ATTITUDES OF ITALIAN VETERINARIANS TO PAIN AND THE USE OF ANALGESICS IN SHEEP

Introduction

“Freedom from pain, injury and disease”, one of the principles included in the “Five freedoms” theory (FAWC 1993) is one of the conditions required to ensure an animal’s welfare. Provision of analgesia in animals is fundamental not only for ethical reasons but also because untreated pain may lead to significant economic losses (Paul-Murphy et al. 2004). Pain recognition is mandatory to provide effective pain management, but recognising pain in sheep may be difficult as they are prey species and they tend to mask pain to their potential predators (Stafford 2014). The inability to appreciate signs of pain in cattle has led some practitioners to think that “farm animals are not as sensitive to pain as small animals” (Raekallio et al. 2003). In recent years research into pain assessment and recognition has increased and nowadays pain scales for detection of pain in dogs (Holton et al. 2001), cats (Brondani et al. 2013), horses (Dalla Costa et al. 2014) and cattle (de Oliveira et al. 2014) have been designed and are available to guide practitioners in pain treatment. Unfortunately a pain scale for assessment of pain in sheep has not yet been validated. In general, pain management in farm animals has not progressed as much as for small animals. Analgesic treatment in food producing animals is particularly challenging due to the legal implications concerning prescription, record keeping, withdrawal times and lack of registered drugs. Nevertheless with the market authorization of $\alpha_2$-adrenoceptor agonist drugs and NSAIDs for use in cattle, more efficacious and longer lasting analgesia can be provided to this species (Stafford 2014). The risks of adverse effects, such as sedation by $\alpha_2$-adrenoceptor agonist or decreased ruminal motility by opioids may be another factor limiting the use of analgesics in ruminants. For the same reasons, analgesics were not administered to cats as often as in dogs (Capner et al. 1999), but thanks to research, market authorization of licensed drugs and teaching, feline pain management has improved massively in the last few years (Bortolami & Love 2015). Questionnaires regarding the practitioners’ attitudes towards pain and analgesics are important to assess changes in pain management over time, to address the research towards specific topics and to potentiate continuing education programmes.

The aim of this study was to assess the attitudes of practicing sheep veterinarians working in Italy towards this topic.
Materials and methods

An on line questionnaire was designed based on other surveys previously carried out worldwide to investigate the use of analgesia in cattle (Huxley & Whay 2006; Laven et al. 2009; Thomsen et al. 2010; Lorena et al. 2013). It was distributed to Italian veterinarians belonging to the Italian Society of Pathology and Breeding of small ovine and caprine species (SIPAOC) and SEMENTUSA project from April to June 2015. The questionnaire was sent on the behalf of the Department of Animal Medicine, Production and Health of the University of Padua and an e-mail accompanied the questionnaire explaining its aims, stating its anonymity and the estimated time (10 minutes) required to complete it.

The questionnaire was divided into 5 sections:

- Section I concerned veterinarian’s demographic data and working activity, including gender, year of graduation, post-graduate degree obtained, working area, species treated, proportion of working time spent dealing with sheep. Information regarding flock characteristics, such as number of sheep and purpose (milk, meat, wool, mix, pet animals), were also asked.

- Section II solicited information on provision of analgesia: drugs administered and anaesthetic techniques performed in the perioperative period (considered as 24 hours from the beginning of the procedure), or for specific medical conditions, including lameness, mastitis, and abscesses. Factors affecting drug choice, anaesthetic techniques used, use of non-pharmacological analgesic techniques were also investigated.

- Section III investigated the drugs commonly used for specific procedures, such as castration, dehorning and caesarean section.

- Section IV asked the veterinarian to rate the level of pain associated with specific surgical procedures or medical conditions, including castration, dehorning, caesarean section, fracture, lameness, abscess: a 10-point numerical rating scale was used, on which 1 represented no pain, and 10 the worst possible pain. Veterinarians were asked to state which physiological and behavioural changes could be considered as indicators of pain in sheep and the reasons why provision of analgesia is not common in sheep.

