

TREATMENT OF CLINICAL MASTITIS

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More and more farmers and vets want higher cure rates from clinical mastitis treatment to ensure that cows do not end up with persistently high cell counts or repeat episodes in the same quarter later in lactation. The aim of treatment of clinical mastitis must be to achieve as high a bacteriological cure rate as possible. This helps to reduce the risk of recurrence, which is particularly important when dealing with organisms such as Staph aureus and Strep uberis. Chronically infected animals with these bacteria frequently have high cell counts, are unresponsive to further treatment and can influence the herd cell count resulting in financial penalties. The only solution for many of these chronic Staph aureus or Strep uberis animals is culling.

Before discussing treatment, let's look at mastitis detection. Few farmers today bother to foremilk cows as they don't have the time and can't see any benefit. Many rely on observing hard quarters, examination of in-line mastitis detectors or even the milk filter at the end of milking. The problem with this approach is that mastitis is unlikely to be detected early and sometimes missed completely.

Early identification and treatment of mastitis will result in a more rapid response to therapy, while reducing the risk of infection spreading to the remainder of the herd. It will also maintain milk quality by ensuring that mastitic milk, which can contain high levels of somatic cells (to 20 million/ml) and bacteria (to 100 million/ml with Strep uberis and agalactiae infections), does not enter the bulk tank.

Delayed treatment can have three effects; firstly infection will become more established and require longer treatment, secondly cell counts of treated quarters will remain elevated for a

longer period of time following treatment and finally milk yields take longer to return to normal

Dr. Hillerton from the Institute of Animal Health at Compton has shown the benefits of early mastitis detection through his electrical conductivity work. This showed that the earlier that mastitis is detected, the higher the bacteriological cure rate from a shorter duration of treatment. These benefits must still apply to early detection from foremilk. For this reason, I recommend that farmers should fore milk all cows if they have problems with mastitis treatment or detection, or a *Strep uberis* problem.

Let's now discuss treatment. Historically, the aim was to have a short treatment duration so that milk from the treated cow gets back into the bulk tank as quickly as possible. The clinical cure rates may be good, but the bacteriological cure rates may be quite low.

If you flatten out the milk producing tissue in one quarter, it covers an area of 25 square metres. When a cow has mastitis, there is lots of pus, milk clots and debris covering this tissue. We then infuse a relatively small amount of antibiotic into the quarter for a few milkings and presume that this will disperse fully and kill off the offending bacteria. In reality, it's amazing that we get such good results as in many cases milk ducts are blocked with pus and debris. There are also pH changes in infected quarters that will affect drug distribution.

It is very difficult to know what is the correct dosage to give the cow. This will depend on the type of bacteria (unknown at the onset of clinical symptoms) and the tissue penetration required. Recurrences occur more often if treatment is delayed or treatment short.

The Swedes have taken a different approach to treating mastitis. Clinical cases are not treated until a bacteriological diagnosis has been made. The lengths of treatment are specified and must be followed. This is a legal requirement. For example, a cow with Staph aureus will have a 10 day treatment.

The impression from dairy clients is that they are not so much concerned by the length of treatment or the withdrawal periods, provided they get good cure rates. They want to ensure that the cell counts in treated cows reduce and that they are not left with high cell count cows that they end up culling.

Many vets are now recommending combined intramammary and parenteral treatment. Probably half of our clients use this approach to treatment. This must increase cure rates. Work carried out on clinical Staph aureus infections by Owens & Nickerson showed a 51% bacteriological cure rate with combined therapy, compared to 25% with intramammary treatment alone.

There is good logic behind combined therapy. It improves cure rates and has to be in the interests of animal welfare. Parenteral antibiotics are not affected by physical barriers of pus and debris blocking milk ducts. It is likely to lead to higher antibiotic levels in the udder. The farmer is less concerned about a longer milk discard time [seven days for an unlicensed combination] if this means less repeat treatments and lower cell counts. The way to increase cure rates of clinical mastitis must be through a combination of early detection and the correct choice of treatment.