

A Prospective Study on the Pattern of Antibiotics Use and Prevalence of Multidrug Resistant Escherichia Coli in Poultry Chickens and Its Correlation with Urinary Tract Infection

Authors : Stelvin Sebastian, Andriya Annie Tom, Joyalanna Babu, Merin Joshy

Abstract : Introduction: The worldwide increase in the use of antibiotics in poultry and livestock industry to treat and prevent bacterial diseases and as growth promoters in feeds has led to the problem of development of antibiotic resistance both in animals and human population. Aim: To study the pattern of antibiotic use and prevalence of multidrug-resistant Escherichia coli in poultry chickens in selected farms in Muvattupuzha and to compare the spread of multidrug-resistant bacteria from poultry environment to UTI patients. Methodology: Two farms from each of 6 localities in Muvattupuzha were selected. A questionnaire on the pattern of antibiotic use and various farming practices were surveyed from farms. From each farm, 60 samples of fresh fecal matter, litter from inside, litter from the outside shed, agricultural soil and control soil were collected, and antimicrobial susceptibility testing of E. coli was done. Antibigram of UTI patients was collected from the secondary care hospital included in the study, and those were compared with resistance patterns of poultry samples. Results: From survey response antibiotics such as ofloxacin, enrofloxacin, levofloxacin, ciprofloxacin, colistin, ceftriaxone, neomycin, cephalixin, and oxytetracycline were used for treatment and prevention of infections in poultry. 31 of 48 samples (51.66%) showed E. coli growth. 7 of 15 antibiotics (46.6%) showed resistance. Ampicillin, amoxicillin, meropenem, tetracycline showed 100% resistance to all samples. Statistical analysis confirmed similar resistance pattern in the poultry environment and UTI patients for antibiotics such as ampicillin, amoxicillin, amikacin, and ofloxacin. Conclusion: E. coli were resistant not only to extended-spectrum beta-lactams but also to carbapenems, which may be disseminated to the environment where litter was used as manure. This may due to irrational use of antibiotics in chicken or from their use in poultry feed as growth promoters. The study concludes the presence of multidrug-resistant E.coli in poultry and its spread to environment and humans, which may cause potentially serious implications for human health.

Keywords : multidrug resistance, escherichia coli, urinary tract infection, poultry

Conference Title : ICAAR 2020 : International Conference on Antibiotics and Antibiotic Resistance

Conference Location : Paris, France

Conference Dates : January 23-24, 2020