- Section V investigated the veterinarian’s opinion on their knowledge on the topic of sheep analgesia and which form of continuing education they would prefer to improve it. A copy of the questionnaire is included in the appendix.
Statistical analysis
Data analyses were performed using SAS statistical software (version 9.3, SAS Institute). Chi-square test was used to compare the percentages between the different levels of the variables of interest, whereas non-parametric Kruskal-Wallis test was used to compare pain scores. \( P \) values < 0.05 were deemed significant.

In order to be used in the data analysis, a questionnaire had to include all demographic data and 80% of the questions had to be answered.

Results

Part I. Demographic data
A total of 31 questionnaires were returned, two of which were discarded as the veterinarians did not work with sheep, but only goats and cattle. The percentage of respondents cannot be calculated as the precise number of veterinarians who received the questionnaire was unknown, but it can be roughly estimated as 100-120 veterinarians.

Of the respondents, 69% were male and 31% were female (Figure 1); 44.8% and 55.2% of veterinarians graduated less and more than 10 years ago respectively (Figure 2). The vast majority of the veterinarians achieved a post graduate degree, with 3 people having more than one (Figure 3).

Figure 1. Gender of Italian veterinarians responding to the questionnaire.
Figure 2. Year of graduation of Italian veterinarians responding to the questionnaire.

Figure 3. Post-graduation studies done by Italian veterinarians responding to the questionnaire.
Figure 4. Geographical distribution of working areas in Italy of veterinarians responding to the questionnaire.

Only 10.35% of veterinarians worked only with sheep, while the greatest percentage, 38%, spent from 30 to 50% of their time treating sheep (Figure 5).

Figure 5. Percentage of working time spent treating sheep by Italian veterinarians responding to the questionnaire.
Indeed, most of the respondents treated not only sheep but also other species, goats and cows in particular (Figure 6).

Figure 6. Other species treated by Italian veterinarians responding to the questionnaire.

Flock size and purpose are summarised in Table 1.

Table 1. Size and purpose of flocks treated by Italian veterinarians responding to the questionnaire.

<table>
<thead>
<tr>
<th>FLOCK SIZE</th>
<th>&gt;100</th>
<th>50-100</th>
<th>10-50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of veterinarians</td>
<td>82.7%</td>
<td>6.9%</td>
<td>10.4%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FLOCK PURPOSE</th>
<th>Milk</th>
<th>Meat</th>
<th>Mix</th>
<th>Pet</th>
<th>Wool</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of veterinarians</td>
<td>79.3%</td>
<td>24.1%</td>
<td>17.2%</td>
<td>10.3%</td>
<td>3.4%</td>
</tr>
</tbody>
</table>
The level of association between the percentage of working time spent treating sheep and the flock size was found to be statistically significant (P=0.04): veterinarians who spent more time treating sheep dealt with bigger flocks (Data not shown). The level of association between the flock size and geographical area was investigated: it was found that bigger flocks are distributed in Southern Italy and Islands (P=0.02).

Part II. Drugs used

None of the veterinarians used opioids in sheep, not even in any particular circumstance. More than one half of veterinarians (51.8%) administer NSAIDs after the surgical procedure, while 31% do not usually administer them in the perioperative period (Figure 7). In case of lameness, mastitis, abscesses, 83%, 76% and 10% of veterinarians administer NSAIDs respectively (data not shown).

Figure 7. Timing of perioperative NSAIDs administration.

The two most commonly use NSAIDs were flunixin meglumine and ketoprofen (Figure 8).
Figure 8. Most commonly used NSAIDs by Italian veterinarians responding to the questionnaire.

The most important factors affecting the choice of NSAIDs were efficacy, withholding time, veterinary market authorization, followed by costs, availability and safety profile (P=0.003) (Figure 9).

Figure 9. Factors influencing NSAIDs choice by Italian veterinarians responding to the questionnaire.
Almost all veterinarians usually administer a local anaesthetic in the perioperative period (96.6%) and in particular after the surgery (96.6%); lidocaine was commonly used by all veterinarians (data not shown).

