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THE INFLUENCE OF DRY COW THERAPY ON MASTITIS CONTROL (With 3 Tables)

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تأثير العلاج أثناء فترة الجفاف في الأبقار على التحكم
في التهاب الضرع

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أجريت هذه الدراسة على ١٥٠ بقرة حلابه في نهاية فترة الحمل. وقد وجد من تطبيق هذا النظام العلاجي أن نسبة الإصابة بالتهاب الضرع انخفضت من ٨٠.٧٪ إلى ١٨.٧٪ وقد اتضح أيضا أن السفالر مبارين يعطي نتائج أفضل من النيومستيتار كعلاج للتهاب الضرع في فترة الجفاف فهو المضاد الحيوي المفضل حيث أعطت نسبة نجاح تقدر ٨٦.٩٪ وقد أسفرت النتائج على أن هذا النظام مجدي في القضاء على الميكروب السبحي النيجالاكتي والاجالاكتي والميكروب العنقودي الذهبي والشرشيات القولونية في ترتيب تنازلي.

SUMMARY

A dairy herd of 150 heavy pregnant freizian cows were used to study the influence of dry cow therapy on mastitis control. It was found that, this program reduced the percentage of mastitic quarters from 80.7 percent to 18.7 percent.

The use of cephalosporin as a dry cow therapy gave superior results than neomastitar, but it is worthy to note that, the treatment with cephalosporin, the antibiotic of choice 86.9% was impractical as it is not available as mastitic formula in Egyptian market.

Such practice proved to be effective against strept. dysagalactiae, strept. agalactiae, staph. aureus and E.coli in a descending manner.

INTRODUCTION

During the last few years more and more attention has been paid to mastitis in the form of herd treatment instead of the treatment of individual cows. In conjunction with improvement of hygienic measures and milking techniques, the applicat-

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ion of antibiotic by the intrammary route to all cows during the dry period is an important step in the approach to mastitis as a herd diseases (JACOBES, et al. 1972).

The dry period is a preferred time to treat most subclinical infections. Such therapy is normally accompanied by a higher efficacy and there is no risk of antibiotic contamination of salable milk. Also this therapy permits regeneration of damaged tissue and prevent most new dry period infection (NEAVE, et al. 1966 and SMITH, et al. 1967).

A high percent of infections occurs in the first 3 weeks of the dry period. The infection remains, however, dormant untill calving and onset of lactation, where upon mastitis could be detected (JASPER, 1982). Efforts to control mastitis by the treatment of clinical cases alone are most certainly doomed to failure and this is analogous to cutting off the tops of weeds and leaving the roots (MURPHY, 1956 and DODD & NEAVE, 1970).

The subject of this paper, was planned to study the role of dry cow therapy on mastitis control.

MATERIAL and METHODS

Animals:

The present study was done on 150 heavy pregnant freizian cows belonging to private farm at El-Khaleeg Village of Kafr-El-Sheekh Governorate. These cows were gradually dried off about two months before parturition and kept under the same environmental and managemental conditions. Their ages ranges from five to seven years and they are milked with the same milking machine. Five hundred and eightly milk samples were subjected to schalm test and bacteriological examination at drying off. Cows suffering from mastitic quarters were divided into two main groups, untreated group A and treated group B which divided into subgroups, B₁ and B₂ according to the type of antibiotic used. After parturition all cows were kept in close observation and periodically tested for presence of mastitis. Clinical examination of the udders was done during machine milking. Schalm test was carried out periodically for each quarter once every week for one month, and positive milk samples were bacteriologically examined.

Schalm test:

The test was performed on specimens of milk from each individual quarter, and was carried out according to SCHALM and NOORLANDER (1957).

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Bacteriological Examination:

Milk samples were collected from quarters which gave positive Schalm test. The tips of the teats were cleanded with 70% alcohol, left to dry and samples of fore milk from each individual quarter were collected in sterile screw capped bottles. These samples were cultivated into the blood agar, MaCconkey's and Sabouraud media. Isolated colonies were identified according to CRUICKSHANK, et al. (1975).

Treatment:

Therapy administered within one week after drying off and the teat sealed with wax material. According to type of drug used the group B divided into to sub-groups B₁ and B₂.

Subgroup B₁:

Consists of 39 cows of 155 infected quarters, received Neomastitar intrammary one injection only, the drug productued by Intervet Holand and each syring contain 500,000 i.u. procine penicillin, 300 mg Neomycin sulphate in special longacting base 8 gram.

Subgroup B₂:

Include 43 cows of 168 infected quarter, infused intrammary twice at one week interval with 500 mg velosef produced by Squib, the vial contain 250 mg cephradine which is asemisynthetic cephalosporin antibiotic.

RESULTS

The incidence of mastitic quarters at drying off and after calving in both untreated and treated dry cow is recorded in table (1).

