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Retrospective study for prevalence of mastitis in dairy cattle in Ganderbal district

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Abstract

The present study was undertaken during 2002-2012 to find out the prevalence of mastitis in dairy cattle of Kashmir valley. The prevalence studies were carried out at the Veterinary Clinical Services Complex (Ganderbal) and overall prevalence rate of 16.89 per cent was recorded during the study period of one year (2012-2013) in addition retrospective study for last ten years of mastitis cases was carried out. Overall prevalence of dairy cattle mastitis over the last 10 years was recorded to be 14.86 per cent. The present study found increased prevalence with changing trends in mastitis over last ten years.

Keywords: mastitis, cattle and prevalence

1. Introduction

Mastitis is the inflammation of parenchyma of mammary gland, characterized by physical, chemical and usually bacteriological changes in milk and pathological changes in glandular tissues (Radostits *et al.*, 2010) ^[9]. It is the most dreaded disease of dairy farmers because of reduced milk production, increased treatment costs, labour, milk discarding following treatment, death and premature culling (Yang *et al.*, 2011) ^[10]. Disease is complex in nature with multifaceted aetiopathogenesis. Identification and knowing the prevalence of these organisms thus becomes essential to evolve proper treatment and control measures. Antimicrobials have been used to treat mastitis for more than fifty years, but consensus about the most efficient, safe, and economical treatment is still lacking. Poor treatment response and presence of mastitis causing bacteria that are resistant to antimicrobials is a major area of concern for dairy farmers, veterinarians and mastitis researchers. More importantly, there could potentially be implications for the consumer if raw, unpasteurized milk or milk products contain such drug resistant bacteria. Treatment of mastitis should be targeted towards the causative bacteria whenever possible, but in acute situations, treatment is initiated based on herd data and personal experience. The use of on-farm written protocols for mastitis treatment can promote judicious use of antimicrobials. Some of the earlier findings of prevalence of mastitis are 38.89% in Sudan (Katsande, 2013) ^[8] 21.1% in Zimbabwe (Hussein SA, 2012) ^[6] The present study was undertaken to determine the prevalence and changing trend in prevalence of mastitis in Kashmir valley from last ten years.

2. Material and Methods

A cross sectional study was conducted in domestic cross breeds of lactating dairy cows. Mastitis was detected using the California Mastitis Test (CMT) and clinical inspection of the udder (Bauer, 1999). The udder was first examined visually and then through palpation to detect possible fibrosis, cardinal signs of inflammation, visible injury, and atrophy of the tissue and swelling of the supra mammary lymph nodes. The retrospective studies of mastitis in valley, the records from the past 10 years were studied at veterinary clinics SKUAST-K of district Ganderbal and various veterinary health centers in adjacent areas. The overall prevalence of mastitis for last ten years was calculated. The animals affected with mastitis were 140 out of 1001 in 2002-2003, 174 out of 1110 in 2003-2004, 158 out of 950 in 2004-2005, 114 out of 885 in 2005-2006, 181 out of 1210 in 2006-2007, 154 out of 1001 in 2007-2008, 122 out of 809 in 2008-2009, 118 out of 699 in 2009-2010, 199 out of 1101 in 2010 - 2011 and 477 out of 2998 in 2011-2012.

Data such as abnormal changes in the milk, mammary gland and CMT score were collected during animal examination. Depending on this clinical inspection and CMT results, cases were categorized as either positive or negative

3. Results and discussion

The prevalence of mastitis in the present cross sectional study from 2012-2013 was found to be 16.89 per cent (table 1) which is comparable to the prevalence rate (15.4%) reported in un-organized farming conditions of Kashmir by Haq and Malik (2009) [5]. Similar prevalence was also reported by Zahid (2004) [11] in Holstein-Friesian (16.56% in hot humid season and 16.68% in autumn) and Jersey cows (16.55% in hot humid season and 16.50% in autumn). Various authors have reported a higher prevalence rate of 21.1 per cent (Katsande *et al.*, 2013) [8], 52 per cent (Junaidu *et al.*, 2011) [7] and 59.1 per cent (Adane *et al.*, 2012) [1], and a lower prevalence rate of 8.08 per cent (Tufani *et al.*, 2012) [12] and 7.69 per cent (Javed and Siddique, 1999) in their respective studies. The differences observed among various studies could be due to the variation in the managerial practices being followed at various farms, prompt treatment of clinical cases, culling of carriers, selective breeding number of cases studied, geographical variations, milking techniques, season of study and adaption of mastitis control programme.

Prevalence of mastitis in dairy cattle over the last 10 years was observed to be 14.86 per cent in the present study (table 1). The retrospective study in current study revealed the increased trends in mastitis prevalence over last ten years periods this may be attributed to the emergence of resistant strains of bacteria due to indiscriminate use of antibiotics in mastitis. Vandna *et al.* (2012) revealed a higher prevalence of 85.3 and 78.1 per cent in cows and buffaloes respectively of Eastern Haryana with almost similar agro climatic conditions in a retrospective study over a period of six years from 2004 to 2009. Lower prevalence (9.25 %) has been recorded over a period of five years by Akhoon (2009) at Veterinary Clinics of Shuhama. Zahid (2004) [11] in their study reported prevalence of mastitis ranging from 5.54-56.60 and 5.93-33.73 per cent in Holstein-Friesian and Jersey cows respectively in a year wise study from 1986- 2002. The difference in the prevalence rates may be due to the different period of study, geo climatic conditions, housing and management practices, herd sizes and hygienic levels maintained in different dairy herds.

Table 1: Year-wise study of prevalence of mastitis in different years from 2002-2012

Year	Prevalence (%)	n/N
2002-2003	13.9	140 / 1001
2003 -2004	15.6	174 / 1110
2004-2005	16.6	158 / 950
2005-2006	12.8	114 / 885
2006-2007	14.9	181 / 1210
2007-2008	15.3	154 / 1001
2008-2009	15.0	122 / 809
2009-2010	16.9	118 / 699
2010-2011	18.0	199 / 1101
2011-2012	15.9	477 / 2998
Overall	15.49	1837/11764

n= number of cases affected

N=total number of cases

4. Conclusion

The present study found changing trends in mastitis over last ten years. Overall prevalence of mastitis in dairy cattle over the last 10 years was recorded to be 14.86 per cent.

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