Data regarding the use of local anaesthetic techniques can be visualised in figure 10: local infiltration was performed by most of veterinarians (89.7%), followed by epidural for abdominal/perineal procedures (69%), and intratesticular block (51.7%) (P<0.0001). When an epidural was performed, 86% of the veterinarians used a local anaesthetic only.

Figure 10. Local anaesthetic techniques performed in sheep by Italian veterinarians responding to the questionnaire.

The association between the use of NSAIDs and local anaesthetic was investigated and although not statistically significant (P= 0.67), it was found that 68% veterinarians who administer NSAIDS administer also local anaesthetics, and 88.9% veterinarians who do not use NSAIDs administer a local anaesthetic peri-operatively.

The association between the use of advanced local anaesthetic techniques, such as epidural anaesthesia, and the time of graduation and post-graduate education was investigated.

When considering the year of graduation, before or after 2005, 56.2% and 84.6% of veterinarians performed neuraxial anaesthesia respectively, but this was not found to be statistically significant (P=0.21).
Of the veterinarians with a post graduate degree 80% performed epidurals, while 44.4% of veterinarians without a post graduate degree did not: this was not considered statistically significant (P=0.14).

The most commonly used drugs in practice can be visualised in figure 11. None of the veterinarians ever used tramadol in sheep.

Figure 11. Other drugs commonly used in the perioperative period by Italian veterinarians responding to the questionnaire.

![Drugs administered](image)

**Part III. Drugs used for specific conditions**

**Castration and dehorning**

Local anaesthetics were commonly used for castration in sheep with 41.6% of the veterinarians using them; a multimodal analgesic approach consisting of $\alpha_2$-adrenoceptor agonists, NSAIDs and local anaesthetics was used by 20.7% (Figure 12). The same multimodal approach was used only by 13.9% of veterinarians performing dehorning (Figure 13).
Figure 12. Most commonly used drugs for castration by Italian veterinarians responding to the questionnaire.

Figure 13. Most commonly used drugs for dehorning by Italian veterinarians responding to the questionnaire.
Caesarean section

There was a great variability among practitioners in drugs and techniques used for caesarean section; the number of classes of analgesic drugs used, classified as NSAIDs, dissociative anaesthetic agents and local anaesthetics, is shown in figure 14. Epidural anaesthesia alone or in combination with other drugs was performed by 55% of veterinarians. Multimodal analgesia with NSAIDs, α₂-agonists and local anaesthetics was provided by 24% of veterinarians, while 34.5% of them used 2 classes of analgesic drugs (from α₂-agonists, NSAIDs, local anaesthetics, ketamine).

Figure 14. Most commonly used drugs for caesarean section by Italian veterinarians responding to the questionnaire.

Part IV. Estimated pain score

Italian veterinarians responding to the questions regarding the pain experienced by sheep undergoing different surgical procedures or suffering from different conditions considered fracture to be the most painful condition, followed by mastitis and lameness (P<0.0001) (Table 2).
Table 2. Estimated pain scores of Italian veterinarians responding to the questionnaire. Each cell shows the percentage of respondents who recorded that pain score; shaded cells show the mode.

<table>
<thead>
<tr>
<th>PROCEDURE / CONDITION</th>
<th>ESTIMATED PAIN SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
</tr>
<tr>
<td>Castration</td>
<td>29</td>
</tr>
<tr>
<td>Dehorning</td>
<td>29</td>
</tr>
<tr>
<td>Caesarean Section</td>
<td>29</td>
</tr>
<tr>
<td>Fracture</td>
<td>29</td>
</tr>
<tr>
<td>Mastitis</td>
<td>29</td>
</tr>
<tr>
<td>Lameness</td>
<td>29</td>
</tr>
<tr>
<td>Abscess</td>
<td>29</td>
</tr>
</tbody>
</table>

The effect on pain scoring of year of graduation, gender and percentage of working time spent treating sheep was evaluated. Veterinarians who graduated before 2005 attributed higher median pain scores than the ones who graduated after 2005, with the median being 6 and 5 respectively (P= 0.04). When all the conditions/procedures were considered together, the median pain scores attributed by female veterinarians was higher than males, with the median pain scores being 7 and 5 respectively (P<0.001). Nevertheless when the procedures/conditions were considered separately, a statistical significant difference was found only for lameness and caesarean section. No statistically significant difference was reported between veterinarians spending less or more than 50% of their working time treating sheep, with the median pain scores being 5 and 6 respectively (P=0.1).

