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Number 38

Treatment of inflammation, pain and fever in farm animals

The use of anti-inflammatory, analgesic treatments in animals and particularly farm animals is low. The excuses for low use of anti-inflammatory analgesics in farm animals include: pain is transient and does not warrant treatment; cost consideration; potential for residues; and they have not been traditional treatments.

Inflammation, pain and fever is likely to result in diminished feed consumption and lower productivity. Chronic pain changes an animal's metabolism adversely resulting in reduced milk production, fertility and growth.

NSAID's help antibiotics act quicker by reducing fever and inflammation which facilitates the antibacterial action on the target tissue.

Residues are not generally an issue for NSAID's as they have a relatively short withholding time compared with antibiotics and other treatments.

Short meat and milk withholding period and Export Slaughter Interval

NSAID's have relatively short meat and milk withholding times and Export Slaughter Intervals. ***In Australia, the only NSAID that has an approved, compliant Export Slaughter Interval for both cattle and pigs is Tolfedine™ CS Injection (Ausrichter Pty Ltd).***

Animal welfare concerns will result in an increased use of analgesics for routine husbandry procedures such as de-horning and castration, for painful diseases such as lameness and mastitis.

NSAID – differences: ACTIVITY OF SEVERAL NSAID'S ON COX ISO ENZYMES

Non-preferential COX-2 INHIBITORS	Preferential COX-2 INHIBITORS
Ketoprofen (not approved for pigs)	Meloxicam
Carprofen (not approved for food animals in Australia)	Tolfenamic acid
Flunixin meglumine	

NSAID's are differentiated in their mechanism of action depending on which Cyclo Oxygenase (COX) iso enzyme they act.

Non-selective COX inhibitors are: ketoprofen, carprofen and flunixin.

Prefectural (COX-2) inhibitors [they preferentially inhibit COX-] over COX-1: are meloxicam and tolfenamic acid.

Ketoprofen, carprofen and flunixin are not used in human medicine. Carprofen was used for some time in human medicine, but was found to have a 'week effect' and disappeared from the market. Carprofen is not approved for use in food animals in Australia.

Conclusion

A majority of farm animal disease, interventions and procedures have an inflammation and pain component. Inflammation, pain and fever in animals reduces productivity.

Fever is an indication of a serious infection and immediate treatment to reduce fever is essential.

Modern NSAID's are low-residue risk treatments with short and manageable withholding times. In Australia, animal treatments with approved Export Slaughter Intervals should be preferred so livestock producers can complete the NATIONAL VENDOR DECLARATION for animals to be sold for slaughter and the meat and offal destined for export to world markets. Treatment products for food animals without approved Export Slaughter Intervals are not compliant with export requirements.

Social and legislative pressures, export/import protocols and increasing animal welfare will result in the increase the use of analgesics for routine husbandry procedures in food animals.

Adapted from International Pig Topics; V 27 No 7, 2012.

PRODUCT INFORMATION

Tolfedine CS Injection

A non steroidal anti-inflammatory – analgesic – antipyretic for use in cattle and pigs

Sterile aqueous solution containing 4.0% w/v tolfenamic acid as active ingredient and 1.04% w/v benzyl alcohol as preservative.

INDICATIONS

For use by or under the direction of a registered veterinarian as an aid in the treatment of pneumonia and acute mastitis in cattle and metritis-mastitis-agalactia in pigs.

DIRECTIONS FOR USE

Restraints: DO NOT inject cattle other than into muscle tissue high on the side of the neck (see leaflet for diagram). Injection of product into muscles other than as described is likely to result in residues in meat above the MRL or ESI.

Precautions: Repeat treatments or higher doses could result in residues above the MRL unless the label withholding period is extended. The prescribing Veterinarian would need to advise on an extended withholding period. Safe use of TOLFEDINE CS Injection during pregnancy has not been established.

DOSAGE AND ADMINISTRATION:

Use the contents within 3 months of first broaching of the vial. Discard the unused portion.

RE-TREATMENT INTERVAL: A single treatment regime consists of either 1 x IV injection (cattle) or 2 x IM injections at 48h (cattle) or 1 x IM injection (pigs). DO NOT repeat treatment less than 21 days after treatment of pigs, or 28 days after last treatment of cattle.

CATTLE –

Pneumonia: 2 mg/kg (1 mL per 20 kg bw) by intramuscular injection high on the neck (see diagram). Treatment may be repeated once only after 48 hours.

Mastitis: 4 mg/kg (1 mL per 10 kg bw) as a single intravenous injection.

PIGS –

Metritis-mastitis-agalactia: 2 mg/kg (1 mL per 20 kg bw) as a single intramuscular injection into the rump.

WITHHOLDING PERIODS

MEAT –

Cattle by intramuscular administration: DO NOT USE less than 10 days before slaughter for human consumption.

Cattle by intravenous administration: DO NOT USE less than 4 days before slaughter for human consumption.

