Abstract

Prevalence and Antimicrobial Susceptibility Patterns of Salmonella Enteritidis and Salmonella Typhimurium Isolates from Commercial Poultry in Punjab, Pakistan

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Abstract

Background: Non-typhoid salmonella infections are one of the leading food borne infections worldwide. Similarly, ever increasing antimicrobial resistance has become a major problem to animal as well as human health worldwide. Poultry being the single largest animal protein source in Pakistan is one of the major suspects for both these public health concerns.

Objective: This study was aimed to determine the prevalence of Salmonella Enteritidis and Salmonella Typhimurium in commercial poultry flocks of Punjab and to evaluate their antimicrobial susceptibility patterns.

Methods: Specimens were collected from morbid or dead birds suspected for salmonella infection on the basis of clinical signs or post-mortem lesions brought to five poultry diagnostic laboratories in Punjab between 2014 and 2017. The samples were then processed for bacterial isolation and molecular confirmation through PCR. The isolates were then subjected to antibiotic sensitivity test using disc diffusion method. The susceptibility was determined using CLSI guidelines for antimicrobial susceptibility testing. The frequencies and percentages were calculated using Epi info.

Results: A total of 28150 samples were processed, among them 1.04% (294/28150) were positive. 89.5% (263/294) of the isolates were Salmonella Enteritidis while 10.5% (31/294) were Salmonella Typhimurium. The isolates were most sensitive to Ciprofloxacin and least to doxycycline with 96% (273/294) and 56% (166/294) response rates respectively. 7.8% (23/294) of the isolates were found to be resistant to three or more antibiotics. For other drugs the sensitivity percentages were Gentamicin 86% (254/294), Enrofloxacin 82% (241/294), Amoxicillin 77% (227/294), Norfloxacin 74% (219/294), Colistin 71% (208/294) and Neomycin 67% (197/294).

Conclusions: Salmonella isolates were found more sensitive to Ciprofloxacin, followed by Gentamicin, Enrofloxacin and Amoxicillin while the isolates were least sensitive to Doxycycline.

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