The association between the numbers of analgesic classes (NSAIDs, alpha 2 agonists, local anaesthetics, dissociative anaesthetic agents) used for the different surgical procedures on the pain scoring was evaluated, but no statistically significant results were found (P>0.05).

The vast majority of veterinarians considered decreased ambulation, feeding and drinking as signs of pain in sheep, followed by immobility, hyperventilation, decreases interaction with other sheep and tachycardia (Figure 15).
Figure 15. Indicators of pain in sheep according to Italian veterinarian responding to the questionnaire.

In the respondents' opinion, the main reason why analgesic drugs were not administered to sheep was the lack of licensed drugs, followed by costs, withholding times and regulations (Figure 16).

Figure 16. Reasons why analgesics drugs were not administered to sheep according to Italian veterinarians responding to the questionnaire.

Part IV. Knowledge and continuing education on sheep analgesia
The great majority of veterinarians (89.6%) considered their knowledge on sheep analgesia to be limited and were keen to improve it (96.5%) by attending congresses and
seminars (79%), or with distance learning continuing professional education programmes (51.7%), or by reading scientific journals (51.7%) (Data not shown).

Discussion

To the author's knowledge, this is the first questionnaire assessing the attitude of veterinarians towards recognition, assessment and treatment of pain in sheep. Similar published questionnaires have evaluated the same topic for other large animal species, in particular cattle, horses and pigs (Raekallio et al. 2003; Huxley & Whay 2006; Hewson et al. 2007a; Thomsen et al. 2010; Lorena et al. 2013). Only 31 veterinarians took part in the survey; the response rate is not known as the total number of veterinarians who received the e-mail was not known, but the number can be approximated to be 120-150. Moreover, the exact number of veterinarians dealing with sheep in Italy is unknown. The current questionnaire is shorter than used in previous studies, this was done purposefully to encourage more responses, but this strategy was not successful and the number of responses obtained was very low. Publicity in specialised journals or direct mailing to practitioners could have increased the response rate, but it was not done for reasons of cost. It is difficult to tell if the respondents were representative of the sheep profession as a whole because of the voluntary nature of the questionnaire and the mailing database was not “audited” to reduce the risks of biased distribution, as previously commented by Huxley (Huxley & Whay 2006). Nevertheless considering the heterogeneity of gender and time since graduation, the dataset could be considered representative of sheep profession in Italy. This survey has considerably fewer respondents in comparison to other surveys but this was expected, as the questionnaire focused only on one species and sheep are not as common in Italy in comparison to other countries such as the United Kingdom or Australia. Similar questionnaires investigating analgesia in a single species, specifically in cattle, included only 137 (Becker et al. 2013) and 166 (Laven et al. 2009) answers in contrast to 641 and 666 replies obtained in the United Kingdom (Huxley & Whay 2006) and in the States (Fajt et al. 2011) respectively. Of the 31 replies, two had to be discarded as these two practitioners dealt only with goats and cattle but not with sheep; all the remaining 29 questionnaires were included in the study as all background data were present and more than 80% of questions were answered. More
robust results might have been obtained with an increased number of replies; the sample size of this study is limited and this could have affected the outcome. Small ruminants breeding is performed mainly in the Southern Italy and Islands and this is mirrored by the results of this study which indicate that 65.5% of veterinarians who responded to the survey work in this area where bigger flocks are located. Sheep practitioners who replied to the questionnaire were mainly males (69%), who graduated before 2005 (55.2%) and achieved a post-graduation degree (86.3%). According to Italian statistics, the number of female graduating from veterinary school in Italy has increased in the last few years (Mazzanti 2013), but according to this study it seems that sheep veterinarians are mainly male.