Pigs by intramuscular administration: DO NOT USE less than 6 days before slaughter for human consumption.

MILK –

Cattle by Intramuscular or Intravenous Administration: Milk collected from cows within 12 hours (1 milking) following treatment MUST NOT BE USED for human consumption or processing, or fed to bobby calves.

TRADE ADVICE

EXPORT SLAUGHTER INTERVAL (ESI):
DO NOT USE less than 21 days (pigs) or 28 days (cattle) before slaughter for export. The ESI on this label was correct at the time of label approval. Before using this product, confirm the current ESI from the registrant on 02 9517 1166 or the APVMA website (www.apvma.gov.au/residues/ESI.shtml).

FIRST AID: If poisoning occurs, contact a doctor or Poisons Information Centre. Phone Australia 131 126.

STORE below 30°C (room temperature) away from direct sunlight.

DISPOSE of empty containers by wrapping with paper and putting in garbage.

PRESENTATION: Tolfedine CS is available in vials containing 100 mL.

APVMA Approval No 52850/49084

Vétoquinol

Anti-microbial testing of selected fluoroquinolones against Pseudomonas aeruginosa isolated from canine otitis

Abstract

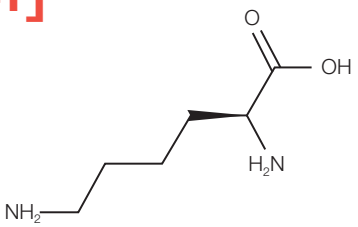
A total of 100 Pseudomonas aeruginosa (P. aeruginosa) isolates were collected over a 1.5-year period from cases of canine otitis. Sensitivities to enrofloxacin, marbofloxacin, and orbifloxacin were determined using minimum inhibitory concentration testing (MICT). Isolates were also tested for sensitivities to enrofloxacin and marbofloxacin using disk-diffusion susceptibility testing (DDST).

Isolates were significantly more sensitive to marbofloxacin than to enrofloxacin ($z = -4.57$; $P<0.05$) or orbifloxacin ($z = -5.02$; $P<0.05$). Agreement was 87% between MICT and DDST for marbofloxacin, with approximately equal numbers of overestimation and underestimation errors. Agreement was 74% between MICT and DDST for enrofloxacin, but DDST tended to overestimate the number of enrofloxacin-susceptible strains. These results suggest that marbofloxacin is more effective against P. aeruginosa than either enrofloxacin or orbifloxacin and that relying on DDST may lead to ineffective enrofloxacin treatment.

McKay L *et al* J Am Anim Hosp Assoc. 2007 Nov-Dec;43(6):307-12.

L-lysine: for management and treatment of symptoms of Feline Herpes Virus [FHV-1]

Lysine



Administration of **L-lysine** (a non-prescription amino acid) is reported to compete, pharmacologically, with arginine, which is required by herpes viruses to replicate. While the efficacy of L-lysine has been challenged (because of the lack of supporting data), some recent studies have actually shown that in stressful housing environments (i.e. shelters), routine feeding of L-lysine does, in fact, decrease episodic viral re-activation and shedding. ***L-lysine has been formulated into a paste for convenient administration to pet cats.***

L-LYSINE DOSING RECOMMENDATIONS

250 to 500 mg administered orally, with food, once daily, for an indefinite period, has been recommended to prevent (or lessen) the consequences of viral recrudescence of FHV-1 (this does not TREAT FHV-1 nor is it effective in chronic calicivirus). Administration of L-lysine is generally based on the empirical decision that a cat has viral upper

respiratory disease and therefore might benefit from L-lysine administration.

The reason is that confirming a diagnosis of FHV-1 (carrier state) requires isolation of the virus which is intermittent and much more difficult to do. In clinical practice, therefore, the decision to treat with lysine is seldom based on diagnostic confirmation of FHV-1 infection.

Perhaps more reasonable criterions to use are:

(1) Administer to cats with evidence of intermittent clinical signs of upper respiratory disease and, especially, conjunctivitis.

(2) Try it and see how the cat responds.

NOTE: Antiviral drugs used to treat herpesvirus infections in humans (e.g., acyclovir) are not effective against feline herpesvirus and, in fact, are contraindicated. Likewise, ribavirin is an antiviral drug effective against FCV, however the drug is quite toxic to cats and should not be used.

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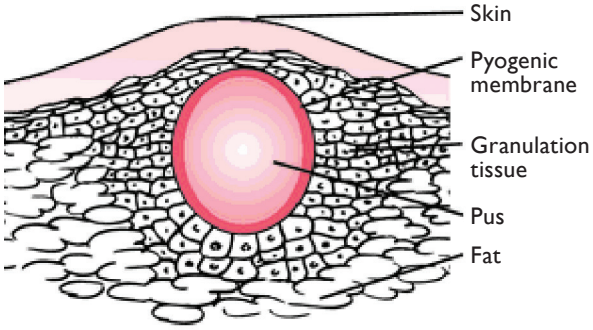
Updated October 2009.

