Veterinarija ir Zootechnika

Volume 79(2), 2021
Supplement

The international scientific conference is dedicated to the 75th anniversary of Lithuanian University of Health Sciences Veterinary Academy Faculty of Animal Sciences.
2021 November 11. Kaunas

LIVESTOCK PRODUCTION: RECENT TRENDS AND FUTURE PROSPECTS

Abstracts

Mobile Tigecycline Resistance (MTR) in Animals Aimed at Human Consumption

Raquel P. F. Guiné

CERNAS Research Centre, Polytechnic Institute of Viseu, 3504-510 Viseu, Portugal

Tigecycline (TIG) is a synthesized third-generation tetracycline antibiotic, which exhibits powerful in vitro activity against a wide spectrum of bacteria. It is one of the last available treatment options used to fight serious infections caused by multidrug-resistant pathogens (1). The increasing prevalence and widespread dissemination of antimicrobial resistance, especially the emergence of multidrug-resistant (MDR) micro-organisms, cause global concern (2). Infections caused by MDR pathogens are high burdens, because of the increased costs, longer hospital stay, and morbidity and mortality rates. The use of tetracycline both in humans and also in animals can, among other factors such as gene mutations, contribute to high-level tigecycline (TIG) resistance. Mobile TIG resistance (MTR) can be detected in diverse bacteria isolated from food animals; therefore, it is important to explore the potential sources as well as its impact in the livestock sector and the one health implications. Although TIG has not been used in animals, animals destined for human consumption can get colonized by TIG-resistant organisms through environmental transfer, consumption of contaminated feed or drinking water. Very recently, plasmid-mediated transmissible tet(X), tet(X3) and tet(X4) genes conferring high-level tigecycline (TIG) resistance were discovered in isolates from food animals, meat and environment in China. Hence, the clinical usefulness of TIG was being threatened by the mobile TIG resistance (MTR). The presence of MTR in the livestock sector is a threat to global food safety and security (3). Through international or domestic food animals/meat trade and travel, TIG-r organisms can be transported from one location to another, making this a worldwide problem. The MTR impacts globally on different chain links, the one health concept, with high economic implications.

Keywords: mobile tigecycline resistance, antibiotic resistance, one health, livestock sector.

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