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TEICOPLANIN AND VANCOMYCIN RESISTANCE IN METHICILLIN-SENSITIVE STAPHYLOCOCCUS AUREUS ISOLATED IN A RABBIT FARM IN ITALY

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Objectives: Teicoplanin and vancomycin are increasingly important drugs against the human MRSA infections. In veterinary medicine, most studies have focused on glycopeptide-resistant MRSA while few studies have been conducted on MSSA strains. The aims of this study were the typing of MSSA strains circulating in a rabbit farm and the assessment of susceptibility to glycopeptides.

Materials and methods: Out of 595 MSSA isolated from meat rabbits of different age and farm-workers [1], 96 strains were randomly selected and characterized using spa-typing [2]. Susceptibility to 16 antibiotics, teicoplanin and vancomycin included, was tested [3]. Finally, profiles of antibiotic resistance were combined with spa-types, identifying different pathotypes.

Results: Twenty-three antibiotic-resistance profiles and 5 different spa-types (t2802, t491, t094, t2036, t605) were identified. The two most frequent spa-types were: t2802 (53.1%), detected in both animals and farmers, and t491 (38.5%). In total, 26 pathotypes were obtained. Resistance to glycopeptides was observed in 17/26 (65.4%) pathotypes. Among them, only one was susceptible to teicoplanin, but resistant to vancomycin (clone t491); 14 were resistant to teicoplanin (t2802, t491, t094, t2036, t605), while being susceptible to vancomycin; two were resistant to both antimicrobials (t491, t094).

Conclusion: Many different MSSA clones, with different patterns of antibiotic-resistance, were present in this rabbit farm. The same spa-type was observed in both animals and workers, showing that *S. aureus* strains can easily circulate in a community. More than half of the MSSA clones exhibited resistance to glycopeptides. This data should not be underestimated as these antibiotics are among drugs of choice for treatment of MRSA infections, making it important to extend the surveillance network also to niche zootechnical species.

References

[1] Attili et al. *Animals* 10 (2020) 774.

[2] Stegger et al. *Clinical Microbiology and Infections* 18 (2012) 395–400.

[3] CLSI M100 (2020) 30th Edition.