

The Role of Antibiotics in Veterinary Care: Benefits and Risks

Tarousi Thuan*

Department of Animal Production and Aquaculture, University of Perugia, 06123 Perugia PG, Italy

Introduction

Antibiotics have become a cornerstone of modern veterinary medicine, playing a critical role in treating bacterial infections and ensuring the health and wellbeing of animals. From household pets to livestock, these medications are often the first line of defense against potentially life-threatening infections. However, while antibiotics offer significant benefits, their use also carries risks that must be carefully managed to ensure the safety of both animals and humans. Antibiotics are some of the most important tools in veterinary medicine, revolutionizing the way we treat bacterial infections in animals. From household pets to farm animals, antibiotics have become essential in managing a range of diseases that, without intervention, could result in serious illness or death. Whether treating a bacterial respiratory infection in a dog or controlling a salmonella outbreak in poultry, these medications offer life-saving benefits. However, the use of antibiotics is not without its challenges and risks. Overuse, misuse and the emergence of antibiotic-resistant bacteria are growing concerns that require careful attention and responsible practices from veterinarians, pet owners and the agricultural industry. This article explores both the significant benefits and the potential risks associated with antibiotics in veterinary care, emphasizing the need for balanced and responsible use to safeguard animal health and prevent wider public health issues [1].

Antibiotics work by either killing bacteria or inhibiting their growth, making them invaluable in treating infections caused by harmful pathogens. In veterinary care, antibiotics are used to treat a wide variety of conditions, including respiratory infections in pets, mastitis in dairy cows and salmonella in poultry. The use of antibiotics can help prevent the spread of infection, reduce suffering and improve the overall health of animals. However, the use of antibiotics in animals is not without controversy. One of the primary concerns is the development of antibiotic resistance, a phenomenon where bacteria evolve to become resistant to the drugs designed to kill them. This can result in infections that are harder to treat, not only in animals but also in humans. Additionally, the overuse or misuse of antibiotics can lead to unwanted side effects, such as disruptions in the animal's natural microbiome, gastrointestinal issues, or allergic reactions. Responsible antibiotic use is critical to minimizing these risks. Veterinarians must carefully diagnose infections and select the appropriate antibiotic, often based on culture and sensitivity tests. In recent years, there has been a growing push for more judicious use of antibiotics in both veterinary and agricultural practices, with efforts to reduce the need for antibiotics in healthy animals and emphasize alternatives such as vaccines, probiotics and improved hygiene practices [2].

Description

One of the primary benefits of antibiotics is their ability to treat bacterial

***Address for Correspondence:** Tarousi Thuan, Department of Animal Production and Aquaculture, University of Perugia, 06123 Perugia PG, Italy; E-mail: Thuantarou6767@gmail.com

Copyright: © 2024 Thuan T. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Received: 09 September, 2024, Manuscript No. ahbs-24-154775; **Editor Assigned:** 11 September, 2024, Pre QC No. P-154775; **Reviewed:** 23 September, 2024, QC No. Q-154775; **Revised:** 28 September, 2024, Manuscript No. R-154775; **Published:** 04 October, 2024, DOI: 10.37421/2952-8097.2024.8.279

infections in animals. Bacterial infections, such as pneumonia, urinary tract infections and mastitis (infections of the mammary glands in dairy cows), can quickly escalate from mild to severe without appropriate treatment. Antibiotics can effectively clear these infections, improving the animal's health and preventing complications like organ damage, sepsis, or death. In some cases, antibiotics may also be used prophylactically to prevent infection in animals undergoing surgery or in those at high risk due to stress, overcrowding, or compromised immune systems. For many animals, untreated bacterial infections can cause significant pain, discomfort and suffering. Antibiotics help to alleviate these symptoms and improve the overall welfare of the animal. For example, antibiotics are frequently used to treat skin infections, abscesses and other common ailments that affect companion animals, helping to restore their health and quality of life. Livestock such as cattle, pigs and poultry are often housed in crowded conditions, which can create an environment conducive to the spread of infectious diseases. Antibiotics can help manage outbreaks, prevent illness and promote faster recovery, thus ensuring the animals remain productive and profitable [3].