None of the veterinarians usually administer opioids to sheep in the perioperative period. Experimental pain models using nociceptive stimulation have provided evidence for efficacy of intravenously administered opioids in sheep (Nolan et al. 1987; Nolan et al. 1988; Waterman et al. 1990; Waterman et al. 1991a; Waterman et al. 1991b). Systemic and neuraxial administration of opioids has been reported in sheep undergoing experimental procedures and they have been proven to provide perioperative analgesia (Ahern et al. 2009; DeRossi et al. 2015), but they are not commonly used by practitioners (Hodgkinson 2007). This is because although opioids could be used in an extra-label manner according to the cascade principles, practitioners are put off by the long withdrawal times, labelling and records requirement, costs and limited knowledge of the pharmacokinetics and pharmacodynamics of these drugs.

None of the respondents had ever used tramadol in sheep. Tramadol is a centrally acting opioid analgesic drug (Raffa et al. 1992) and is exempted from the safe custody requirements; it could potentially be a valuable option for use in sheep as it has been proven to be an useful adjunct in the management of perioperative pain in ruminants (Bigham et al. 2010; Habibian et al. 2011; Dehkordi et al. 2012). Moreover the author has investigated the pharmacokinetic and pharmacodynamics of tramadol in conscious sheep (Bortolami et al. 2015), but further studies are warranted before tramadol can be safely used in practice.

The two most commonly used NSAIDs were flunixin meglumine and ketoprofen, followed by meloxicam and phenylbutazone. Similar results have been reported in other studies where flunixin meglumine, meloxicam and ketoprofen were the most frequently cited NSAIDs by British cattle practitioners (Huxley & Whay 2006), and flunixin meglumine, ketoprofen and phenylbutazone were the most frequently used NSAIDs in large animals in
Brazil (Lorena et al. 2013). The great majority of practitioners (69%) administer NSAIDs in the perioperative period, especially after the surgical procedure and this result is similar to that reported by Huxley in cattle (Huxley & Whay 2006). The use of NSAIDs has been proven to improve pain control following several commonly performed surgical procedures (Ting et al. 2003; Milligan et al. 2004) and so they should be routinely used as standard practice for these procedures (Huxley & Whay 2006). Indeed, not only do NSAIDs have potent anti-inflammatory and analgesic properties, but they are also characterised by ease of parenteral administration and long duration of action (Valverde 2013).

In the perioperative period provision of analgesia was provided by almost all practitioners by the use of local anaesthetics. Local anaesthetic techniques are indeed very common in small ruminants and cattle as the vast majority of the procedures can be carried out with standing sedation and local anaesthetics (Hodgkinson 2007; Valverde 2013). The importance of the use of neuraxial anaesthesia in sheep can be also deducted by the number of experimental studies evaluating it (Habibian et al. 2011; Moll et al. 2011; Dehkordi et al. 2012; DeRossi et al. 2012a; DeRossi et al. 2012b; Rostami & Vesal 2012; DeRossi et al. 2015). Advanced local anaesthetic techniques, such as epidural anaesthesia, were performed most commonly by practitioners who had been graduated for less than ten years, a result that was consistent with other studies (Lorena et al. 2013).

Almost all practitioners, believed that procedures and medical conditions listed in the survey cause pain in sheep, with the condition perceived as causing the greatest pain being a fracture, followed by lameness and caesarean section and mastitis.

In this study the overall median pain score assessed by women was higher than the one attributed by men and this was consistent with other studies' findings (Huxley & Whay 2006; Laven et al. 2009; Lorena et al. 2013). In the same studies higher pain scores were assigned by more recent graduates (Huxley & Whay 2006; Laven et al. 2009; Lorena et al. 2013), but this was not found in this study.

