

PAIN RELIEF FOR ROUTINE PROCEDURES

Defining Pain

As discussed by NADIS, 'there is no simple definition for pain... it can be physical, emotional, acute, chronic, localised, generalised, adaptive and maladaptive.' An animal may experience a number of these types of pain at any one time, with presence of pain being easier for us to recognise than intensity. So it is fair to say that recognising and understanding pain in farm animals can be a tricky business!

As prey animals, cattle are relatively stoic and will therefore not always display the signs that we might recognise as pain, or may only display visible signs for a short period of time, but continue to suffer long after we feel they are okay.

This has knock-on effects as a calf or cow in pain experiences a number of physiological changes:

- **Prolonged increase in blood cortisol levels**
cortisol is a hormone produced in response to stress and low blood glucose. It has negative effects on bone and collagen formation, suppresses the immune system and prolongs wound healing.
- **Increase in blood adrenaline/noradrenaline levels**
adrenaline and noradrenaline are neurotransmitters used to stimulate the 'fight or flight' response in animals. When this is stimulated the 'rest and digest' part of the nervous system is suppressed. So an animal in pain has reduced rumen function and gut motility leading to poor feed conversion, which considerably damages productivity.



Common Signs of Pain

Decreased movement
Separation from group
Inappetence (hollow appearance)
Dull/lethargic demeanour
Increased respiration (panting)

Routine Procedures

Disbudding, dehorning and castration are routine procedures carried out on farm for cattle management. These are painful procedures that can dramatically reduce growth rates and milk production if measures are not taken to provide pain relief (analgesia).

Local Anaesthetics

Local anaesthetic drugs such as procaine (Willcain) result in paralysis of sensory nerves, known as 'nerve blocks', leading to the desensitisation of tissues – skin, muscle etc. – as the brain does not receive any sensory signals over a specific area.

It is a legal requirement to use local anaesthetic when disbudding calves over a week old and when castrating calves over two months old. The bilateral cornual nerve block desensitises sensory nerves that send signals to the brain from the horn base as illustrated below:

Top Tips:

When inserting the needle in the area demarcated between the yellow and orange arrows, aim towards the opposite ear.

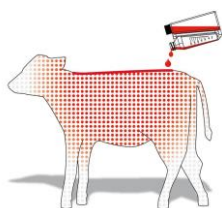
Look for drooping eyelids (ptosis) after injection as an indicator of a successful block – the nerve used to move the upper eyelid is in the same space as the cornual nerve.

When dehorning older cattle, place an additional 5ml of local anaesthetic under the skin around the back of the horn base (green arrow) as illustrated.

Non-Steroidal Anti-Inflammatory Drugs (NSAIDs)

We routinely use NSAIDs as part of our pre/post-operative care protocols for LDA/RDA surgery or caesarean section, as well as an adjunctive or sometimes single therapy for infectious diseases such as pneumonia and mastitis.

This group includes meloxicam (Metacam) and flunixin (Allevinix/Finadyne). Metacam is given subcutaneously whilst Allevinix is given in the muscle. Finadyne is a useful alternative that can be given as a pour-on across the back.



In recent years the value of NSAID use at key moments – disbudding/dehorning or castration – has been proven by many studies. The key benefits include improved welfare through prolonged pain relief after the local anaesthetic has worn off and better growth rates due to increased milk consumption through a faster return to the ‘rest and digest’ state.

- Studies have shown that adding NSAIDs to a nerve block, during procedures like disbudding and surgical castration (or NSAID given on its own when a rubber ring is placed), significantly reduces the increase in blood cortisol and adrenaline/noradrenaline.
- One study showed that growth rates of calves given Metacam at disbudding were considerably higher for the following 15 days in comparison with those not given Metacam (difference of around 100 grams weight gain per day, 1.5 kg overall).
- NSAIDs reduce the extent of immunosuppression, helping protect calves/cows from concurrent diseases like pneumonia, and improves wound healing, reducing the chance of infection.

Where local anaesthetic has widely been used as the only form of pain relief, the growing evidence for the addition of NSAIDs is strong. The benefits to calf growth and health/cow recovery and health outweigh the financial costs of administering these drugs and greatly improves welfare.



Sedatives

Although not common practice, there is also strong evidence for the positive effects of sedation during procedures. The effects are similar to those described previously.

Safety can be an issue during these procedures, especially when dealing with large groups of older cattle, so sedation can provide a much safer environment for us and the animals.



Hope everyone is looking forward to spring and, for many, getting the cows back out in the field! Best of luck for the coming months.

Cheers,

Ben