Veterinary antibiotics are also used to prevent the transmission of infectious diseases from animals to humans. Zoonotic diseases, such as tuberculosis, brucellosis and salmonella, can be transmitted from animals to humans and can pose serious public health threats. By controlling bacterial infections in animals, antibiotics can help reduce the risk of these diseases spreading to humans, especially in environments like farms, where the interaction between humans and animals is frequent. In the agricultural industry, antibiotics play a crucial role in maintaining the health of livestock and ensuring food security. Healthy animals lead to higher yields in milk, eggs and meat, which is crucial for feeding the global population. This global challenge threatens the efficacy of antibiotics, not only in animals but also in humans, as resistant bacteria can transfer between species. Responsible antibiotic use, guided by veterinary expertise and strict regulatory frameworks, is crucial to balancing the benefits of these life-saving drugs with the need to mitigate the risks of resistance. Implementing practices such as antimicrobial stewardship and promoting alternatives like vaccines and probiotics can further enhance animal health while preserving antibiotic efficacy for future generations. They are essential in managing diseases in livestock, enhancing food security and improving the well-being of companion animals. However, the overuse and misuse of antibiotics in veterinary care pose significant risks, including the emergence of antimicrobial resistance [4,5].

Conclusion

Antibiotics have undeniably improved veterinary care by providing effective treatments for bacterial infections, enhancing animal welfare and safeguarding public health. However, the benefits of antibiotics must be balanced against their potential risks, especially the growing problem of antibiotic resistance. Ultimately, the future of veterinary care will rely on a multifaceted approach that includes judicious antibiotic use, the development of alternatives and continued efforts to preserve the effectiveness of these life-saving drugs for generations to come. Antibiotics have undoubtedly revolutionized veterinary care, improving the outcomes of many animal health conditions and saving countless lives. However, their benefits must be balanced against the risks, particularly the growing issue of antibiotic resistance. Responsible and judicious use of antibiotics, guided by proper diagnostics and a commitment to stewardship, is essential for preserving the effectiveness of these vital medications.

Acknowledgement

None.

Conflict of Interest

None.

References

1. Anand, Utpal, Bashir Adelodun, Carlo Cabreros and Pankaj Kumar, et al. "Occurrence, transformation, bioaccumulation, risk and analysis of pharmaceutical and personal care products from wastewater: A review." *Environ Chem Lett* 20 (2022): 3883-3904.
2. Adhikari, Sangeet, Rahul Kumar, Erin M. Driver and Tyler D. Perleberg, et al. "Mass trends of parabens, triclocarban and triclosan in Arizona wastewater collected after the 2017 FDA ban on antimicrobials and during the COVID-19 pandemic." *Water Res* 222 (2022): 118894.
3. Sangion, Alessandro and Paola Gramatica. "Ecotoxicity interspecies QAAR models from Daphnia toxicity of pharmaceuticals and personal care products." *SAR QSAR Environ Res* 27 (2016): 781-798.
4. Castañeda-Juárez, Monserrat, Ivonne Linares-Hernández, Verónica Martínez-Miranda and Elia Alejandra Teutli-Sequeira, et al. "SARS-CoV-2 pharmaceutical drugs: A critical review on the environmental impacts, chemical characteristics and behavior of advanced oxidation processes in water." *Environ Sci Pollut Res* 29 (2022): 67604-67640.
5. González Peña, Omar Israel, Miguel Ángel López Zavala and Héctor Cabral Ruelas. "Pharmaceuticals market, consumption trends and disease incidence are not driving the pharmaceutical research on water and wastewater." *Int J Environ Res Public Health* 18 (2021): 2532.

How to cite this article: Thuan, Tarousi. "The Role of Antibiotics in Veterinary Care: Benefits and Risks." *J Anim Health Behav Sci* 8 (2024): 279.