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Antibiotic abuse in food animal industry promotes altered microbiome and dysbiosis to fuel infectious complications in humans

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Microbiome in the gastrointestinal tract (GI) acts as a protector of health from disease. Microbiota helps absorption of nutrients and guards against invasive pathogens to dwell in GI. Pathogens cause dysregulated immune and inflammatory response. While, antibiotics are required to fight pathogens and infectious diseases, overuse and abuse as well as unintentional consumption of food contaminated with antibiotics affect GI to alter the composition of microbiome. Further, antibiotics shift equilibrium from health into disease status as seen in infections with *Clostridium spp* and *Campylobacter spp*. Infectious protozoan (e.g. Toxoplasmosis, Coccidiosis) and microbial (e.g. *Campylobacteriosis*, *Helicobacteriosis, Salmonellosis*) diseases are transmitted from animals and cause GI inflammation and diarrhea in man. The common preventive practice for infectious diseases in farm animals is continued use (abuse) of antibiotics which enter blood circulation and contaminate eggs, milk, and meat products. Antibiotics are entered food chain and consumed by humans with possible allergic, antibiotic resistance, and other enigmatic side effects. Antibiotic resistant microbial becomes foodborne, waterborne or airborne contaminant. It is estimated that over 24.6 million pounds of antimicrobials are used for prevention and growth promotion in swine, cattle and chickens compared to 3.0 million pounds used in human therapies. New restrictive implementations in food animal industry inspection are required to prevent abuse of antibiotics as growth promoters. This presentation will aim to alarm medical community of unintentional consumption of antibiotic residues in contaminated food products with possible side effects. Association between overuse and abuse of antibiotics in food animal industry will be discussed with outbreak of major infectious foodborne diseases and altered gut microbiota and dysbiosis with serious complications. In addition, different preventive measures will be discussed including possible applications of new agents as surrogates to substitute antibiotics in food animals.

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