As in other studies, pain scores attributed by practitioners varied widely between them, and this confirms the subjective nature of pain assessment in animals (Huxley & Whay 2006). Unlike people, animals are unable to verbalise their feelings, so pain assessment is based primarily on behavioural and physiological evaluations (Hardie 2000; Rutherford 2002). According to the practitioners’ opinion collated in this survey, sheep manifest their pain by decreasing movement, food and water intake and physiological changes such as tachycardia and hyperventilation can be observed. These opinions are consistent with indicators of pain previously reported in cattle (Stafford 2014).
Not only pain recognition and assessment is difficult in sheep but also its treatment. Indeed, to the practitioners’ opinion the main reason why analgesics drugs were not administered to sheep was the lack of licensed drugs, followed by costs, withholding times and regulations. Registration for use in food producing animals is the most important factor to be considered, and this explains why practitioners do not administer opioids. In the author’s opinion the approval of drugs for treatment of painful states in food producing animal may increase the use of analgesics by veterinarians. Nevertheless costs were also considered an important aspect to take into account; which is consistent with other studies (Huxley & Whay 2006; Hewson et al. 2007b). The practitioners’ use of analgesics is influenced by the farmers’ concerns about the cost effectiveness of drugs compared to the value of the livestock (Huxley & Whay 2006; Gottardo et al. 2011), and the industry’s narrow profit margins. Spending money on analgesia can be cost effective, as the provision of analgesia for dehorning and castration has been proven to improve growth rates in cattle (Faulkner & Weary 2000; Stafford & Mellor 2005b; Stafford & Mellor 2005a; Vickers et al. 2005). Finally, analgesia improves not only animals’ wellbeing and productivity but also handling calm and pain-free animals will increase practitioner’s safety. In order to improve farmers and veterinarians’ knowledge regarding the benefits of analgesia, continuing education should be provided. The vast majority of the practitioners were interested in improving their knowledge regarding pain assessment and treatment in sheep; this willingness is therefore the first step towards a better management of sheep analgesia.

Conclusions

Welfare of animals has its basis in pain treatment. Surveys investigating practitioners’ attitudes on analgesia are important to provide understanding of their practices and help to target professional development programs in order to improve animal care.
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QUESTIONARIO SULL’ ANALGESIA NELLA SPECIE OVINA

*Campo obbligatorio

PARTE I
Per favore, rispondi alle seguenti domande. E’ possibile indicare più di una risposta.

In che anno ti sei laureato/a? *

Hai effettuato studi post-lauream? *
- □ Master
- □ Dottorato di ricerca
- □ Scuola di specializzazione
- □ Diploma Europeo
- □ Non ho effettuato studi post-lauream
- □ Altro:

Sesso: *
- ○ Maschio
- ○ Femmina

In che regione lavori? *

Di quali specie animali ti occupi? *
- ○ □ Specie ovina
- ○ □ Specie caprina
- ○ □ Specie bovina
- ○ □ Specie equina
- ○ □ Altro:

Che percentuale del tuo tempo dedichi alla cura della specie ovina? *
- ○ □ 0-30%
- ○ □ 30-50%
- ○ □ 50-70%
- ○ □ 100%

Quale è la grandezza media del gregge con cui hai a che fare? *
- ○ □ 1-10 capi
- ○ □ 10-50 capi
- ○ □ 50-100 capi
- ○ □ più di 100 capi
Qual è l'attitudine degli ovini a cui dedichi le tue cure? *

- Carne
- Latte
- Lana
- Mista
- Sperimentazione
- Compagnia
- Altro: 

PARTE II

Le seguenti domande riguardano l'uso di analgesici/tecniche analgesiche nel periodo peri-operatorio nella specie ovina. Per periodo peri-operatorio si intende il periodo che intercorre tra l'inizio dell'anestesia fino a 24 ore dopo la procedura. Per favore, indica quali farmaci/tecniche utilizzi per fornire analgesia nella specie ovina, anche in deroga secondo normativa vigente. E' possibile indicare più di una risposta.

Oppioidi. Quale dei seguenti farmaci utilizzi? *

- Butorfanolo
- Buprenorfina
- Metadone
- Morfina
- Petidina
- Nessuno
- Altro: 

Somministri abitualmente oppioidi nel periodo perioperatorio in pecore sottoposte a chirurgie (es. castrazione, decorruazione, cesareo, laparotomia, etc)? Se sì, quando somministri gli oppioidi? *

- Non utilizzo oppioidi abitualmente
- Prima dell'anestesia
- All'inizio dell'anestesia o durante la chirurgia
- Dopo la chirurgia

Se non somministri abitualmente gli oppioidi nella specie ovina, li somministri in qualche circostanza particolare? *

