



Enhancing welfare and combating antimicrobial resistance while maintaining productivity on calf units

The issue

Calf rearing units face a number of challenges in maintaining growth rates among livestock. Respiratory disease is common among animals brought together from a variety of sources. Additionally, routine procedures such as de-budding and castration can impact on the willingness of calves to continue feeding at consistent rates.

Ongoing learning about welfare is changing approaches with regard to best practice for post-procedure pain management, while pressure is rapidly growing to limit antibiotic use as far as possible due to concerns about growing antimicrobial resistance in both humans and animals.

Pressures to maintain efficiency and keep costs under control do not diminish in the face of these challenges, meaning calf rearers can benefit from any advantage to be gained in productivity (and potentially also from cost savings associated with lower antibiotic use).

An affordable, easy to administer form of pain relief with anti-inflammatory qualities is a practical and realistic answer to a significant element of this challenge.

A closer look at the challenges

Bovine Respiratory Disease

Bovine Respiratory Disease (BRD) is common on calf units, particularly when animals have

come together from a variety of herds, introducing and combining strains which individual animals might not have been previously exposed to.

Just like in humans, an outbreak can cause the animal to go off its food and water within as little as a day of developing symptoms. This can lead to a downward spiral in its health as it lacks the nutrition to combat the illness. In this case, growth loss is almost inevitable.

Injectable analgesics can be given, but this is time-consuming, can be costly and can itself be a stressor for the animal which has to be caught and restrained in order to be treated.

Early treatment of the symptoms can assist the animal in its recovery, so that antibiotic treatment may not become necessary.

Post-procedure analgesia

Standard procedures undergone on rearing units, such as disbudding and castration, are generally covered for acute pain by local, injectable analgesia. However, this can begin to wear off by the time the animal is experiencing post-procedure chronic pain. This has an impact on the general welfare of the animal which has been a recent cause of concern for the British Cattle Veterinary Association (BCVA) and British Veterinary Association (BVA).

These two organisations have shared a joint position paper with the industry, calling for vets to routinely prescribe pain relief alongside local anaesthesia during necessary procedures.¹

It also tends to have an effect on productivity, with the animal in discomfort and unwilling to maintain its feed intake.

Stressful situations can also result in lowering the calf's immune system, making it more susceptible to disease.

Antimicrobial resistance

Widespread concern regarding antibiotic use in areas where there is scope for it to be curtailed is changing the perceptions of how and when these treatments are given².

Certainly, using them in a prophylactic fashion (to avoid problems arising) is increasingly frowned upon due to the risk of reducing their effectiveness on the bacterial infections which affect both humans and animals.

The British Cattle Veterinary Association recommends reducing the overall amount of

¹ "BVA news - New paper calls on profession to routinely prescribe" 17 Aug. 2017, <https://www.bva.co.uk/news-campaigns-and-policy/newsroom/news-releases/bva---new-paper-calls-on-profession-to-routinely-prescribe-analgesia-alongside-local-anaesthesia-to-manage-pain-in-calves/>.

² "AMR - Food Standards Agency." <https://www.food.gov.uk/sites/default/files/media/document/amr-systematic-review-final-report-2016.pdf>.

antibiotics³ used in cattle farming, as long as it can be achieved without compromising animal welfare.

Large scale buyers and retailers, including the major supermarket chains⁴, are focused on this issue, reflecting the demands and concerns of their own customers.

While antibiotics are still the only real form of defence for microbial infection and must be used to combat ill-health and suffering, the responsible farmer and vet must now be looking to limit their administration wherever possible and practicable.

Summary

The issues outlined above are all pressures on maintaining healthy, productive herd. **BRD** can strike at any time, with widespread negative consequences unless afflicted animals can be quickly and effectively quarantined.

Routine procedures are just that, routine, and therefore their impacts are unavoidable and require the most effective and humane management possible.

Antimicrobial resistance is everyone's responsibility and is increasingly the focus of tightening requirements from major retailers. Maintaining overall herd health reduces the incidence of illness and suffering that will require the administration of antibiotics and good husbandry is required to avoid falling into the trap of relying on prophylactic use of these increasingly precious medicines.

³ "Medicines - Public | BCVA - British Cattle Veterinary Association." 20 Dec. 2016, <https://www.bcva.eu/resources/medicines-public>.

⁴ "Tesco dairy group plans to cut use of antibiotics - Farming UK News." 19 Jan. 2017, https://www.farminguk.com/News/Tesco-dairy-group-plans-to-cut-use-of-antibiotics_45376.html.

