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A STUDY ON THE INCIDENCE OF CLINICAL MASTITISIN DAIRY COWS

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SUMMARY

Out of 720 cows milk samples examined, the incidence of clinical mastitis was found to be 33.01%. Hind quarters were more frequently affected than fore ones. The prevalence of mastitis increased with advancing age. It became highest during the sixth lactation. Bacteriological examination of milk samples revealed that Staph. aureus was the major etiological agent (46.32%), followed by Str. agalactiae (16.84%), E. coli (12.63%), Str. dysgalactiae (8.42%), C.pyogenes (8.42%) Staph. epidermidis (4.21%) Str. uberis (2.10%) and Str. pyogenes (1.05%).

INTRODUCTION

Mastitis continues to be the major problem of the dairy industry. It is considered to be the most important disease with which the dairying industry has to contend. Mastitis is responsible for causing heavy economic losses due to the reduction in milk production, degrading of milk quality and additional cost in the care and treatment of mastitic animals. A part from its economic importance, the disease is also of significance value from public health point of view.

In most countries, surveys of the incidence of mastitis, irrespective of cause, show comparable figures of about 40% morbidity amongst dairy cows and a quarter infection rate of about 25% [1]. Most estimates show that on the average an affected quarter suffer a 30% reduction in productivity and an affected cow is estimated to loos 15% of its production[2].

In Iraq, extensive studies were done on bovine sub-clinical mastitis[3; 4; 5 and 6]. However, less attention was paid to clinical mastitis.

The present study was designed to determine the prevalence of bovine mastitis in two herds as well as isolate and identify the bacteria associated with this infection.

MATERIALS AND METHODS

The present study was conducted on two herds, one in kut province and the other in White-Gold village. The udder of each cow was examined clinically and all information concerning breed, age, number and stage of lactation were recorded.

Milk samples were collected aseptically in sterils tests tubes from each quarter. The sample was transferred immediately to the laboratory. Loopful from each sample was inoculated on 5% sheep blood agar and MacConkey agar. Cultures were incubated at 37°C for 48-72 hours. The growth was examined macroscopically and microscopically. The isolates were identified according to their cultural, morphological and biochemical characteristics as suggested by *Carter* [7].

RESULTS

The incidence of clinical mastitis among cows examined and the etiological agents associated with this disease are summarized in Tables 1,2 and 3.

The prevalence of clinical mastitis in both herds was found to be 33.01% (Table 1). The result of this study revealed that hind quarters were affected more than fore quarters as shown in Table1. Clinical mastitis increased gradually with advancing age and number of lactation (Table 2). Cultural examination of 180 cow milk samples revealed that 95 (13.19%) were having bacteria. Staph. aureus was the most frequent pathogen isolated from mastitic milk samples as shown in (Table 3).

DISCUSSION

The incidence of clinical mastitis in cows (33.01%) was considered high in comparison with those reported by *Kalra* and *Dhanda*[8], *Sharma*[9] and *Ramachandra et al.*,[10] in India; *Sinoussi et al.*,[11] in Egypt; *Dagalic et al.*,[12] in Yogoslavia; *Cho et al.*,[13] in Korea and *Al-Shawabreh* and *Abulaziz*[14] in Jordan.

The possible factors contributing to the relative high incidence of clinical mastitis in Iraq might be due to bad hygiene measurement including over crowding of cows and the delay in the detection and treatment of mastitis.

The incidence of mastitis in cows exemined in the present study was higher than that (25.17%) in buffaloes[15]. This was probably due to the susceptability of dairy cows examined in this study as well as the presence of relatively tight sphincter mechanism in buffaloes which prevents entry of infection into teat canal as suggested by *Dhanda* and *Sethi*[16].

Hind quarters were affected with clinical mastitis more frequently than fore quarters. These findings were in agreement with those reported previously[8, 17, 18, 19 and 14]. The higher incidence in the hind quarters might be due to the fact that these quarters are liable to injury and exposed to dung and urine.

