



Reducing the pain of band castration

Project Code: ANH.25.20
Completed: *In Progress. Results expected in May 2024.*

Project Title:

Comprehensive evaluation of the effect of extended-term delivery of local anesthetic on mitigating the pain caused by castration

Researchers:

Diego Moya (University of Saskatchewan, Western College of Veterinary Medicine) diego.moya@usask.ca
John Campbell, DVM (University of Saskatchewan, Western College of Veterinary Medicine) Karen Schwartzkopf-Genswein, PhD (AAFC Lethbridge) Merle Olson, DVM (Alberta Veterinary Laboratories) Nick Allan and Joseph Ross (Chinook Contract Research) Brenda Ralston, PhD (Alberta Agriculture and Forestry)

Background

Castration is painful regardless of how it is done, but the nature of the pain depends on the method used. The pain of surgical castration is most acute for a few hours and goes away after a few days, so there is not much chronic pain. Commercially available pain medications can significantly help alleviate that kind of pain. Band castration hurts less acutely, but the chronic pain lasts a lot longer, particularly when the scrotum sloughs off weeks later. Current pain medications do not last long enough to address that kind of chronic pain. Alberta Veterinary Laboratories has developed castration bands that are impregnated with a slow-release anesthetic (lidocaine). The band has been shown to release lidocaine for 7 days, but it needs to work for much longer before it can claim to effectively relieve the pain of band castration.

Objectives

1. Determine the efficacy of a slow-released anesthetic at mitigating the acute and chronic indicators of pain measured in castrated beef calves, including physiology, behaviour, and weight gain.
2. Characterize the signs of pain and welfare expressed by calves at those two industry-relevant ages when exposed to an extended-term delivery of topical anesthesia, and
3. Develop a standardized pain evaluation protocol including the use a combination of behavioural and physiological traits indicative of pain and discomfort to facilitate the development and registration of future pain mitigation tools.

What they will do

This team will split 192 week-old calves into three groups - regular bands with no pain control, regular bands with anesthetic injected into the scrotum, and the new bands with slow-release anesthetic. Many pain related behaviors, physiological responses and growth measurements will be taken at the time of castration and in the following hours, days and weeks. Anesthetic levels will be measured in the scrotal tissue over time as well. The experiment will be repeated with weaned calves to assess the effectiveness of the bands in bulls castrated after arriving at the feedlot.

Implications

An affordable, effective way to relieve the pain of band castration would benefit a significant number of beef and dairy calves as well as alleviate consumer and public concerns.

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