

Pain Management in Livestock – “One Welfare”

Routine use of analgesia and anesthesia in livestock is a topic that can fall anywhere on the conversation spectrum from an extremely heated debate to something that is not really discussed at all. My question is, why? Why are we, as veterinarians and veterinary technicians, not regularly facing this question head-on and acting as thought leaders with our clients and the public? It can be a very difficult task to change minds and practices that have been engrained in our daily routines. My argument is that if we are still doing things (anything from engineering automobiles to deworming goats) – including not routinely employing pain management for livestock - the way we were 10 or even 20 years ago, we are severely behind the times.

A wealth of information exists in the literature – some of it is good, some is debatable...but these are some common themes:

- Castration and dehorning are used as models of pain in livestock
- Preemptive NSAIDs, local anesthesia, and when possible sedation make a difference; i.e. multimodal anesthesia is best for reducing the pain response.
- Questions are often raised as to the effect they may have on production. The inconclusive and contradicting data come from variations in study design, measured variables, study duration, etc.
 - o Economics are most often used as a reason for not administering anesthesia and analgesia for painful procedures
 - o “There is little evidence that pain management is associated with increased production such as average daily gain, feed intake or feed to gain.”¹

The AABP released guidelines on castration and dehorning to “assist the veterinarian with enhancing the welfare of cattle on clients’ farms by providing information on how best to approach dehorning and castration of calves on beef and dairy farms... While it is recognized that some management systems will find difficulty administering local anesthetic immediately prior to the procedure, veterinarians should strive to work with clients to advance its use... Anti-inflammatories have been used effectively to mitigate post-procedural pain. Long-acting non-steroidal anti-inflammatories (NSAIDs) should be used to extend the period of analgesia. Meloxicam has been shown to mitigate post-procedure pain for up to 48 hours after a single dose of the drug.”²

The AVMA recommends polled genetics or disbudding where possible. And when those two options are not possible, refinements including sedation, cauterization, local anesthesia, analgesia, and the use of pharmaceuticals should be employed. “Minimizing pain associated with disbudding and dehorning is important to limiting the pain-stress-distress cascade that creates altered behavioral and physiologic states.”³

Current recommendations from the OIE (World Organization for Animal Health), THE global leader in animal health and welfare, states that painful husbandry procedures in livestock should be performed at as early an age as possible or using anesthesia or analgesia under the recommendation or supervision of a veterinarian....The use of anesthesia and analgesia are strongly recommended when performing disbudding and should always be used when dehorning.⁴

I recently completed the modules to renew my USDA APHIS accreditation. In Module 25: Using Behavior to Assess Animal Welfare⁵, I captured the following quotes:

Pain is "an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage" (International Association for the Study of Pain, 1994).

As defined above, pain has an initial physiological component, in which a noxious (and potentially harmful) stimulus affects sensory receptors (nociceptors). It is difficult to assess animals' cognition of pain, particularly of lower vertebrates and other life forms.

Regardless, pain in animals can arise from housing design, husbandry, trauma, surgical procedures, or be a consequence of a disease or disorder. To assess pain, physiological and behavioral responses should be used. When pain is diagnosed, immediate action should be taken to ensure the well-being of the animal.

Signs of acute pain in sheep include frequent change in ear position, increase in rate of respiration and reduced or restricted motion. Sheep may also exhibit depression and weight loss.

Fish show acute pain through an increase in opercular movements (bony gill covering), attempts to jump out of water and abnormal swimming (Diamond, 1990).

In case you are wrinkling your forehead at the last point, I added fish to make a final point. Pain is pain is pain, regardless of the species – ALL VERTEBRATES FEEL PAIN. We all feel pain from the moment we breathe oxygen. "The stress response that helps fish to cope with various challenges also appears to be largely conserved across vertebrates, and the physiological changes that occur in response to acute and chronic stress in fish are similar to those described for mammals. Therefore, fish appear to have the innate ability to experience negative states such as pain and stress in a way analogous to that experienced by other vertebrates."⁶

In closing, the discussion should not be around whether or not livestock feel pain during castration and dehorning – we KNOW that they do!!! Castration and dehorning are pain models for research!!! Organizations that are recognized and respected across the globe state that we should be using anesthesia and analgesia for painful procedures. Let's take this discussion further and focus on how can we humanely and economically circumvent the pain associated with these routine husbandry procedures in livestock. Just because there is no statistical difference between a control animal and a treated animal at weigh-in 6 months after castration and dehorning, does not mean that we are doing ourselves or the animals any favors by withholding analgesia and anesthesia. Dr. Griffin at the University of Nebraska has a sign in his office that reads: *If you abuse my cattle in any way; physically, nutritionally, environmentally, emotionally ... any way, you cost me money. Cattle grow & preform to the best of their God given genetic potential when we treat them as the precious creatures from God they are. As a capitalist, it is in my best interest to make every minute of every day the best it can be.* I couldn't agree more!

References

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4. <http://www.oie.int/>
5. <http://aast.cfsph.iastate.edu/BAW/index.htm>
6. Braithwaite VA, Ebbesson LO. Pain and stress responses in farmed fish. Rev Sci Tech. 2014 Apr;33(1):245-53.