The present study revealed that the prevalence rate of mastitis was higher with increased lactation number. Similar findings were observed by

Sudesh Chander and Baxi (20), Singh and Baxi (21) and Al-Shawabreh and Abulaziz (14). This could be due to the reduction in the animals resistance to infection with advancing age.

An analysis of the data available on the relative frequency of different types of microorganisms encountered in udder infections revealed that Staphylococcus was the most prevalent among organisms associated with clinical mastitis in cows (50.53%). The incidence rates of other micro organisms in decreasing order were Streptococci (27.37%), E. coli (12.63%) and C. pyogenes (9.47%). These findings were in agreement with those of other workers[8, 20, 22, 17, 23, 13 and 14], who reported that Staphylococcus was the major udder pathogen. However, *El-Gindy et al.*,[24], *Sharma*[9] and *Ramachandra et al.*,[10] found Streptococcus was the common cause of mastitis in cows. The present study suggests that frequent examination of dairy herds is necessary for the diagnosis of mastitis and early treatment of affected animal. In addition, hygienic measurement must be taken to reduce factors exposing the animal to clinical mastitis.

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Table 1: Prevalence rate of clinical mastitis in cows examined

	Number of cow examined	Number of quarter examined	Number of affected animals	Number of affected quarters	Prevalence rate	Percentage of quarter affected			
						Left-fore	left-hind	Right-fore	Right-hind
Government kut Dairy Farm	115	460	37	57	32-17	14 (24.56%)	19 (33.33%)	15 (26.32%)	9 (15.79%)
White-Gold Herds	65	260	22	34	33-85	7 (20.58%)	13 (38.25%)	9 (26.47%)	5 (14.70%)
Total	180	720	57	91	33-01	21 (23.09%)	32 (35.16%)	24 (26.37%)	14 (15.38%)

Table 2: Incidence of clinical mastitis in successive lactation in cow.

Lactation	Number of animal examined	Number of animal affected (%)
First	35	7 (20.00)
Second	26	5 (19.23)
Third	34	6 (17.65)
Fourth	32	10 (31.25)
Fifth	30	12 (40.00)
Sixth and above	23	17 (73.91)

Table 3: Distribution of bacteria isolated from clinical cases of mastitic cows

Herd	Number of quarter effected	Number of mixed infection	Total isolates	Type of isolates						
				Staph aureus	Staph epider-midis	Str. egalac-tiac	Str. dysga-lactiac	Other Strepto-cocci	Coli-form	C. pyo-genes
Government Kut Dairy Farm	57	3[x]	60	26 (43.33)	3 (5.00)	11 (18.33)	6 (10.00)	1[xxx] (1.67)	7 (11.67) E. coli	6 (10.00)
White-Gold Herds	34	1[xx]	35	18 (51.43)	1 (2.86)	5 (14.29)	2 (5.71)	2[xxxx] (5.71)	5 (14.29) E. coli	2 (5.71)

x Staph. aureus and Str. agalactiae in two cases, Staph. aureua and Str. dysgalactiae in one case.
xx One Staph. aureus and one Str. agalactiae
x Str. uberis.
xxxx One Str. uberis and one Str. pyogenes

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دراسة نسبة حدوث الاصابة بألتهاب الضرع السريري في الابقار الحلوب

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الخلاصة

تم فحص (720) نموذج حليب من الابقار , كانت نسبة الاصابة بألتهاب الضرع السريري هي (33.01%) لوحظ ان الارباع الخلفية اكثر عرضة للاصابة من الارباع الامامية . تبين ان حدوث التهاب الضرع يزداد بتقدم العمر ووجد ان اعلى نسبة اصابة خلال فترة الرضاعة السادسة.

اوضح الفحص الجرثومي لنماذج الحليب ان المكورات العنقودية الذهبية هي الاكثر شيوعا (46.32%) يليها المكورات السبحية الاكلكشية (16.48%), الايشيرشيا القولونية (12.63%), المكورات السبحية اللاكلكشية (8.42%), الوتديات القيحية (8.42%) , المكورات العنقودية الجلدية (4.21%), المكورات السبحية يوبرس (2.10%), المكورات السبحية القيحية (1.05%).