



Abstracts der Posterbeiträge zur ÖGT Klauentiertagung

University Clinic for Ruminants¹, Department for Farm Animals and Veterinary Public Health, University of Veterinary Medicine Vienna, Institute of Microbiology², University of Veterinary Medicine Vienna

Phenotypic characterization of *Streptococcus agalactiae* isolates from aseptically collected quarter milk samples from Austrian dairy herds

A. Freytag¹, M. Baumgartner¹, Th. Wittek¹, J. Sperspiger², C. Eibl¹

Keywords: Mastitis, *Streptococcus agalactiae*, phenotypic characterization, antibiotic resistance.

Objectives: *Streptococcus (S.) agalactiae*, also known as Group B streptococcus (GBS) is considered as a reemerging bovine mastitis pathogen with discussed zoonotic potential. According to the literature, there are GBS strains isolated from bovine udder which show resistance patterns that were formerly claimed to be characteristic for human associated GBS strains. The aim of the study was to characterize 62 GBS isolates phenotypically and biochemically as well as to analyze their resistance pattern against selected antibiotics.

Material and Methods: From 2009 to 2021 a total amount of 62 GBS isolates were collected from dairy herds in Austria. The isolates originated from quarter milk samples (one sample per farm) that were submitted for routine diagnostic to Austrian mastitis diagnostic laboratories. All isolates were phenotypically described (morphology, hemolytic patterns on blood agar, catalase test, cultivation on esculin, CAMP-test) and further analyzed by Lancefield serogrouping and biochemical characterization (API[®]RAPID ID 32 STREP). Antimicrobial susceptibility was tested by means of agar disk diffusion test (ADD) and a microdilution method (Micronaut-S Mastitis 3 Test, Merlin Diagnostika, D).

Results: All isolates grew on sheep blood agar in small, grayish colonies and most of them exhibited a β -hemolysis. Furthermore, every strain was catalase negative, showed a negative reaction on Esculin and

Bile-Esculin-Agar and was Lancefield B and CAMP test positive. A total of 50 isolates (80.65 %) were able to ferment lactose. All isolates were sensitive against penicillin, ampicillin, framycetin/penicillin, rifampicin, linezolid, cefepime, cefotaxime, cefazolin, cefoperazon, cefquinom, oxacillin and amoxicillin/clavulanic acid. Antimicrobial resistances were detected against tetracyclin, kanamycin/cephalexin, clindamycin, erythromycin, vancomycin and pirlimycin. 12.90 % of the strains were coincidentally resistant against four antibiotics (human associated resistance pattern: pirlimycin, clindamycin, erythromycin and tetracyclin).

Discussion: The strains differed regarding their ability to convert lactose and their resistance pattern. According to literature, the ability for lactose-fermentation is a unique characteristic for bovine associated strains. In contrast, the mentioned human associated resistance pattern could be found with isolates from bovine milk samples.

Conclusion: Resistance pattern and inability for lactose fermentation are indicative, that human associated strains can be found in Austrian dairy herds. Further investigations using molecular methods (e.g., whole genome sequencing) will be carried out to characterize GBS strains genotypically to investigate host specificity to classify the extend of its burden for humans and cattle.

References:

Dogan B, Schukken YH, Santisteban C, Boor KJ. Distribution of Serotypes and Antimicrobial Resistance Genes among *Streptococcus agalactiae* Isolates from Bovine and Human Hosts. J Clin Microbiol. 2005;43(12):5899–5906.

Hernandez L, Bottini E, Cadona J, Cacciato C, Monteavaro C, Bustamante A, et al. Multidrug Resistance and Molecular Characterization of *Streptococcus agalactiae* Isolates From Dairy Cattle With Mastitis. Front Cell Infect Microbiol. 2021;11:647324. DOI: 10.3389/fcimb.2021.647324