Proceedings of the 44th Congress of the International Society for Applied Ethology (ISAE)

Swedish University of Agricultural Sciences, Uppsala, Sweden

4-7 August 2010

Poster session Poster 129, page 229

http://www.group-housing-horses.net/Documents/ISAE2010UppsalaSweden.pdf

The effect of topical anaesthesia on pain alleviation in calves post-dehorning

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Two trials were conducted to examine the effects of topical anaesthesia on the pain response of heifer dairy calves experiencing dehorning. Trial 1 involved the observation of pain-related behaviour following treatment with or without topical anaesthetic (Tri-Solfen®, Bayer Animal Health, Australia) following hot-iron dehorning, or sham handling control. Behaviour was documented by an observer blind to treatment from 30 min to 5 hours post-dehorning. A Numerical Rating Scale (NRS) was used to categorise behaviour into nil, mild, moderate and severe (0, 1, 2 and 3 respectively) displays of pain-related behaviour. Calves hot-iron dehorned and given topical anaesthetic displayed lower (P=0.023) NRS scores than calves dehorned without anaesthetic. There was no difference (P=0.277) in NRS scores between calves hot-iron dehorned and given topical anaesthetic, and control calves. Trial 2 used Wound Sensitivity Testing (WST) to determine the sensitivity of the dehorned wound surface following scoop dehorning with or without the administration of topical anaesthetic (Tri-Solfen®). Von Frey monofilaments, calibrated at 10 and 300 g, were used to provide light touch and pain stimulation respectively, to the wound and peri-wound area before, and up to 3 hours post-dehorning. A NRS was used to grade responses depending on vigour. Calves treated with topical anaesthetic displayed no difference (P=0.134) in response to light touch stimulation of the wound compared to untreated calves. There were tendencies for treated calves to exhibit lower scores when stimulated at the peri-wound site by light touch (P=0.06) and pain (P=0.051) stimulation. In response to pain stimulation of the wound, treated calves displayed lower scores than untreated calves (P=0.01). The results from these trials suggest the use of topical anaesthesia has the potential to reduce the pain-related behaviour associated with hot-iron dehorning and to reduce the sensitivity of the dehorned wound site post scoop dehorning in calves. This novel method of pain relief can provide a more practical and affordable alternative to options currently available.