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ANTIMICROBIAL RESISTANCE IN STRAINS OF *Corynebacterium pseudotuberculosis* ISOLATED FROM A DAIRY GOAT HERD

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Introduction

Caseous lymphadenitis is a contagious disease with a chronic course, caused by *Corynebacterium pseudotuberculosis*, mainly affects small ruminants and is a zoonotic disease. Transmission occurs through wounds. The disease is characterized by the formation of abscesses with caseous exudate in the lymph nodes. Treatment is performed by debridement of the abscess. The objective of the work is the identification of *Corynebacterium pseudotuberculosis* strains resistant to different antibiotics.

Methods

Twenty purulent exudate samples were obtained from a goat dairy production unit. The isolation was carried out in blood agar at 37°C for 48 hours. Primary and secondary biochemical tests were performed for their identification. For antimicrobial resistance, the disk diffusion method (multidisc) was used with a turbidity of 0.5 McFarland scale and. The following antibiotics (µg/disc) were used: ampicillin (10), amikacin (30), cefotaxime (30), dicloxacillin (1), cephalothin (30), gentamicin (10), ceftriaxone (30), chloramphenicol (30), sulfamethoxazole-trimethoprim (25), netilmicin (30), and nitrofurantoin (300) and for penicillin 10U.

Results

Fifteen strains of *C. pseudotuberculosis* were identified. S observed resistance to ampicillin in nine strains (60%), to dicloxacillin in six strains (40%), to sulfamethoxazole-trimethoprim in one strain (6.6%), and to nitrofurantoin in 12 strains (80%), and an intermediate interaction to sulfamethoxazole-trimethoprim in one strain (6.6%). From Muckle and Gyles (1986), with 26 isolates from goats, they reported that all the strains were susceptible to ampicillin, chloramphenicol, lincomycin, gentamicin, tetracyclines, penicillin G and sulfamethoxazole-trimethoprim. Only three strains susceptible to neomycin and all strains resistant to streptomycin. *Corynebacterium pseudotuberculosis* has also been reported to be susceptible in vitro to ampicillin, lincomycin, gentamicin, tetracycline, penicillin G, trimethoprim, and sulfamethoxazole. Finding resistance only to streptomycin (Cubero et al, 2002). Of the total number of strains, there is a strain (6.6%) susceptible to all antibiotics and another strain (6.6%) resistant to three of the antibiotics (sulfamethoxazole-trimethoprim, dicloxacillin and ampicillin). The rest of the strains having a resistance to two antibiotics (86.6%). The resistance is to four antibiotics (33.3%) and with a susceptibility to eight (66.6%) of the twelve antibiotics. H, Li et al (2018) achieve 40 isolates and work with 21 antibiotics, reporting a resistance rate of less than 15% to antibiotics. Obtaining 100% resistance in: nitrofurantoin, furazolidone and streptomycin. With a 100% susceptibility to vancomycin, norfloxacin, cephadrine, clarithromycin, and cefepime.

Reports in humans with a diagnosis of caseous lymphadenitis, where treatment exclusively with antibiotics was insufficient, even when the strain was sensitive in vitro to the drug administered. It also mentions resistance to commonly used antibiotics. The therapeutic schemes with combinations of two beta-lactam, associated with erythromycin, macrolides such as clarithromycin and azithromycin and/or third-generation cephalosporins are more effective. Rifampicin and ofloxacin proved to be effective, since they present good diffusion and bactericidal action against intracellular and extracellular mycobacteria.

Conclusions

Resistant strains were identified and that more than one strain circulates, in addition to the possibility of the transmission of resistance genes. We must not forget the fact that we are talking about a zoonotic disease and its effect on public health.