulated research to garner them into chondrogenic replacements. This study compared cartilage, synovium, and adipose tissue as sources for osteochondral repair. Tissue was harvested from the grossly normal stifle joints from 6 dogs, expanded in monolayer culture, then exposed to osteogenic and chondrogenic media. Gene expression and biochemical, histologic, and immunohistochemical analyses were performed to identify osteogenic and chondrogenic potential. Cartilage cells were a superior source in their chondrogenic properties (eg, larger volume, proteoglycan-rich extracellular matrix, collagen mRNA expression). Adipose tissue and synovium were similarly poor in all evaluated measures. No tissue sources provided consistent evidence of osteogenic potential.

■ Commentary

Arthritis, characterized by articular cartilage damage and loss, is a debilitating condition affecting human and pet populations. Traditional therapies are focused at amelioration of signs through a conservative approach or joint salvage for end stage disease. New approaches have focused on a regenerative approach in disease modification. Not surprisingly, in this study articular cartilage retained its chondrogenic potential; however, neither synovium nor adipose tissue possessed cartilage properties after expanded in cell culture and stimulated by chondrogenic media. Although source and target tissue are identical, these results are encouraging if the yield can be expanded to provide clinically relevant volumes of articular cartilage. Furthermore, these data contradict many novel therapeutic agents using

adipose tissue, among others, that propose a benefit of cartilage regrowth after treatment.—*Jason Bleedorn, DVM, DACVS*

■ ■ Source

Evaluation of cartilage, synovium and adipose tissue as cellular sources for osteochondral repair. Innes JF, Gordon C, Vaughan-Thomas A, et al. *VET J* 197:619-624, 2013.

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