

Caprine Arthritis Encephalitis (CAEV)

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I. Implications of infection - Economic significance.

- A. Losses may depend on interactions between management, familial genetic resistance, and strain differences. Losses are due to clinical disease, economics, and ethics of selling known positive animals as foundation stock. Costs need to be compared to cost of control program.

II. Disease

A. Epidemiology

1. Clinical disease - onset of arthritis often at 2 - 3 years of age.
2. World wide
3. Seroprevalence USA - 31 % but not uniform; higher in dairy breeds

Breed susceptibility - reported prevalence is higher in dairy breeds but they are more often fed pooled milk.

B. Transmission - 2 stages: doe/kid and horizontal between adults.

1. Ingestion of milk or colostrum from infected dam or doe.
2. Risk factors include close confinement in intensively managed herds.

C. Clinical Syndromes

1. **Lameness/Arthritis** - painful stiff gait, reluctant to move, swelling of carpal and sometimes hock (tarsal) joints and bursae. Usually bilateral. Usually seen in adults; signs are progressive and accompanied by weight loss.
2. **Neurologic disease** - hindlimb ataxia, stumbling gait progressing over weeks to months to hind limb paralysis and occasionally quadriplegia. One limb may be more affected than another. Animals remain alert, afebrile, have a normal appetite; usually in kids 2-4 months old but also adults.
3. **Hard Udder** - firm, swollen udder, no heat, pain or illness associated with the condition. Usually presents at parturition, limp teats with no or very little milk at the teat end. Milk production may be reduced and may see unthrifty kids before agalactia.

4. **Pneumonia** - clinical phase typically in adults. Early signs in affected goats include lagging behind herd, forced expiration, open mouth breathing upon exercise, dry cough, weight loss.

III. Diagnostic Testing

A. General comments

1. The AGID is the most commonly used commercially available test. The ELISA has been shown to be much more sensitive but only recently became commercially available. Both detect infection later than PCR but some infected goats are PCR negative.
2. Timing - colostral antibody disappears after 3 months of age. Positive serology after 6 months of age is indicative of infection.
3. Seropositive animals can at times become seronegative even though still infected.

B. ELISA more sensitive than AGID at an earlier stage of infection

IV. Control

A. General Approach - Use of some basic disease control procedures and culling based on productivity will aid in selection for a healthy, resistant flock. This approach will assist in control of a number of chronic diseases including CAEV, Johne's disease and caseous lymphadenitis.

1. Avoid common use of needles - use single use sterile needles. Change syringes if blood contaminated.
2. Disinfect blood contaminated equipment (clipper blades, tattooing equipment, tail docking equipment, taggers).
3. Clean feeders, waterers, mineral feeders before introducing a new group of animals.

B. Test to determine seroprevalence.

1. Note that seroprevalence if AGID test is used does not equal true infection prevalence.
2. If seroprevalence is greater than 30%, it may not be economically feasible to cull all positive animals.

C. Manage doe to kid transmission

1. Separate kids before suckling - feed heat treated colostrum (56 EC, 133 EF for 60 minutes) or cow colostrum from Johne's disease free herd.
2. Rear on milk replacer

D. Manage horizontal transmission

1. Segregate seropositive from seronegative goats by culling or by creating two different and isolated groups.
2. Milk "negative" herd first to avoid virus spread via milk on hands or machine.
3. Keep younger does

E. Purchased Replacements - buy only CAEV negative goats preferably from test and disease negative herds. "Let the buyer beware." Ask questions specifically about testing and disease history in the herd. Ask about clinical signs of the diseases e.g. have any animals been culled due to unexplained weight loss, pneumonia, hard udder etc.

F. Control Programs

1. test and cull seropositive animals and their offspring - requires three years of biannual testing with continued monitoring of the herd.
2. separate kids at birth and rear in isolation - fastest and most reliable method.