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Detection of subclinical mastitis in herd of cattle

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Abstract

Detection of subclinical mastitis by using the California mastitis test, at the level of the udder's quarter. In total 10 animals were tested 56.02% of cases had positive reactions to the California mastitis test. Most common positive reaction we found in the milk was in one or two quarters with the intensity of the reaction of one and two plus. The most common causes of mastitis were staphylococci, streptococci and mixed infections. Continuing use of these methods it is possible to timely detect the presence of subclinical mastitis and get satisfactory results in the prevention and treatment of mastitis as well as increasing the quantity and improving the quality of milk.

Keywords: Subclinical mastitis, California mastitis test, somatic cells count, cow

Introduction

Subclinical infection is more likely to be caused by contagious pathogens. The presence of a causative pathogen is done via a bacteriological culture and indirect indications of subclinical mastitis can be given via electro-conductivity testing of milk, which is performed in an automated form in many modern parlors and robotic milking systems.

Inflammation of mammary gland or mastitis is response to effects of internal and outside factors. mastitis has become very expensive disease in dairy cows.

There is high risk of developing subclinical mastitis in period of early lactation and high percent of intra-mammary infections in postpartum period. Mastitis occurrence depends on herd management, including rearing condition, nutrition and udder management. Udder infections can be expressed as clinical or subclinical mastitis. Clinical mastitis is characteristic because of visible changes in milk with appearance of flakes or beads and with signs of inflammation and pain. Subclinical mastitis is defined as inflammation without clear signs. Types of subclinical mastitis are: disorder of secretion, latent infection and chronic catarrhal mastitis. Subclinical mastitis is most wide spread disease in milk production, where upon one clinical case, comes new 15-40 subclinical cases.

For detection of subclinical mastitis most simple and reliable is California Mastitis Test (CMT), as well as somatic cells counting with electronic counters.

Clinical examination was conducted in the area of R.S. Pura, JAMMU in which cattle's diagnosed with subclinical mastitis were looked upon also special emphasis on feeding habits was given and feeding strategies and advice as given by staff of IVRI, izatnagar UP was followed.

A subclinical cow, while appearing unaffected by the illness, may experience a reduction in yield potential due to the high SCC, and certainly represents a possible source of infection for other cows, who can become subclinical sufferers themselves, or may go on to show clinical signs of the illness, due to differences in immune status between cows.

Materials and method of work

Clinical examination have revealed all changes that occurred in udder as result of acute or chronic inflammation. After clinical examination, milk have been tested with CMT test from all quarters. CMT test have been mixed with approximately same amount of milk (1-2 ml) and with easy circle moves of test plate reaction was read after 1-2 minutes. Milk samples rich with somatic cells gave visible changes within few seconds. Presentation of reaction was: negative (-) in cases where we had mixture homogeneously blur, suspicious (\pm) in cases where mixture had flakes and beads that disappear with continuous mixing, positive (+) where

present flakes are concentrated in the middle, very positive reaction (++) where during mixing, dense viscous mass separate from clear liquid part and extremely positive reaction (+++) where gelatinous mass is created. Before milk sampling for microbiology analysis, teats were washed and dis-infected with 70% alcohol and milk have been taken into sterile tubes. Every tube have been marked with number of quarter and animal. Samples have been taken from all quarters.

Result

From total of 10 cows tested with CMT 60% had positive or suspected reaction result and left 40% negative. During summer we had highest number of bacteriological positive samples. Most common isolates were staphylococci, streptococci, entero-bacterias and mixed cultures.

Discussion

Previous efforts in eradication of mastitis and control of udder's health status are based on detection of animals with disorders in milk secretion and identification of causal agents, that cause such conditions. To prevent and reduce udder infections with pathogenic bacteria's from surroundings, it is necessary to take care for complete management in milk production. Mastitis is usually characterized with increase of SCC in milk. Every increase should be considered as abnormal and point to inflammatory condition, which is confirmed by our results of CMT and bacteriological analyses. CMT represents suitable test for herd investigation and detection of subclinical mastitis caused by mastitis agents in 84% of cases. Bacteriological findings show that increase in CMT reaction, increase probability of infection, while 25% of infection is present in negative CMT reaction, 50% in suspected CMT reaction, 75% in positive CMT reaction, 90% in very positive CMT reaction and 90-100% in pronouncedly positive reaction, which is in agreement with our findings. Ratio of CMT congruence and bacteriological findings is 70-80%, we have noted mixed infection in different months of seasons in representation of 1,9% to 3,6% of cases.

Conclusions

Based on milk analyses with CMT and bacteriological examination we can conclude:

1. CMT represents valuable diagnostic method in detection of cows with disorder of secretion without clinical signs of disease.
2. Disorders in mammary gland secretion, detected by CMT, depending of breed, ranged from 51.74% to 65.88% of cows
3. Most often isolated etiological agents were staphylococci, streptococci and mixed infections.
4. Percentage of subclinical mastitis is high in researched area and in next period, it is imperative to approach more organized in protection of udder health status through mastitis preventive care and education of farmers.

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