CERTAIN QUALITATIVE CHANGES IN MASTITIC COW MILK

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ABSTRACT

Mastitis affected milk had a significantly decreased protein, a non-significantly decreased fat and a significantly increased pH (6.7±0.05) and decreased significantly following therapy in both the treated groups. Mean milk protein and fat levels did not vary significantly before and after therapy.

KEY WORDS: Milk protein, Milk Fat, pH, clinical Mastitis.

INTRODUCTION

Both the quantity and quality of milk is affected in mastitic animals. The composition of milk is altered in direct proportion to the extent and intensity of inflammatory process. The present study was undertaken to evaluate qualitative changes of milk in mastitic cows followed by two schedule of treatment.

MATERIALS AND METHODS

Milk from eighteen mastitic cows and six healthy cows (group I) serving as control presented to the College Hospital of College of Veterinary Science, Tirupati was studied for protein, fat and pH by using LAKTAN 1-4 model 225, BENNY IMPEX PVT. LTD. (New Delhi). Affected animals were divided into group II and III and were treated with Ceftriaxone - Tazobactum alone and Ceftriaxone - Tazobactum along with vitamin E and Selenium respectively. Qualitative changes in these animals were studied before and after therapy. Data obtained were anlysed by using paired t-test.

RESULTS AND DISCUSSION

Healthy animals had the mean values of milk protein, fat and pH of 3.45±0.53 g/dl, 4.41±0.22 g/dl and 6.49±0.04 respectively. Milk from mastitic cows had a significant and non significant decrease in protein (3.2±0.07 g/dl) and fat (3.6±0.28 g/dl) content respectively. This may be due to the fact that the pathogenic organisms present in the milk during mastitis elaborate degradative enzymes destroying the structural components like milk protein and fat in the affected milk. Influx of neutrophils seen in the affected udder might have led to a decrease in fat and lactose per cent of mastitic animals (Vishnoi and Dang, 2007). The composition altered is in direct proportion to the extent and intensity of inflammatory process (Chahar et al., 2008). The pH of the mastitic milk (6.7±0.05) was found to be significantly increased compared to control as the bacterial infection of udder results in damage to ductal and secretary epithelium, an opening of tight junction between secretary cells and increased permeability of blood capillaries. Thus sodium and chloride pour into lumen of alveolus proportionately (Wheelock et al., 1966; Roger et al.,1899; Chatterjee and Kaur., 2003).

Following therapy, animals did not reveal any significant variation in protein (g/dl) in groups II and III. The mean fat content (g/dl) increased (from 3.59±0.33 to 4.43±0.33 in group II and from 3.36±0.31 to 3.88±0.19 in group III) insignificantly, but pH of milk decreased significantly in both the groups(from 6.76±0.09 to 6.51± 0.05 in group II and from 6.66± to 6.47±0.03 in group III), which could be due to relief from the inflammatory process of infection.

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