

CAEV Infection does not Affect Prevalence of Bacterial Mastitis in Goats

Like other lentiviruses, caprine arthritis-encephalitis virus (CAEV) causes persistent infection. The majority of CAEV-infected goats is clinically healthy. Signs of disease are associated with progressive inflammation in one or more organ or tissue systems such as joints, bursae, brain, spinal cord, lungs, and udder (Bulgin 1990, Dawson 1987). In most CAEV-infected females, the mammary gland, which is a target for the virus, is likely to be infected (Kennedy-Stoskopf *et al.* 1985, Lerondelle *et al.* 1989). The infection may cause increased somatic cell counts (Post *et al.* 1984, Nord & Ådnøy to be published). The milk mostly appears normal and mastitis may not be suspected. Ryan *et al.* (1993) and Smith & Cutlip (1988) suggested that susceptibility to bacterial udder infection is enhanced in CAEV-infected goats, in particular with regard to infections due to non-haemolytic *Staphylococci*. In this study, the prevalence of bacterial udder infections in CAEV-antibody positive goats is compared with that in negative animals.

Sera from 26 lactating goats in each of 17 herds were examined for antibodies against CAEV by an enzyme-linked immunosorbent assay (ELISA) (Rimstad *et al.* 1994). The goats were randomly selected according to the total age distribution in each herd, as described elsewhere (Nord *et al.* to be published). Simultaneously, milk was sampled aseptically once in late lactation, and submitted to the regional labora-

tory. Routine bacteriological examinations on blood agar plates were performed (Anon. 1981, Anon. 1987b). Schalm's Test was performed on each milk sample to give an indication of somatic cell count (Schalm *et al.* 1971). A diagnosis of bacterial mastitis was based on a positive bacteriological finding combined with a Schalm's Test score of 3 or more (Anon. 1987a). Prevalences of bacterial mastitis in seropositive and seronegative lactating goats were compared using the Logistic Regression Model in the JMP software (SAS Institute Inc. 1995) for MS-Windows, controlling for age, farm, and bacterial agent.

All tested herds and 199 (45%) of the tested goats were positive for antibodies against CAEV. In all, 38 (4.2%) out of 884 milk samples from 37 (8.4%) out of 442 goats gave findings consistent with bacterial mastitis. Four yielded coagulase-negative *Staphylococci* (0.45%), 32 yielded *Staphylococcus aureus* (3.6%), while one sample yielded *Esherichia coli* (0.1%) (Table 1). Of the 36 goats with mastitis which yielded *Staphylococcus* species, 17 were positive and 14 were negative for antibodies against CAEV (Table 1). The statistical analysis did not reveal any association between CAEV-antibody status and bacterial mastitis. The recorded prevalence, 8.4% of bacterial mastitis in the goats, distributed in all the 17 tested herds, is very low. This might partly explain why statistically significant differences

Table 1. Number of goats with mastitis among 442 goats in 17 herds, and serological results of an ELISA for antibodies against caprine arthritis-encephalitis virus.

Bacteria	Mastitis diagnosis		CAEV antibodies (ELISA)		
	No. herds	No. goats	Positive	Indeterminate	Negative
Staphylococcus aureus	15	32	15	4	13
Coagulase negative Staphylococci	4	4	2	1	1
Escherichia coli	1	1			1

between CAEV-antibody positive and negative animals were not found. The occurrence of bacterial mastitis was recorded on the basis of just one milk sample. Further sampling of milk at different times, preferably combined with registration of clinical signs, might have given a more accurate expression of the true mastitis status in the herds. Nevertheless, although the cumulative incidences of clinical mastitis during one year as recorded by the owners were not included in the study, as in quite a few cases a specific aetiological diagnosis was lacking, the existing data (not shown) did not indicate any differences in the cumulative incidences of bacterial mastitis between seropositive and seronegative herdsmates. Indeed, if CAEV infection disposes for bacterial mastitis, especially with *Staphylococci* species, as suggested by *Ryan et al.* (1993) and *Smith & Cutlip* (1988), the high overall prevalence of goats with antibodies against CAEV should have led to a higher prevalence of Staphylococcal mastitis.

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