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Reducing Pain due to Dehorning

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Dairy producers recognize that dehorning is painful for calves. New research has shown that there are at least three good methods of reducing the pain and distress calves experience during this procedure. Horn buds of calves are removed to reduce the risk of injuries to farm workers or other cattle that can be caused by horns. Canada's Recommended Code of Practice for the Care and Handling of Dairy Cattle, and the Canadian Veterinary Medical Association recommend that dehorning be done during the first few weeks of life. Horn buds of young calves are typically removed using a caustic paste or a hot iron. Both methods cause calves pain as evidenced by physiological and behavioural responses. Physiologically, increased levels of stress hormones (corticosteroids) are commonly found in the blood after hot-iron dehorning. Behavior responses include head movements, ear flicking, tripping and rearing. Use of a local anaesthetic such as lidocaine can reduce both the physiological and the immediate behavioural responses. This is why the use of a local anaesthetic is recommended in the Dairy Code of Practice, and why in countries such as the UK, it is required by law.

The use of a local anaesthetic is an obvious first step in reducing pain at dehorning, but other interventions may also help. Calves respond to both the pain of the procedure and the physical restraint. Calves dehorned using a local anaesthetic still require restraint, and calves often struggle in response to the restraint itself. Calves must also be restrained while the local anaesthetic is administered, as well as during the actual dehorning. One way to avoid the effects of physical restraint is to use a systemic sedative, such as xylazine. Our work has shown that a systemic sedative can eliminate calf response to the injection of the local anaesthetic and the need for physical restraint during this injection and during dehorning.

A second consideration is that the local anaesthetic does not provide pain relief in the hours following dehorning. The most popular local anaesthetic, lidocaine, is effective for only 2 to 3 hours, but the response to burn injury may persist for 24 hours or more. This post-operative pain response can be seen in the results of a study done at the UBC Dairy Centre, published in the Journal of Dairy Science.

Recently dehorned 4 week old dairy calf.

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Under normal circumstances calves rarely shake their heads or flick their ears, but these behaviours are common after dehorning. As you can see in Figure 1, the control calves show these behaviours in the hours after hot-iron dehorning. However, when we give calves ketoprofen in their milk (similar to the ibuprofen you take for a headache), these pain responses are greatly reduced.

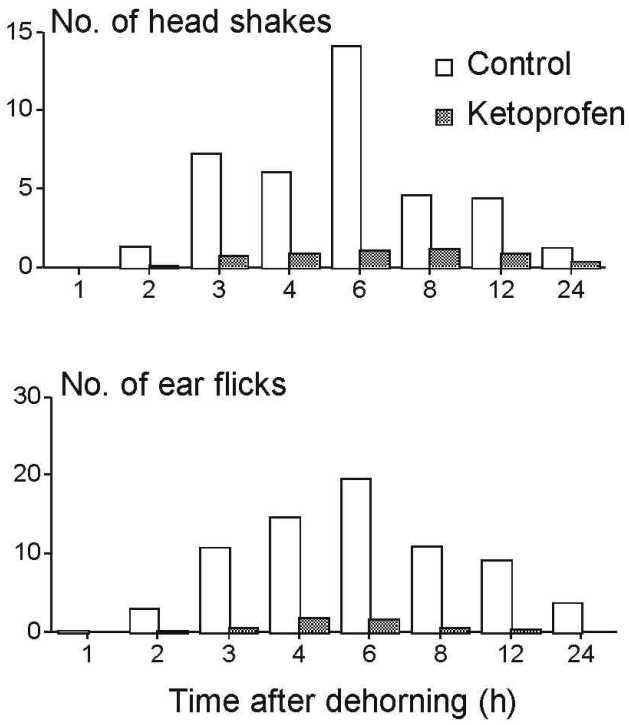

Figure 1

Behavioural responses (head shakes and ear flicks) during 20 minute observations 1-24 hours after hot-iron dehorning. The 'Ketoprofen' calves received this drug in their milk before and after dehorning, while the 'Control' calves did not. Note that there is little response during the first few hours by either group, as all animals in this experiment received both a sedative and a local anaesthetic before dehorning. This study involved 10 calves per treatment group. From Faulkner & Weary, 2000. J. Dairy Sci. vol. 83: 2037-2041.

NEXT MONTH:* *Mastitis Vaccines

Three objectives to consider in improving dehorning methods are:

1, reducing the distress associated with restaining the calf

2,reducing the immediate pain associated with dehorning

3,reducing the pain calves experience in the hours that follow

Consult with your veterinarian to determine what types of interventions will work best on your farm.

Ongoing work at the Dairy Centre is aimed at finding practical but effective ways of reducing the pain associated with dehorning. In a current experiment we are investigating methods of reducing pain during caustic-paste dehorning. Watch for future editions of this newsletter to find out more about this work and other research on animal welfare at the UBC Dairy Education and Research Centre.

This article is based on thesis research by MSc student Paul Faulkner. Dan Weary is Associate Professor in the Animal Welfare Program and can be contacted at danweary@interchange.ubc.ca.

Best Wishes for a Wonderful Christmas and a Prosperous New Year from the Faculty and Staff of the UBC Dairy Education and Research Centre