

Introduction

Castration and tail-docking of lambs, without anaesthesia and analgesia, is still permitted in many countries. The most used method, application of a rubber ring around the neck of the scrotum or the tail, does, however, cause significant pain. In this study we investigated the efficacy of a novel method, 'ClipFitter': a device which applies a disposable plastic clamp to the scrotum or tail which achieves the desensitising effect of crushing the nerves to the scrotum or tail as with Burdizzo castration, especially when combined with a rubber ring.

Material and methods

Two studies, 1) young lambs (<7 days of age), 2) older lambs (5–6 weeks), were conducted to assess the impact on quantitative and qualitative behavioural assessment of pain as follows: Young twin Scottish Blackface lambs (8 per group): RR (castration with a rubber ring, no anaesthetic or analgesic); BPC ('Best Practice' veterinary-advised rubber ring castration following administration of local anaesthetic and an NSAID); CFC (castration with ClipFitter); BPTD ('Best Practice' tail docking after LA and NSAID as above for castration); CFTD (tail-docking with ClipFitter); H (handled only); Older lambs, twin and single crossbred Mule lambs (8 per group): BPC (Burdizzo with local anaesthetic and NSAID), BPTD, CFC, CFTD, and H. Quantitative data for acute pain behaviours (REQ) were collected for 60 minutes after treatment. Two-minute video segments were also used for Qualitative Behavioural Assessment (QBA) using a fixed list approach.

Results and discussion

In **young lambs**, RR and BPC lambs had a significantly higher frequency of expressing REQ behaviours (mean frequency: 185.4 and 135.9, respectively) than H and CFC lambs (means: 17.3 and 6.3; $F_{3,18.6} = 12.50$, $P < 0.001$), which did not differ significantly from one another. BPTD and CFTD lambs had similar REQ responses which were greater than for H (medians: BPTD = 32.5; CFTD = 37.5, H = 13.0, $P = 0.043$). In **older lambs**, CFC lambs had higher REQ (mean frequency = 22.4) than BPC or H lambs (means 3.6 and 4.5 respectively; $P = 0.002$). BPTD and CFTD lambs had higher REQ values than H lambs and did not differ significantly from one another (medians: BPTD = 33.5; CFTD = 23.0, H = 8.0; $P = 0.012$). QBA analysis suggested that young lambs castrated by RR or BPC had more negatively valenced responses than CFC and H lambs ($P < 0.001$). In older lambs CFC lambs were more negatively valenced than BPC or H lambs ($P = 0.032$).

Conclusion and implications

Overall, the data suggest that ClipFitter was able to mitigate pain responses associated with castration in young lambs to a level indistinguishable from uncastrated lambs, and tail docking responses to those achieved with use of local anaesthetic in both young and older lambs. Although pain responses of older lambs castrated with ClipFitter were greater than H, they were lower than has been seen with RR alone.

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Sheep Lentivirus Infection in different production systems

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Introduction

Small ruminant lentiviruses (SRLV) are a group of viruses that infect and transmit among ovine species. SRLV infection inflict progressive and longstanding infections, the majority as asymptomatic or developing late onset clinical signs. SRLV infection is a serious problem on ovine production, not only for animals' wellbeing as well to the herd efficiency. Among other exams, laboratorial methods, essentially, are used for the diagnosis. Raising small ruminants has a great social and economic impact, being produced in different manners going from intensive to extensive care. The main aim of this research was quantifying the seroprevalence and associated risk factors to small ruminant lentivirus infection in different production systems.

Material and methods

This cross-sectional study was among ovine flocks in Portugal to assess seroprevalence status in small ruminant lentivirus infection. Flocks were randomly selected, and shepherds were invited to enrol the study. According to the total number of animals in each herd, between 14 and 19 blood samples were collected. To determine the seropositivity/negativity status of each sample, an indirect ELISA test was per-

formed (ID Screen® MVV/CAEV Indirect). For statistical analysis and odds ratio for risk factors calculation JMP® was used. The p value < 0.05 was considered statistically significant.

Results and discussion

We collected samples from a total of 120 ovine flocks of which 106 (88.3%) had had at least one seropositive animal. From 2072 individual blood samples, 804 (38.8%) were seropositive to SRLV.

Risk factors associated with SRLV infection were: animals older than 2 years old (OR = 2.27 – IC95%: 1.86-2.77); herds for dairy production (OR = 1.48 – IC95%: 1.22-1.80); intensive system (OR = 2.52 – IC95%: 1.57-4.06); commercial herds (OR = 1.89 – IC95%: 1.42-2.52); participation in livestock competitions (OR = 1.42 – IC95%: 1.03-1.84). There was no statistical association ($p > 0.05$) in relation to the animal's gender, separation of unhealthy animals and different methods of breastfeeding.

Conclusion and implications

We found a high seroprevalence of small ruminant lentivirus infection in ovine flocks in Portugal. Risk factor analysis contributed to a better understanding of the disease in the herds studied. This knowledge empowers the implementation of effective preventive measures. Overall, biosecurity measures should be promoted and implemented to aim reducing viral transmission, with the main goal of reducing the prevalence of this disease. Completely, we understand that government authorities should promote and audit voluntary control and eradication programs in sheep herds in Portugal.

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Risk factors for lentivirus: Preliminary results from a questionnaire

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Introduction

In 2019, lentivirus (maedi-visna-virus infection) was detected in a sheep flock in Trøndelag in Norway by the surveillance programme for lentivirus. With the aim of monitoring the disease in the area, around 23,000 blood samples from more than 600 sheep flocks were collected and analysed in 2019 and 2020. Lentivirus was diagnosed in nine flocks. The within-flock prevalence varied from 2% to 90%. Six of the flocks had high prevalence, above 30%. The objective of the study is to investigate factors associated with the prevalence of lentivirus.

Material and methods

Serum samples were analysed for antibodies against small ruminant lentiviruses using ID Screen® MVV/CAEV Indirect ELISA or ID Screen® MVV/CAEV Indirect ELISA Verification kit and IDEXX MVV/CAEV p28 Ab Verification Test. Diagnosis in flocks with seropositive animals was confirmed with histopathology and PCR, or by direct epidemiological link to a flock with such confirmation.

A survey was sent out to the owners of flocks that were positive for lentivirus in the outbreak in 2019-2020 ($n = 8$) and to four control flocks for each of the positive flocks ($n = 32$). In the survey, there were questions about the flock and the individuals, including housing, management routines and livestock movements.

Results and discussion

As of November 2022, seven out of eight of the owners of the case flocks and 21 of 32 of the control flock owners have answered the survey. This leaves us with an overall response rate of 70%, and to a ratio of one to three for cases versus controls. Efforts are made to include answers from all flocks.

In the following a selection of preliminary results for size, sheep purchase and housing type for the flocks in the survey are presented. The average size of all study flocks in March 2019 was 104 ewes and 3 rams. Three of the seven positive flocks (43%), and six out of 21 control flocks (29%), had increased their flock size with purchase of ewes during the last decade.

About half of all flocks in both groups were held on straw bedding, and the other half used different types of slatted floors. In six out of seven positive flocks, the rams were housed together in the same pens as the ewes during the mating season, but held in separate pens for the rest of the housing season. For the control flocks, this was the case in about half of the flocks.