

*Short Communication*

THERAPEUTIC MANAGEMENT OF CHRONIC RECURRENT MASTITIS WITH CHANGING ANTIBIOTIC REGIME IN CROSS BRED HOLSTEIN FRIESIAN COW

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ABSTRACT

A twelve years old high yielding cross bred Holstein Friesian cow was repeatedly affected by chronic recurrent mastitis despite of hygienic measures. It was confirmed that the incidence of mastitis was restricted to the period between August to October every year, when the yield of the cow was in peak and she was in the first trimester of her pregnancy. Treatment schedule followed a regular change in the antibiotic therapy in successive years in coordination with the routine antibiotic sensitivity test. The cow responded well and recovered to the therapy that included regular change in the group of antibiotics in successive years.

KEY WORDS: Therapeutic, management, recurrent mastitis, antibiotic regime, Holstein Friesian cow.

INTRODUCTION

Mastitis is a common disease among dairy cows worldwide which is often associated with bacterial intramammary infections. It is categorized into clinical mastitis that includes inflammation with visual signs of inflammation in the udder or milk and subclinical mastitis which includes inflammation without visual signs. They affect the milk quality and yield adversely that becomes a major economic concern for the dairy farmers. Clinical mastitis is also of potential concern from an animal welfare perspective. Clinical mastitis includes the symptoms as mild (clotting of milk), moderate (changes in milk and visible signs of inflammation of the udder), or severe (changes in milk and udder, and systemic signs). The milk somatic cell count (SCC) measures concentration of somatic cells, predominantly inflammatory ones, and is an important diagnostic tool of sub-clinical mastitis. The SCC from a healthy udder is about 70,000 cells/ml depending on age, breed, stage of lactation, and milk yield of the cow (Djabri *et al.*, 2002; Emanuelson and Funke, 1991; Schepers *et al.*, 1997; Nyman *et al.*, 2007). A threshold of 200 000 cells/ml has been proposed and is often used to distinguish sub-clinical mastitis from healthy udders (Dohoo and Leslie, 1991), but lower (Halasa *et al.*, 2009; Madouasse *et al.*, 2010; Archer *et al.*, 2014) or higher thresholds are reported in some cases (Pitkala *et al.*, 2004; Deluyker *et al.*, 2005). Intramammary infections are the most common cause of mastitis, which causes infections of the mammary gland

secretory tissue and/or of the ducts and tubules by pathogens (International Dairy Federation, 2011). Many micro-organisms can infect the udder, but bacteria, especially staphylococci, streptococci, and coliforms are the most common pathogens associated with the mastitis. Generally, the treatment of depends on the basis of bacteriological culture and antimicrobial susceptibility testing. It also relies on the clinical manifestation, prognosis, legislation and availability of drugs. The prognosis after treatment is defined by pathogen, antimicrobial susceptibility, chronicity of infection, infection load, age of the cow, breed, and number of quarters affected (Sol *et al.*, 1994; Owens *et al.*, 1997; Osteras *et al.*, 1999; Sol *et al.*, 2000; Deluyker *et al.*, 2005; Sandgren *et al.*, 2008).

History and clinical signs

The incidence of mastitis in the cow occurred in the 3rd lactation when the yield was in peak (20 ltrs. of milk/day) after three months of parturition. The cow was fed with the mineral mixture and oral calcium since calthood and its feeding was only restricted one month prior to parturition to prevent the incidence of hypocalcaemia. The animal remained anorectic, dull, depressed, high rise in rectal temperature and respiration rate. Severe swelling of the udder resulted in drop in milk yield. The animal kept on standing and not able to sleep due to pain.

Treatment

After treating with antibiotic Ceftriaxone 4gm, it subsided and again reoccurred in the 4th lactation. Basing on the

previous response it was again treated with the same Ceftriaxone antibiotic, but did not respond; rather the udder became hard and in between the milk sample was sent for the culture sensitivity test. Further, the test confirmed no growth of micro-organisms as the milk sample was collected during the period of antibiotic therapy. Then the treatment therapy was changed to inj. Chlorcetin 3gm BID and DNS 3ltr/day. The animal responded well to the Chloramphenicol group of antibiotic and the fever subsided, but hardness of the left fore quarter persisted with no milk leaving behind a little watery secretion. The milk yield reduced from 18 ltrs. 6 ltrs., but it gradually increased to 14 ltrs. coming from the three normal healthy quarters of the cow. Despite of optimum preventing measures, the incidence reoccurred in successive years. Since, 4th lactation the Modified California Mastitis Test (MCMT) was done to diagnose the condition of sub-clinical mastitis. Inj. Ecare Se 10ml. I/M was administered in every three months to prevent the reoccurrence of mastitis. Phytolacca 200 @10drops BID was given for six months. All the quarters gave milk in the 5th lactation with reduced secretion from the left fore quarter. It was observed the yield decreased by 2ltrs. from the 4th lactation. The affected left fore quarter was found MCMT positive throughout the year.

Subsequently, the cow was affected by mastitis during the course of Foot and Mouth Disease (FMD). The milk sample was sent for routine culture test and subsequently, the change in the antibiotic therapy to the Aminoglycoside group of antibiotics (Gentamicin 40ml I/V BID) responded well. The test confirmed positive sensitivity to Gentamicin and resistant to the Ceftriaxone and moderate to Chloramphenicol. In the 6th lactation, the animal was found negative for MCMT in the month of September, but again affected by mastitis in the month of October, when in the first trimester of her pregnancy. The milk sample was sent for routine culture test and subsequently, the change in the antibiotic therapy to the Fluoroquinolone (Enrofloxacin 20ml I/V OD) group of antibiotics responded well. The test confirmed positive sensitivity to Enrofloxacin and resistant to Gentamicin and moderate to Ceftriaxone.

DISCUSSION

Heat stress, monsoon (August to October) and pregnancy are the predisposing factors of mastitis in high yielding cows. The treatment of mastitis should not be practiced before doing the Antibiotic Sensitivity Test, which takes 72hrs for confirmation. However, in restricted field conditions, it is always advisable to follow a specific antibiotic regime after sending of milk sample for Antibiotic Sensitivity Test. The antibiotic regime is started on immediate notice of mastitis that excludes the use of previously given antibiotic group due to the grown resistance of the micro-organisms. The antibiotic sensitivity test should be done in the sub-clinical stage of mastitis without administering any antibiotic therapy, rather the use of antibiotic should be done once it comes to the clinical stage depending on the sensitivity results of the test conducted at the sub-clinical stage followed by sending of milk sample for the sensitivity test.

CONCLUSION

Mastitis remains as a great concern to the high yielding cows affecting the economic status of the dairy farmers. The changing antibiotic therapy proved fruitful in curing the chronic recurrent mastitis in high yielding crossbred Holstein Friesian cow with great results. However, there is increasing concern about the use of antimicrobials in livestock, so prevention remains the best way to handle the mastitis problems in high yielding bovines.

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