

Effect of a topical wound anaesthesia formulation on the cortisol and the acute phase responses of lambs undergoing tail docking.

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Abstract:

In this study we evaluated the effect of a topical wound gel formulation containing local anaesthetics lignocaine and bupivacaine, with cetrimide and adrenalin (Tri-Solfen®; TS) on the concentrations of serum cortisol (SC) and the acute phase protein serum amyloid A (SAA) in tail-docked lambs.

Forty-four female lambs with similar weights were recruited into four equal cohorts: Groups A and C, the tail was excised with a scalpel without anaesthesia and Groups B and D, the tail was surgically excised and stitched under general anaesthesia (GA). C and D groups were immediately sprayed with TS. Blood samples were collected before tail docking and at different time intervals post-tail excision. Concentrations of SC and SAA were determined using ELISA assays (Salivary Cortisol ELISA SLV-2930, DRG Diagnostics, Marburg, Germany; PHASE TM Serum Amyloid A Assay, Tridelata Development Ltd., Maynooth, Ireland). Statistical analysis was performed using IBM SPSS statistics version 26 (2019) software (IBM, Armonk, NY, USA). SC concentration did not change significantly over time in cohorts tail-docked under GA (B & D), but peaked at 30 min post tail removing without anaesthesia (A & C), and treatment with TS (C) appeared to reduce this cortisol response.

In cohorts B & D, SAA concentrations increased significantly 48 hours after tail docking, as it is expected after a noxious stimulus, but treatment with TS avoided the elevation of SAA at this time point in lambs where the tail was excised without anaesthesia.

These results appear to indicate that treatment with TS reduces cortisol and SAA responses in lambs tail docked without anaesthesia, although further research is needed to corroborate these findings.

References:

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