- Si
- No

Se sì, in che particolare circostanza somministri gli oppioidi?
In base a quale criterio scegli l’oppioide da somministrare? *
- [ ] Non somministro oppioidi
- [ ] Efficacia analgesica
- [ ] Sicurezza riportata
- [ ] Costi
- [ ] Reperibilità
- [ ] Altro: ______________________

Farmaci anti-infiammatori non steroidei. Quale dei seguenti farmaci utilizzi? *
- [ ] Acido tolfenamico
- [ ] Carprofen
- [ ] Fenilbutazone
- [ ] Flunixin meglumine
- [ ] Ketoprofene
- [ ] Meloxicam
- [ ] Non dispongo di farmaci anti-infiammatori non steroidei
- [ ] Altro: ______________________

Somministri abitualmente farmaci anti-infiammatori non steroidei (FANS) nel periodo perioperatorio in pecore sottoposte a chirurgie (es. castrazione, decornuazione, cesareo, laparotomia, etc)? Se sì, quando somministri i FANS? *
- [ ] Prima dell’anestesia
- [ ] All’inizio dell’anestesia o durante la chirurgia
- [ ] Dopo la chirurgia
- [ ] Non utilizzo abitualmente FANS

Per il trattamento di quali patologie somministri i FANS? *
- [ ] Zoppie
- [ ] Mastiti
- [ ] Ascessi
- [ ] Altro: ______________________

In base a quale criterio scegli i FANS da somministrare? *
- [ ] Registrazione per la specie ovina
- [ ] Efficacia analgesica
- [ ] Tempi di sospensione
- [ ] Sicurezza riportata
- [ ] Costi
- [ ] Reperibilità
- [ ] Altro: ______________________
Anestetici locali. Quale dei seguenti farmaci utilizzi?
- Procaina
- Bupivacaina
- Lidocaina
- Non dispongo di anestetici locali
- Altro: 

Somministri abitualmente anestetici locali nel periodo perioperatorio in pecore sottoposte a chirurgie (es. castrazione, decorazione, cesareo, laparotomia, etc)? *
- Si
- No

Quale delle seguenti tecniche loco-regionali utilizzi? *
- Infiltrazione di anestetico locale attorno al punto di incisione della cute
- Blocco intratesticolare per castrazione
- Anestesia epidurale per procedure su addome e perineo
- Anestesia epidurale per procedure sugli arti posteriori
- Infiltrazione di anestetico locale attorno al dente per procedure dentali
- Blocco del nervo mandibolare/mascellare per procedure dentali
- Blocco del plesso brachiale
- Non utilizzo tecniche loco regionali
- Altro: 

Che farmaci utilizzi quanto effettui un’epidurale? *
- Anestetico locale
- Anestetico locale e oppioide
- Non effettuo epidurali
- Altro: 

Altri farmaci. Quale dei seguenti farmaci utilizzi? *
- Detomidina
- Dexmedetomidina
- Medetomidina
- Romifidina
- Xylazina
- Ketamina
- Farmaci anti-infiammatori steroidei
- Farmaci omeopatici
- Nessuno di questi
- Altro: 
Hai mai somministrato tramadolo nella specie ovina? *
  o  ☐ Si
  o  ☐ No

Se si, in che circostanza/patologia hai utilizzato il tramadolo?

A che dose e per quanto tempo hai somministrato il tramadolo?

Hai notato effetti collaterali dopo la somministrazione di tramadolo?
  o  ☐ Si
  o  ☐ No

Se hai notato effetti collaterali, quale dei seguenti hai notato dopo la somministrazione di tramadolo?
  o  ☐ Agitazione
  o  ☐ Atassia
  o  ☐ Tremore
  o  ☐ Tachipnea
  o  ☐ Tachicardia
  o  ☐ Altro:

Per apportare analgesia, quali altre tecniche utilizzi? *
  o  ☐ Agopuntura
  o  ☐ Chiropratica
  o  ☐ Nessuna di queste
  o  ☐ Altro:

PARTE IV

Le seguenti domande riguardano l’uso di analgesici nel periodo peri-operatorio nella specie ovina. Per periodo peri-operatorio si intende il periodo che intercorre tra l’inizio dell’anestesia fino a 24 ore dopo la procedura. È possibile indicare più di una risposta.