Addressing the issues

At the heart of all of these challenges is the all-around benefit to be had from keeping calves feeling well.

Even when fighting infection or recovering from procedures, if the effects of high temperatures, inflammation, pain and stress can be managed, an animal is more likely to keep eating, drinking, moving and be in a generally better state to combat its ailments. The alternative is a descent into a cycle of growing increasingly weaker and potentially requiring more extensive (and expensive) intervention. This generally will involve antibiotics – which, as we have established, should increasingly be a last resort wherever possible.

In humans we have simple, affordable and effective solutions for straightforward analgesia. In short, we might take a widely available, low risk painkiller or anti-inflammatory in the form of paracetamol, ibuprofen or aspirin. In all but the most serious circumstances these can very quickly make us feel better and able to function as close to our normal state as possible – at least until their effects wear off with time.

In addition, the suppression of symptoms analgesics provide take pressure off the immune system, enhancing the body's natural ability to recover.

The solution

Reproducing this effect in calves can be achieved with the use of a nonsteroidal anti-inflammatory drug (NSAID). This can be given to provide routine cover in a herd facing disease spread or undergoing procedures or other forms of stress.

The benefits of making the animals feel better by lowering temperatures, managing pain and reducing inflammation can be the same as in humans. If they feel better, they keep eating and maintain normal behaviour, supporting their immune system and ability to recover without antibiotic intervention.

Being able to give such a treatment without the supervision of a vet is ideal, particularly if the method of administration can be as simple as delivery through milk, water or wet feed.

An answer is sodium salicylate – a close relation to aspirin, with additional features and benefits.

Solacyl® from Dechra

Sodium salicylate has similar fever controlling, pain managing and inflammation reducing benefits in livestock as aspirin can have in humans.

It can be administered to groups of animals to alleviate pyrexia which means it can be given prior to known stress points in animals' lives. This can be continued through and after those

events, providing a welfare benefit and reducing the risk of a loss of appetite and its resulting effects.

Solacyl® has the following practical benefits:

- can be given in water, milk and milk replacer or wet feed
- has excellent solubility
- has zero withdrawal period
- remains stable in hard water, acidified water and wet feed for at least 24 hours
- remains stable in milk of 40°C for at least six hours
- can be given in combination with antibiotics
- has high bioavailability
- has a low gastric lesion index (easy on the stomach)
- opened bags can be stored for up to six months in the appropriate conditions (avoiding waste)
- unopened bags have a three-year shelf life
- available from vets under prescription

All of these factors add up to a treatment that can be given when the first signs of illness or discomfort are detected, rather than waiting for symptoms to worsen before being forced to consider antibiotics.

That being the case, the alleviation of symptoms, allowing the animal to maintain normal eating and drinking, can help to combat any worsening of illness or pain or stress-related symptoms – and therefore any stalling or delay in growth.

The use of Solacyl® was found to be valuable against the challenges outlined above when given prophylactically, under the cascade, during a series of case studies conducted by bovine veterinary specialist Owen Atkinson, of Dairy Veterinary Consultancy.

Overall animal welfare is enhanced by controlling fever, pain or inflammation, meeting the aspirations of the BVA and BCVA (and the natural desire of rearers to care for their animals).

Managing these symptoms to support food and fluid intake can prevent conditions from worsening, thereby avoiding a requirement for antibiotic treatment in more instances.

Overall, this is good for the globally shared aim of reducing antibiotic use in the face of antimicrobial resistance, while also supporting the economic imperative of efficient rearing of animals which are more likely to consistently reach optimum weight.

The evidence

The evidence for the efficacy of Solacyl® has to come from real-world, on-farm case studies.

The most recent research (2018) has been carried out by bovine veterinary specialist, Owen Atkinson of Dairy Veterinary Consultancy.

With the support of Meadow Quality Ltd, three of their contract rearers in England have taken part in the study, raising four groups of beef calves from dairy farms, and the results have been overwhelmingly positive.

The aim: to reduce the antibiotics used for bovine respiratory disease (BRD) control by calf rearers, using prophylactic NSAIDs – in this case in-feed sodium salicylate in the form of Solacyl®.

Findings

The full findings of this study will be presented at BCVA in October 2018 and support the benefits outlined above of using an NSAID (in this case Solacyl®).

