

MASTITIS: The enigma we know everything about

Mastitis represents a huge burden on dairy production worldwide, regardless of production systems. It is an inflammation of the udder, caused mainly by bacteria (G+ and G-), mycoplasma, yeast, and other, but also lesions and exposure to heat or cold.

**by Hrvoje Starcevic, DVM,
Global Product Manager Ruminants
Huvepharma.
www.huvepharma.com**

Pathogens irritate and destroy the udder tissue with their growth and by-products leading to inflammation. They enter the udder, mostly, through the teat canal or on rare occasions through blood and lymph.

Pathogens can be divided into two groups; environmental (*E. coli*, *Streptococcus uberis*, etc) and contagious (*Staphylococcus aureus*, Coagulase negative staphylococci (CNS), *Streptococcus agalactiae*, etc).

According to symptoms, mastitis cases are divided into clinical and subclinical. Clinical mastitis is easy to spot in the herd due to visible signs. Subclinical can go unnoticed due to a lack of these. Apart from occasional increases in somatic cell count (SCC) and a slight drop in milk production, the animal seems to be healthy.

Most common causes of clinical mastitis are coliform bacteria, with *E. coli* isolated in more than 80% of cases. Gram positive bacteria dominate subclinical cases of

mastitis so farm protocols for treatment of mastitis, focus mainly on them.

Tackling mastitis is not easy and it requires dedication of time, money and manpower. Emphasis must be placed on hygiene, feeding, milking parlour equipment maintenance, management of clinical cases and suspected animals, udder health, dry off procedures and, last but not least, treatment during lactation. Treatment should always be aimed at the specific pathogen causing the mastitis, but often this is not possible due to the acute state of the infection, or the co-infections present.

Two main routes for the treatment of mastitis are parenteral and intramammary; these are very common and done by infusion of intramammary tubes into the udder. Both methods have their pros and cons. The parenteral route could be perceived as the better one, but it makes achieving and maintaining high concentrations of active substance in the udder difficult. This is why very few substances have been shown to be effective and approved.

Intramammary treatment is the 'direct approach'. The active substance is applied directly onto the affected area, higher concentrations are achieved in the milk, but distribution can be compromised (presence of milk, SCC and inflammatory byproducts). The other potential risk is the introduction of a new infection if the application is not done correctly.

Applicability of any active substance used for the treatment of mastitis, will greatly depend on its pharmacokinetics, (solubility in lipids, ionisation, level of binding to serum, udder proteins, and the type of vehicle, especially for intramammary presentations). From a pharmacodynamic perspective, active substances that exert low minimum inhibitory concentrations (MIC) and bactericidal effects are more welcomed.

Huvepharma has solutions for both parenteral (Pharmasin – tylosin base) and intramammary use (Albionic – lincomycin/neomycin) in its portfolio, fulfilling these requirements. ■



Further information is available from the author on request