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Topical anaesthesia for the amelioration of mulesing pain in sheep

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Mulesing, the practice of cutting loose folds of skin from the breech area of sheep, is a common husbandry procedure routinely performed on Merino lambs annually in Australia. This has been proven to cause acute pain and stress, which has led to a growing concern for the welfare of lambs undergoing this procedure. We have undertaken studies that have shown that topical anaesthesia (TA) can significantly reduce wound pain, and improve wound healing and recovery in the first 8 hours and have furthered our studies to include up to 24 hours post-mulesing. Forty-two mixed sex Merino lambs (21.04 ± 0.5 kg) were randomly allocated to one of three treatment groups for either un-mulesed control (n=14) mulesing only (n=14), or mulesing in combination with TA (n=14). At the conclusion of the trial, all mulesed lambs were treated with TA to ensure improved welfare. Time for lambs to mother-up and feed, pain-related behaviours and wound pain (using von Frey monofilaments and numerical rating scale) were assessed in the 24-hour period post-mulesing. Results were analysed using analysis of variance for repeated measures (REML) and linear regression. Time to mother or feed didn't differ significantly between treatment groups ($P > 0.05$). Pain behaviours and wound pain were assessed using a customized numerical rating scale (NRS). TA treated lambs displayed significantly lower pain-related behaviour scores compared with untreated lambs at both 1 hour (0.2 vs. 1.2, $P = 0.002$) and 24 hours (0 vs. 1, $P = 0.003$) post-mulesing. Response scores to pain stimulation of the wound surface were significantly lower in Tri-Solfen® treated lambs (2.44) and unmulesed lambs (2.2) than untreated lambs (14.8), $P < 0.001$. These results indicate the use of topical anaesthesia as a cost-effective and management friendly tool for improving the welfare of livestock undergoing painful husbandry procedures.