ABSTRACT

Background: With increased livestock keeping, multiple prevailing infections, antimicrobial agents' use and pattern in Tanzania, the development of antimicrobial resistance (AMR) becomes inevitable. Antibiotic-resistant pathogens have increasingly become a major challenge in human and animal medicine. Although inappropriate use of antibiotics in humans is the principal cause of resistance, antibiotic-resistant bacteria originating from animals contribute to the emergence and spread of these bacteria. Antibiotics help control a multitude of bacterial infections that are major causes of diseases in both animals and humans. Rational use in animals is crucial to control any development and transfer of AMR to humans. This study aimed to create quantitative evidence of animal antimicrobial usage patterns in Tanzania to serve as a baseline for surveillance of antimicrobial use and antimicrobial resistance control. Methodology: This descriptive longitudinal retrospective study was conducted to explore the trend of veterinary-antibiotics consumed in the eight years, from 1st January 2010 to 31st December 2017 in Tanzania mainland. The data source was records of all antibiotics imported for veterinary use into Tanzania's mainland according to the Tanzania Medicines and Medical Devices Authority (TMDA) records. The analysis employed the World Health Organization (WHO) Collaborating Centre for Drug Statistics Methodology using Anatomical Therapeutic and Chemical (ATC) classification. Regression and time series analysis was used to establish trends in antibiotics consumption. Results: A total of 12,147,491 kg of antibiotics were consumed in Tanzania from 2010 to 2017. Tetracycline, sulfonamides and trimethoprim, quinolones, aminoglycosides, betalactams and antibacterial combinations were the most commonly used antibacterial agents in Tanzania. Tetracycline class topped the list with about 8,090,798 kg (66.6%) out of 12,147,491 kg total quantity of antimicrobials consumed. Non-significant, linear curve estimations and time series analysis indicate a decline in the quantities of veterinary antibiotics used in the eight years from 2010 to 2017. Conclusions: This study suggests that tetracycline is the most used antibiotic class for veterinary medicine in Tanzania. The trend of antimicrobial use is generally decreasing compared to other countries in Africa. Even though some antibiotics have the lowest consumption rate, they are also prone to AMR, prompting follow-up by the relevant regulatory authorities.

Keywords: antimicrobial, drug resistance, antibiotic consumption, Tanzania, veterinary antibiotics, defined daily doses, anatomical therapeutic and chemical classification, medicine utilization.