

Irrational Use of Antibiotics in Broiler Farming and Its Impact on Human Health

Muhammad Salman*

Department of Parasitology, University of Agriculture Faisalabad, Pakistan

*Corresponding Author: msalmanhameed@gmail.com

ABSTRACT

Broiler farming is important to fulfil the meat demands of human population. Various practices are carried out in the field to get increased production from these broiler farms. One such practice is the excessive use of antibiotics for disease prevention, treatment and even increasing weight gain. This practice is of serious concern as it raises serious threats to the One Health of the earth in terms of drug resistance, food safety, environmental toxicity and human health risks. Hence, this practice needs to be properly addressed at different levels through joint efforts between all the stake holders.

Keywords: Broiler, Farming, Antibiotics, One Health, Human

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Introduction

Meat, as the major source of proteins, is an important part of human diet. With the increasing human population, the demand of meat is also continuously on the rise. To fulfil this increasing demand of meat, broiler farming across the world is of great importance [1]. However, to get maximum advantage of the farming, the usage of antibiotics in broilers is a common practice [2]. This irrational and excessive use of antibiotics has led to the development of serious concerns such as antibiotics resistance, drug residues in food products and most importantly the human health risks [3]. In view of the importance of this issue, the current article is aimed at exploration of the risks and the possible steps to counter the prevalent risks.

Purposes of Antibiotics Usage

- 1. Growth Promotion:** The use of antibiotics as growth promoters in broilers is a common practice. Here, antibiotics are administered at sub-therapeutic doses to increase feed efficiency in broilers and, ultimately, enhance their production [4].
- 2. Prophylactic Use:** To avoid the outbreak of diseases at farms, antibiotics are excessively used as a prophylactic measure. This overuse of antibiotics leads to the development of resistance in the microbes against these antibiotics [5].
- 3. Treatment:** Antibiotics are used to treat a number of diseases in the broilers such as colibacillosis, salmonellosis and others. However, repeated use of same antibiotics along with improper dosage is also a contributing factor to the emergence of antibiotic resistance [6].

Irrational Practices

- 1. Overuse and Misuse:** Farmers often excessively use antibiotics on their own without any veterinarian's prescription. Owing to the unawareness of the farmers, this usage is usually for prolonged durations and in excessive quantities [7].
- 2. Ignorance of Withdrawal Periods:** Withdrawal period is the duration after which the product is eliminated from the broiler's body. Most of the farmers don't bother considering the withdrawal periods while slaughtering their birds. This results in the presence of antibiotic residues in the meat [8].
- 3. Use of Medically Important Antibiotics:** Some antibiotics like fluoroquinolones are usually reserved for use in humans. However, despite their medical importance, farmers ignore this fact and administer these in their broilers. This practice causes the development of resistance in human microbes as well [9].
- 4. Unregulated Provision:** In many countries of the world, antibiotics are easily available to farmers without any regulation. This unregulated access to antibiotics is also a contributing factor [10].

Impact on Human Health

- 1. Resistance in Human's Microbes:** The irrational use of antibiotics has led to the development of resistance in microbes of medical importance [11].
- 2. Foodborne Illnesses:** The transmission of these antibiotic-resistant microbes through food cause serious illnesses in humans which are difficult to treat with conventional antibiotics [12].
- 3. Toxicity:** The presence of antibiotic residues in broiler products cause toxicities in humans which include allergic reactions and even disrupt the human microbiota [13].

- 4. Ecotoxicity:** These antibiotics are also passed in the excreta of broilers which is commonly employed as manure in agricultural fields. This contaminates the agricultural land inflicting ecotoxic effects as well [14].

Measures for Reduction in Improper Use of Antibiotics

- 1. Policy Regulations:** Strict regulations and policies on the use of antibiotics should be enforced by the governments [15].
- 2. Alternative Control Strategies:** Farmers and even veterinarians should focus on alternative control measures instead of antibiotics. These may be in terms of improved biosecurity of farms, employing effective vaccination programs and considering the use of probiotics and herbal products [16].
- 3. Farmer Awareness:** Some basic programs should be initiated for the awareness and education of farmers regarding the justified use of antibiotics [17,18].
- 4. One Health Approach:** While employing all the above strategies, one health approach should be followed by ensuring collaboration between all the concerned departments [19].

Conclusion

Antibiotics are crucial for disease prevention and treatment. However, the irrational and excessive use of antibiotics in broiler farming has given rise to a number of issues like food safety, environmental toxicity, drug resistance and risks to humans' health. Hence, strict measures are needed for preventing this unnecessary use by implementing health policies, educating the farmers and enhancing inter-departmental collaboration in the broader One Health sense.

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