Antimicrobial use and prevention of antimicrobial resistance in Tanzania

There is a need for prudent use of antibiotics in Tanzania and implementation of better prescription practices

- Antimicrobials are used for treatment and prevention of animal diseases and for growth promotion of livestock. Growth promotion in particular selects for antibiotic resistance and in many parts of the world, this practice is banned and livestock products with such use are not accepted for consumption.

- Selling antimicrobials in livestock implement shops and livestock markets in Tanzania is done by non-trained personnel and buyers of antibiotics does not receive written guidelines for use. Many livestock keepers administer antimicrobials to their animals without consultation or prescriptions from veterinarians.

- The majority of livestock keepers in Tanzania are not aware of possible human health threats that are caused by the use of antimicrobials in livestock. Few have heard about antibiotic resistance, and few observe withdrawal periods after using the antimicrobials, meaning that antibiotic residues may go into the food chain.

- It is advised that antimicrobial agents should not be used in agriculture in the absence of disease and only based on prescription. Trained personnel should be employed in the shops dealing with antimicrobials, guidelines should be issued detailing the prudent use of antibiotics, and these should be handled out together with antibiotics.

Recommendations

1. Antibiotics used in livestock should only be supplied by or with a prescription from a veterinary surgeon or a trained livestock advisor working under the supervision of a veterinary surgeon.

2. Official guidelines on prudent use of antibiotics should be supplied together with antibiotics when sold over the counter in pharmacies and other shops.

3. Quality assurance of antibiotics sold on the market should be ensured through an official approval system for such drugs in Tanzania/East African Union.

4. Use of antimicrobials for growth promotion should be faced out over a 5-10 years period.

5. Regular surveillance of antibiotic resistance in bacteria from food animal and humans should be established

Introduction

Sokoine University of Agriculture (SUA) in collaboration with University of Copenhagen (UCPH) in Denmark has conducted an in depth study on Antibiotic
resistance in Livestock and Poultry in Tanzania and awareness of antibiotic resistance problems among animal owners.

Findings

Antibiotics are not only used for treatment of sick animals but also for prevention of diseases and for growth promotion using sub-therapeutic concentration of antibiotics. From the point of view of antimicrobial resistance, use of sub-therapeutic concentrations should be avoided, since it selects for resistant bacteria.

Treatment of infectious diseases in Tanzania is mostly left in the hands of undertrained persons such as drug sellers, livestock keepers, owners of implement shops and only rarely are veterinarians involved. When asked, thirty percent of livestock keepers state that they have never heard of antibiotic resistance. Close to 50% received advice on antibiotic use to treat their livestock from non-veterinarians (Fig. 1).

![Fig. 1: Sources of antimicrobial prescription](image)

The level of antibiotic resistant bacteria was estimated using indicator bacteria. High, but not uniquely high resistance levels compared to international reports were detected in farm animal form Tanzania. As an example, summary results of resistance in *E. coli* are shown in Fig. 2).

Levels of antibiotic resistance normally increase when livestock production is intensified. Since Tanzania already with current extensive livestock production has high resistance levels, it may be feared that future intensification of production in fulfillment of the National Strategy for Poverty Reduction will lead to alarmingly high levels of antibiotic resistance that will spill over to the human reservoir and threaten human health, if prudent use of antibiotic is not encouraged. Such a situation threatens the future therapeutic use of antibiotic to treat diseases in both animals and humans.

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