

Editorial

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Is it really Necessary to Control the Abuse of Antibiotics in Food-Producing Animals?

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Editorial

Of all the medical advances made during the twentieth century, antibiotics have had the biggest impact on human health. Antibiotic are defined as natural and synthetic or semisynthetic compounds that either inhibit the growth of, or kill, living organisms. Bacteriostatic antibiotics inhibit growth and reproduction of bacteria without killing them while bactericide antibiotics kill bacteria. Antibiotics are widely used to prevent and control a number of veterinary diseases, such as gastrointestinal and respiratory infections, and for growth-promoting purposes and as a prophylactic [1].

Unfortunately, the use and misuse of antibiotics have also resulted in the development and spread of antibiotic resistance. Antibiotic resistance, which leads to this medicine becoming inefficient for therapeutic use, has become a growing international public health problem that urgently requires significant attention [2,3].

Benefits of Antibiotics Use in Animals

Veterinary requirements for the treatment of established infections are similar to those of human medicine for reasons of animal welfare and disease control. They are well absorbed after oral administration and distribute extensively in tissues. Such characteristics make these drugs suitable to be used as the therapy for a large number of infections on farms.

There are also a number of diseases that are prevalent in the intensive industries that pose a threat to animal health and welfare and to productivity. Antibiotics have traditionally played an important preventive (prophylactic) role in the latter situation [4].

In food-producing animals, some antibiotics are used for growth promotion and improving feed efficiency in situations where animals are intensively reared, including poultry, fish, pigs, and feedlot cattle. Improvement in growth due to antibiotics was first described in the mid of 1940s, and within five years its addition became common practice. Farmers have been feeding antibiotics to the animals we eat since they discovered that small doses of antibiotics administered daily would make most animals gain as much as 3 percent more weight than they otherwise would. Moreover, farmers commonly are under enormous pressure to produce food as quickly and as inexpensive as possible to meet the demand for cheaper foodstuffs.

Are Antibiotics being overused in Animals?

There is considerable controversy over the use of human antibiotics to promote growth in animals raised for food. The World Health Organization, Food and Drug Administration and European Commission defend that their use leads to increase antibiotic-resistant infections in humans [5-8]. In contrast, commercial interests have argued that their removal will have a significant impact on the cost of production and is unlikely to affect the risk to humans from antibioticresistant infections.

The possible adverse health effects caused by the transfer of such residues to humans in food products was considered because concerns

have been expressed not only in the science community but also in the public consumers, that residues in animal products may cause toxicity, allergenicity or possibly lead to the generation of antibiotics resistance in bacteria in humans. Thus, essential, life-saving, antibiotics are becoming less effective and there are fewer alternatives available for treatment.

Food Control Programs and the Challenges of Reducing Antibiotic Use

The need to act now is clear. Efforts should focus on reducing the unnecessary use of antibiotics and reducing the spread of antibioticresistant bacteria. While international collaboration is essential, countries' taking a national approach to antibiotic resistance and food safety is of the utmost importance.

We need to get rid of the idea of using antibiotics as a means of promoting growth and disease prevention in our livestock. Concern about the growing level of drug-resistant bacteria has led to the banning of sub-therapeutic use of antibiotics in meat animals in many countries in the European Union and Canada. However, in the United States is still legal [9].

The aim of food control programs is law enforcement drug residues, antibiotics in this case, in products of animal origin, and they strongly depend on the availability of rapid, precise methods for analytical determination. The European Commission in the EU and the Food and Drug Administration (FDA) in the USA have introduced legislation on the authorization of veterinary medicines and has established maximum residual levels (MRLs) for these drugs in different tissues of animal origin for human consumption [10-12].

For any proposed drug, extensive scientific studies that evaluate the efficacy and safety in animals, as well as on the safety for humans, must be submitted and evaluated by FDA. The FDA then determines if the medicine is safe for animals and for people, and it imposes any necessary rules on how the medicine must be used to ensure this safety. Furthermore, there is a continuing need to develop new reliable fast and accurate analytical methods for determining compliance with national and international regulations in all quality and food safety areas [13-20].

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Received May 17, 2012; Accepted May 17, 2012; Published June 18, 2012

Citation: Rambla-Alegre M (2012) Is it really Necessary to Control the Abuse of Antibiotics in Food-Producing Animals?. Biochem Pharmacol 1:e123. doi:10.4172/2167-0501.1000e123

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