Che farmaci utilizzi per le castrazioni? *
  o  ☐ Alpha 2 agonista
  o  ☐ FANS
  o  ☐ Ketamina
  o  ☐ Anestetico locale
  o  ☐ Nessuno
  o  ☐ Altro:
Che farmaci utilizzi per le decornuazioni? *
   - ☐ Alpha 2 agonista
   - ☐ FANS
   - ☐ Ketamina
   - ☐ Anestetico locale
   - ☐ Nessuno
   - ☐ Altro: 

Che farmaci/tecniche usi per un cesareo? *
   - ☐ Alpha 2 agonista
   - ☐ FANS
   - ☐ Ketamina
   - ☐ Epidurale
   - ☐ Infiltrazione di anestetico locale sul fianco
   - ☐ Oppioidi per via sistemica
   - ☐ Nessuno
   - ☐ Altro: 

PARTE V

Per favore, rispondi alle seguenti domande. E' possibile indicare più di una risposta.

Indica in una scala da 1 a 10, dove 1 indica assenza di dolore e 10 il peggior dolore possibile, quale intensità di dolore prova una pecora durante/dopo la castrazione? *

1 2 3 4 5 6 7 8 9 10

Indica in una scala da 1 a 10, dove 1 indica assenza di dolore e 10 il peggior dolore possibile, quale intensità di dolore prova una pecora durante/dopo la decornuazione? *

1 2 3 4 5 6 7 8 9 10

Indica in una scala da 1 a 10, dove 1 indica assenza di dolore e 10 il peggior dolore possibile, quale intensità di dolore prova una pecora durante/dopo un cesareo? *

1 2 3 4 5 6 7 8 9 10

Indica in una scala da 1 a 10, dove 1 indica assenza di dolore e 10 il peggior dolore possibile, quale intensità di dolore prova una pecora affetta da frattura ossea? *
Indica in una scala da 1 a 10, dove 1 indica assenza di dolore e 10 il peggior dolore possibile, quale intensità di dolore prova una pecora affetta da mastite? *

1 2 3 4 5 6 7 8 9 10

Indica in una scala da 1 a 10, dove 1 indica assenza di dolore e 10 il peggior dolore possibile, quale intensità di dolore prova una pecora affetta da zoppia? *

1 2 3 4 5 6 7 8 9 10

Indica in una scala da 1 a 10, dove 1 indica assenza di dolore e 10 il peggior dolore possibile, quale intensità di dolore prova una pecora con un ascesso? *

1 2 3 4 5 6 7 8 9 10

Quali atteggiamenti riconosci in una pecora che prova dolore? *

- Diminuzione della locomozione
- Immobilità
- Diminuzione dell'interazione con le altre pecore
- Diminuzione dell'alimentazione e abbeveraggio
- Diminuzione dell'attività reticolo-ruminale
- Calci / leccamento / sfregamento della zona dolorante
- Digrignamento dei denti
- Tachicardia
- Iperventilazione
- Nessuna di queste
- Altro: ______________________

Secondo il tuo parere, per quali motivi l'utilizzo dell'analgesia nella specie ovina è limitato? *

- Mancanza di farmaci registrati per l'uso negli ovini
- Motivi economici
- Tempi di attesa dopo la somministrazione del farmaco
- Incombenze burocratiche
- Nessuno di questi
- Altro: ______________________
PARTE VI

Per favore, rispondi alle seguenti domande. E' possibile indicare più di una risposta.

Consideri adeguata la tua conoscenza nell'ambito della terapia del dolore nella specie ovina? *

- [ ] Si
- [ ] No

Come preferiresti aggiornare le tue conoscenze riguardo la terapia del dolore nella specie ovina? *

- [ ] Riviste specialistiche
- [ ] Congressi / Seminari
- [ ] Aggiornamento a distanza
- [ ] Non mi interessa l'argomento
- [ ] Altro: 

GRAZIE MILLE PER AVER COMPILATO QUESTO QUESTIONARIO!