

Is Extended Treatment Better for Mastitis Management?

The incidence rate of clinical mastitis in dairy cows in New Zealand is around 14%, causing both significant animal welfare and economic cost. Treatment protocols are based upon intramammary or injectable antibiotic therapy, utilising a wide range of antibiotic types. Interval and duration of treatment vary considerably between products and therapeutic regimes. Bacteriological cure rates vary widely but in general are between 75% and 90% in New Zealand, with significant differences in cure rates between specific pathogens. Factors known to affect cure rates can be grouped into host factors, pathogen factors, and therapeutic factors.

- Host factors shown to lower cure rates in clinical mastitis include increasing age/parity, increased somatic cell count (SCC) prior to clinical episode, increasing numbers of quarters infected, rear vs front quarters, increasing duration of infection, previous mastitis history, and general health. In addition, some trials have shown a decreased cure rate with increasing days in milk.
- Pathogen factors include the specific pathogen(s) involved, their resistance profile (particularly with regard to penicillin-resistant *Staph aureus* strains), and the strain type.
- Therapeutic factors include antimicrobial product used, dose and route of administration, frequency of treatment, duration of treatment, and concomitant therapy.

Current knowledge

Extended Therapy against Clinical *Staphylococcus aureus*

Analysis of clinical trials comparing extended treatment regimes concluded that extended treatment was 2.3 times more likely to result in a bacteriological cure than standard treatment regimes against clinical *Staph aureus*. Standard treatment was defined as 3 intramammary treatments at 12 hour intervals, and extended treatment was defined as 6 treatments at 12 hour intervals. A crucial factor in bacteriological cure rates of clinical mastitis caused by *Staph aureus* is penicillin resistance. Cure rates vary from 20-41% among resistant bacterial strains compared with 43-75.6% among non-resistant strains.

Extended therapy against *Streptococcus* spp

Extended therapy has been shown to be more effective than standard therapy against *Streptococcus* spp. Experimentally infected cows treated with an extended regime (either 5 days or 8 days, all at 24hr intervals) had bacteriological cure rates of 88 and 100% for 5 and 8 day treatment respectively.

Conclusion

Whilst there are differences between treatment regimes, products and antibiotic actives, and even routes of administration, most evidence points toward an increased chance of cure with a longer duration of treatment.