



BACTERIAL DISEASES

BBD-019

OPTIMIZATION OF ANTIMICROBIAL TREATMENTS USING PHARMACODYNAMIC PARAMETERS UNDER FIELD CONDITIONS

A. Vilaró¹, E. Novell¹, J. Balielles¹, V. Tarancón¹, L. Fraile².

¹ GSP, LLeida, Spain; ² University of Lleida, Spain, Spain.

Introduction

Antimicrobials (AB) are essential tools to control clinical outbreaks involving bacteria as primary or secondary pathogens. The selective pressure exerted by these compounds could contribute to the emergence of antimicrobial resistant (AR) bacteria. The selection of the most suitable AB is critical to decrease the appearance and spread of AR. There are many guidelines about AB for swine practitioners, but a more practical approach is urgently needed to put these recommendations into practice. The aim of this research work is to describe a method based on pharmacodynamic determination to select the most suitable AB in a case by case situation.

Material & Methods

Samples coming from clinical cases compatible with the most common pig bacterial diseases were cultured on suitable medium cultures. After 2-3 days of culture, colonies were selected and cultured again for identification and further analysis using VITEK 2 COMPACT system. Antimicrobial susceptibility tests for MIC determination were performed, using the agar dilution method, according to CLSI guideline M31-A3 with modifications to automate the procedure (Thermofisher scientific proposal). A different battery of twelve AB was used for digestive and respiratory and systemic pathogens, respectively.

Results

It was possible to determine the MIC value for pig respiratory and digestive pathogens. This MIC value was used to select the most suitable antimicrobial taking into account pharmacokinetic (available in the public domain), pharmacodynamic information and recommendations published by the European Union about the different antimicrobial categories. This prediction was checked with clinical information from the field after applying the treatments.

Discussion & Conclusion

These results highlight the relevance of determining pharmacodynamic parameters (MIC) to optimize antimicrobial treatments in pig medicine. The generated information can justify an antimicrobial treatment for the present and future clinical cases if this epidemiological information is linked with the sow origin.