Efficiency of Neomastitar and cephalosporin in treating the mastitic quarters is recorded in table (2).

Response of various types of microorganisms to dry cow therapy is recorded in table (3).

DISCUSSION

From an economic stand point, mastitis is one of the important of diseases occuring in dairy cattle most associated with high losses of milk production to be brought under control (TOLLE, 1984).

In the present study, it is evident that the dry cow therapy reduces the incidence of mastitic quarters from 80.7 percent at drying off to 18.7 percent after

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calving (table 1). This finding corresponding to these of DODD, et al. (1969) who reported that in the dry cows, after a single treatment following the last milking of the lactation period, 82 percent of the 66 quarters treated were bacteriologically negative 1 week after milking. Also JACOBS, et al. (1972) proved that the percentage of cured quarters due to dry cow therapy ranged from 83% to 90%. Also KINGWILL (1978) proposed treatment of all cows during the dry period, by this regimen, about 84 percent of all infections present at drying were negative at calving.

The results of table (1) revealed the incidence of mastitic quarters in non treated group were increased as 76.6 percent at drying off to 86 percent after calving. This result coincide with these obtained by JASPER (1982) who reported that a high percent of infection occurs in the first three weeks of the dry period. The infection remains, however, dormant until calving and onset of lactation, where upon mastitis could be detected.

The dry cow therapy was carried out by Neomastitar and cephalosporin antibiotics. Owing to the results obtained, it was evident that, cephalosporin was effective on 86.9% of treated quarters followed by Neomatitar 74.8%. The superior effect of cephalosporin than Neomastitar, might be due to the fact that cephalosporin seldom used as treatment for mastitis in contrast to Neomastitar which most frequently used and may led to the development of resistant strains.

It is worthy to note that, the treatment with cephalosporin, the antibiotic of choice 86.9%, was impractical as it is not available as mastitic formula in Egyptian market.

It is evident from table (3) that the dry cow therapy was effective on 100% of strept. dysagalactiae, followed by 87.1% of strept. agalactiae, 49.3% staph. aureus and then 33% E.coli. Our results were in conformity with that reported by plato now and BLOBEL (1963) who reported that the treatment of dry cows have generally indicated efficiencies of 90% to 100% against streptococci and 40 to 70% against staphylococci. However, ABDOL, et al. (1987) proposed that such program did not reduce mastitis caused by environmental organisms such as coliform bacteria and it was not highly effective against staph. aureus. The contraversion of our results might be due to the type of antibiotic used or due to the technique applied or both.

It should be emphasized that such practice is an effective means of eliminating many existing infections and should be employed, wherever feasible, in preference to the treatment of infected animals, regular testing and segregation of infected animals as well as application of teat dipping and hygienic measures (PHILPOT, et al. 1978 and THOMPSON and DAHL, 1982).

The mastitis control program described here is relatively effective in reducing infection, practical to carry out, and the costs are less in comparison with these

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lost due to treating diseased cases. Other advantages of such program include: **a)** Antibiotics remain in the udder longer, therefore cure rates are increased. **b)** The drugs can be given in higher dosages, therefore cure rates are increased. **c)** The antibiotic residue problem in milk is eliminated. **d)** New dry period infection are largely prevented. **e)** If cows are dried off with old infection the chances of recovery old infection, is increased and the udder begins its next lactation "clean".

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Table (1): Incidence of mastitic quarters at drying off and after calving in both untreated and treated dry cows.

	Situation at drying off			Situation after calving		
	No. of examined milk samples	No. of infected quarters	Percentage of infected quarters	No. of infected quarters	Percentage of infected quarters	
Untreated group A	180	138	76.6%	155	85.9%	
Treated group B	400	323	80.7%	75	18.7%	

Table (2): Efficiency of Neomastitar and cephalosporin in treating the mastitic quarters.

	Situation at drying off			Situation after calving		
	Bacteriological finding	No. of quarters	Antibiotic used	No. of quarters cured	Percentage of quarters cured	
Subgroup B ₁	Strept. agalactiae	100	Neomastitar one syring per quarter	85	85	
	Strept. dysgalactiae	15		15	100	
	Staph. aureus	35		7	20	
	E. coli	5		2	40	
	total	155		116	74.8%	
Subgroup B ₂	Strept. agalactiae	110	cephalosporin 500 mg/quarter two times one week interval	98	89	
	Strept. dysgalactiae	8		8	100	
	Staph. aureus	40		30	75	
	E. coli	10		3	30	
	Total	168		146	86.9%	

Table (3): Response of various types of microorganisms to dry cow therapy.

Types of microorganisms	No.of infected quarters	No.of cured quarters	Efficacy percentage
Strept. agalactiae	210	183	87.1
strept. dysagalactiae	23	23	100.0
Staph. aureus	75	37	49.3
E.Coli	15	5	33.0