- The use of prophylactic oral treatment for five days when calves first arrived on the unit (a high risk time for pneumonia) resulted in a reduction in antibiotic use of between 16 per cent and 73 per cent (based on doses), depending on the farm
- Across all four groups of calves in the study the overall reduction in antibiotics was a very significant 43 per cent
- The health of the calves was not compromised
- The profitability of the rearing operations was not compromised
- Daily live weight gains remained similar
- Mortality rates were unaffected (no statistically significant difference)

The Farm Vet View – Owen Atkinson BVSc DHCP MRCVS

“We are all under some kind of scrutiny, vets and farmers alike on how we use antibiotics and that is because of the concern, quite rightly about antibiotic resistance developing. So anything we can do to reduce antibiotic use has got to be a good thing. But further than that anything we can do to reduce prophylactic antibiotics where a whole cohort of animals is treated in one go is going to be beneficial.

“Generally speaking, in the beef industry antibiotic use is not particularly high compared with other sectors, but there is a peak use of antibiotics in this calf stage because calf pneumonia is such a problem. So if we can have a targeted reduction of antibiotics at this period, it just puts the beef industry on a far more sure footing over their responsible use of antibiotics.

“Antibiotic resistance is an issue for us all. It has been identified as potentially a more critical problem for our society than terrorism and that’s because if antibiotics fail in human health or human medicine then that has implications on so many aspects of medicine.”

“I was involved in analysing the data and the data showed that there was no significant difference in growth rates, or in mortality or in days to reach a target weight in the calves that had Solacyl compared to previous batches of calves that had received prophylactic antibiotics in an alternative protocol.

“I think the Solacyl protocol is ideal for those farmers who are competent, who are able to spot early pneumonia symptoms and are prepared to perhaps treat a slightly higher proportion of calves than they would otherwise have treated. They can now do that with confidence that their results should be as good as if they had used prophylactic antibiotics.

“And of course the big finding, and this is the big positive result of the protocol is that all three farms had an overall antibiotic reduction of 43 per cent on those batches of calves which was a significant finding. Solacyl - it’s a product that’s been on the market for quite some number of years. It’s an incredibly cost effective medicine, it’s not an expensive medicine for farmers to use so that shouldn’t be a barrier at all for its use.”

The Dechra Vet View - Alana McGlade BVmedsci (hons) BVM BVS MRCVS

“Antimicrobial resistance is a huge topic currently, and not just with calf rearing, but within farming as a whole.

“There’s huge pressure from both the Government and also the food retail sector and supermarkets, which have contracts with farms. They want to see the use of antibiotics decreased and antimicrobials traditionally have sometimes been used as a preventative way of treating the problem.

“By using analgesia, we may potentially be able to symptomatically support an animal through a disease process, ensuring they can then keep themselves eating and drinking, which means that in some cases antimicrobials may not need to be used. There will always be cases when they may need to be used but this does provide an alternative that fits with the current thinking on reduction of antimicrobials.”

“We want to support farmers in maintaining productivity and limit issues which could result in a financial loss. One of the great things about Solacyl is the ease of administration. Often if you're using, for example an injectable, you have to catch the animal and inject it, that itself can be stressful and if you're doing that for a huge number of animals it becomes very impractical so what you tend to find is that you will treat one animal as it becomes unwell.

“What Solacyl offers is the ability to put the product into milk, water and wet feed, so it's very easy to give, you can give a large number of calves a treatment at any one time and the bag itself can be open for six months post opening which means, you can roll the top down, seal it and get it back out when you need again.”

Conclusion

Antibiotics administered in the beef sector are primarily to treat and control BRD. There are an estimated 1.1 million beef calves reared annually in the UK originating from dairy herds. Many of these calves are reared by specialist rearers, from around 3-5 weeks of age. Routine prophylactic antibiotic use for calves during periods of high pneumonia risk (e.g. arrival on rearing unit) is common. Targeted use of NSAIDs may reduce antibiotic use for BRD control reducing the risk of antibiotic resistance.

There is undoubtedly more work to be done to establish a deeper understanding of the benefits and cost savings available from this approach, but the findings of this study were notable and point to an effective and sensible way to tackle the issues of antimicrobial resistance, enhanced animal welfare and productivity on rearing units.

Veterinary consultant, Owen Atkinson, who carried out the study, explained: “On farms where stockmanship is good and staff are competent in detecting early signs of pneumonia, a protocol of a prophylactic course of oral NSAID at times of high pneumonia risk may safely replace prophylactic antibiotics without compromising calf performance or welfare.

The results of the study are due to be presented at BCVA Congress October 2018.