Phlegmon: a spreading diffuse inflammatory process with formation of suppurative/purulent exudate or pus

A result of acute purulent inflammation which may be related to bacterial infection, however the term 'phlegmon' mostly refers to a walled-off inflammatory mass without bacterial infection, one that may be palpable on physical examination.

Abscess [ab´ses]

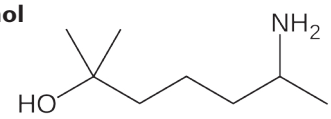
A localized collection of pus in a cavity formed by the disintegration of tissue. Abscesses are usually caused by specific microorganisms that invade the tissues, often by way of small wounds or breaks in the skin. An abscess is a natural defence mechanism in which the body attempts to localize an infection and wall off the microorganisms so that they cannot spread throughout the body. As the microorganisms destroy the tissue, an increased supply of blood is rushed to the area. The cells, bacteria, and dead tissue accumulate to form a clump of cream-colored liquid, which is the pus. The accumulating pus and the adjacent swollen, inflamed tissues press against the nerves, causing pain. The concentration of blood in the area causes redness. The abscess sometimes "comes to a head" by itself and breaks through the skin or other tissues, allowing the pus to drain. Local applications of heat may be used to facilitate localization and drainage.



Phlegmonous abscess: one associated with acute inflammation of the subcutaneous connective tissue.

Heptaminol – Kynoselen® Muscle Stimulant Injection for Horses and Dogs

Heptaminol



Heptaminol has been shown to prevent fatigue of muscle and nervous activities. The cellular mechanisms underlying its action on skeletal muscle have been studied. Experiments show that heptaminol is able to prevent the decay and to increase the amplitude of tension during continuous repeated stimulation of single isolated twitch fibres.

Heptaminol has a positive inotropic effect on skeletal muscle.

Positive inotropic agents [Heptaminol] increase the strength of muscle contractions.

Br. J. Pharmacol. (1991), 104, 714-718

Kynoselen is an injection registered for use in dogs. It should be considered for the treatment of all dogs presented with muscular weakness or muscle related injuries.

PRODUCT INFORMATION

Kynoselen™ Muscular Stimulant for Horses and Dogs

Each 100mL contains:

Heptaminol hydrochloride	0.5g
Disodic adenosine monophosphate	0.2g
Sodium selenite (selenium)	0.05g
Magnesium aspartate	1.5g
Potassium aspartate	1.0g
Cyanocobalamin (vitamin B12)	0.025g

ACTIONS

Muscle stimulant, selenium supplement.

INDICATIONS

An aid in control of muscular dystrophy and tying up syndrome in horses and dogs: aid in the treatment and prevention of muscular disorders due to selenium deficiency.

PRESENTATION

100mL.

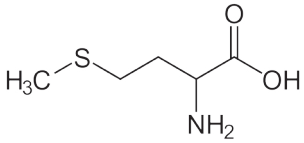
WITHHOLDING PERIOD BEFORE RACING

Kynoselen contains heptaminol a prohibited substance under the rules of racing and competition. A withholding time needs to be applied following the last treatment and before presentation for racing. Consult a veterinarian or racing steward as to the withholding time.

APVMA Approval No: 41608/0901.

DL Methionine Injection – liver protectant

Methionine



Amino acids are the building blocks of protein in the body and are necessary for the synthesis of enzymes, structural protein and some hormones. Methionine cannot be produced by the body.

Methionine is an essential amino acid. It must be supplied to the body through protein intake, or direct supplementation orally, or by injection. Methionine aids in the body's detoxification process in particular the liver. DL-Methionine is s synthetic form of methionine for oral supplementation and for formulation into an injection solution for animals.

Methionine Benefits

- Methionine is beneficial for regulating the availability of folic acid.
- Methionine helps speed wound healing.
- Methionine aids in reducing liver fat. It increases the body's metabolism and the synthesis of muscle protein.

Methionine is the source of sulphur, required for the synthesis of other substances that are important for the efficient production of energy in the body such as choline, creatine and carnitine.

PRODUCT INFORMATION

DL – Acetyl-Methionine

COMPOSITION

Acetyl-methionine 200 mg/mL.

ACTIONS

Detoxification of the liver.

INDICATIONS

Supportive treatment of liver disease (protection of the formation of free-radicals in tissues).

WITHHOLDING PERIOD

NIL Racing. It is preferable to suspend administration 48 hours before racing.

DOSAGE AND ADMINISTRATION

Administer by slow IV injection: Horses, cattle, sheep, goats and pigs 10 mL/100 kg bw. Dogs 10 mL/20 kg bw.

PRESENTATION

Injection 50 mL.

STORAGE

Store below 25°C.

APVMA Approval No: 36730.

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