

Discussion

D I S C U S S I O N

It is assumed that, the managemental factors are more important rather than breed as reported by Yurkov (1977) and Verma (1978). However, the current investigations revealed that breed also leads to a little variation in the incidence of subclinical mastitis, as the incidence was found to be comparatively high in Gir cows and also in Gir X Holstein - Friesian crossbreds as compared to Gir X Jersey crossbreds. The reason for this could be attributed to the teat shape and anatomy of the teat canal (Blood et al. 1983). As far as the shape, is concerned cylindrical shaped teats had a significantly higher incidence of mastitis (Rathore, 1977).

Besides this the incidence was found to be more in older cows and which is in agreement with the findings of Blood et al. (1983).

It was found that, the incidence of mastitis was comparatively high in the third and fourth lactations among the 166 cases studied. These findings are in accord with the findings of Kapur and Singh (1978^b).

The study of number of quarters infected indicates that, single quarter infections were common in cows, but the findings of this study are different from the findings of Rahman et al. (1984) who noted that infections of all four quarters were common in cows.

As to the type of quarter, the incidence was almost similar in hind quarters and fore quarters in cattle, however, this is not in agreement with the findings of Singh and Baxi (1980) who have reported that hind quarters were more infected (58.48%) than fore quarters. In case of buffaloes, hind quarters were more infected and these observations are similar to those of Kapur and Singh (1978^b).

Bhatnagar and Mehrotra (1969) employed Modified California Mastitis Test (MCMT) for the diagnosis of subclinical mastitis. They recorded the efficacy of MCMT to be 94.3% as ascertained by cultural examinations. In the present study, the MCMT was found to be 94.67% efficient.

The pathogenic bacteria were isolated from 94.67% of the quarters showing ++ (Highly Positive) MCMT reaction where as similar investigations conducted on +++ CMT reaction and cultural examinations by Egan (1982) and Fagliari et al. (1984) revealed that 76.3% and 85.6% of quarters respectively, showed pathogenic bacteria.

Rahman and Baxi (1983) studied various aspects of staphylococcal mastitis in bovines. Staphylococci were isolated from 61.97% of bacteriologically positive samples which proved that staphylococci were the chief aetiological agent of bovine mastitis in India. Our findings are in agreement with this, as staphylococci were isolated from 57% of bacteriologically positive samples.

Among the antimicrobials examined for sensitivity test, it was remarkably noted that, none of the isolates were sensitive to nystatin. Contrary to this, Yadav et al (1972) have found that 51.9% coagulase positive strains of staphylococci were sensitive to nystatin.

Chakrabarty and Hazarika (1972) observed antibiotic sensitivity of a total of 185 strains of pathogenic microorganisms isolated from bovine mastitis cases. 30% strains were resistant to penicillin, 35% to streptomycin, 17% to oxytetracycline and 1.6% to chloramphenicol; all of them were sensitive to chlorotetracycline and tetracycline. But in contrast with above observations, in present study, out of 100 strains of pathogenic microorganisms 75% were resistant to penicillin, 72% to tetracycline, 71% to chlortetracycline, 65% to oxytetracycline, 54% to streptomycin and 46% to chloramphenicol. This may be due to more strains developing resistance to routine antibiotics.

Observations of Verma and Mishra (1977) revealed that, staphylococcal strains were sensitive to furazolidone (88.6%), chloramphenicol (75.9%), penicillin (74.6%) and streptomycin (62%). But these findings differ from the present study which revealed that staphylococcal strains were sensitive to furazolidone (33.33%), chloramphenicol (58%), penicillin (23%) and streptomycin (39%).

This might have resulted from constant and indiscriminate use of tetracyclines, strepto-penicillins nitrofurans for the treatment of bovine mastitis for the last decade.

In the present study, gentamicin showed highest inhibitory effect (78%) on different strains. The similar findings were noted by Kormendy (1977) who stated that, out of 205 strains, 199 were sensitive to gentamicin.

Singh et al. (1984) noted that Ampiclox L.C. was 86.95% effective in the quarters treated, which is similar to 83.87% efficacy of Tilox in present study. (Both preparations have same contents).

The activity of the combination of ampicillin + cloxacillin against streptococci was mainly due to ampicillin. Against penicillin resistant staphylococci, the activity of the combination was mainly due to the activity of cloxacillin. Against the other microorganisms, both compounds acted synergistically, (OS et al. 1977).

Vangelov (1982) observed that 12,00,000 i.u. of gentamicin sulphate intramammary was well tolerated in cows and stated that it was the drug of choice of acute mastitis and where desired, for a shorter period of excretion in the milk. In present study, intramammary infusion of 50,000 i.u. (50 mg) gentamicin sulphate was given and was found to be 100% effective. It did not exhibit any side effects.

There was little relationship between the in vitro sensitivity and cure rate as noted by Pearson and Mackie (1979), however, the present study showed that, treatment response appeared to agree with the results of susceptibility test (90.41%). These findings are similar with the findings of Anderson et al. (1982) and Hamir et al. (1980).

In olden days tincture iodine was injected with glycerine to create chemical mastitis whenever the quarters were to be dried off and rendered functionless. The new products of povidone iodine (Betadine & Pivipol) are nonstaining, nonirritant and having multipurpose microbicidal action against bacteria, fungi, protozoa, yeasts and viruses. However, in present study irritation was observed specially in cows while treating subclinical mastitis. This product was found to be very useful in the clinical cases which do not respond to antibiotic therapy as well as for drying-off the quarters in chronic cases of mastitis at higher dosages. Blood in milk can also be treated successfully. This study was limited to very few cases and it is felt that this study should be carried out further to establish its exact use in bovine mastitis.

In present study, milk production did not increase appreciably after the treatment. Similar findings were noted by Morris (1973) and Jacob (1980) who stated that, when infections were successfully treated during a lactation,

the yield did not return to normal until the next lactation.

Among the cases showing positive MCMT inspite of treatment, one cow infected with Corynebacterium pyogenes did not respond to any treatment. Similar findings were recorded by Blood et al. (1983) that, even with intensive therapy at least 50% of the quarters are rendered useless and many of those which respond are greatly reduced in productivity. In similar manner, Seffner (1982) stated that full recovery was never observed in mastitis due to Corynebacterium pyogenes.