Research Article

Serotyping and antibiotic sensitivity patterns of *Escherichia coli* isolates obtained from broiler chicks in Kashmir Valley, India

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INTRODUCTION

*Escherichia coli* (E. coli) is associated with various poultry disease manifestations viz. chronic respiratory disease, colicileciaemia, air sacculitis etc. and has been mainly responsible for omphalitis in broilers during first few days of hatching, favored by bad management and stress in growing chicks (Chauhan, 1990). The bacterium has been recovered in 70% of chicks with omphalitis (Calnek et al., 1991). E. coli has been labeled in accounting for great economic losses worldwide in broiler industry in terms of loss of growth, poor feed conversion and mortality (Pattison, 1993; Dhama et al., 2013). Considering the all these caused by *E. coli* infection and that of the isolates were found resistant to most of the selected antimicrobial drugs used in local poultry farming, omphalitis may be considered as a threat to the broiler. Therefore, in the present study, serotyping and antibiogram of various isolates of *E. coli* causing omphalitis in broiler chicks in Kashmir valley was undertaken.

MATERIALS AND METHODS

One hundred twenty five samples of yolk sac material from dead (80), ailing (16) and healthy chicks (29) were collected for isolation chicks of the Kashmir Valley from Broiler Project Haripurbath, Srinagar, were collected for isolation of *E. coli*. The bacterial isolation was carried out as per the procedure described by Edward and Ewing (1972) and Crickshankel et al. (1975). The *E. coli* isolates thus obtained were serotyped at National Salmonella and Escherichia Research Centre, Kasauli (Himachal Pradesh). *In vitro* drug sensitivity of *E. coli* isolates against 15 antimicrobials was carried out as described by Baur et al. (1996).

RESULTS AND DISCUSSION

Out of 125 samples collected from dead, ailing and healthy chicks, *E. coli* was confirmed in 84% (105 of the samples). Out of the 105 samples, 97 isolates were grouped under 26 different ‘O’ serogroups of *E. coli*. The typable serotypes were O1, O6, O8, O10, O11, O25, O26, O53, O80, O87, O88, O91, O101, O103, O106, O111, O201, O231, O263, O30, O71, and UT were recorded. Serotypes O1 was predominant (17) followed by O111 (14), O103 (5), O20 (5), O25 (3), O26 (4), O27 (3), O29 (3), O30 (2), O40 (2), O48 (2), O50 (2), O51 (2), O57 (2), O71 (2), O73 (2), O79 (2) and one each of O24, O131, O132, O135 and O121. Drug sensitivity pattern indicated most of the serotypes of avian *E. coli* were sensitive to ciprofloxacin, norfloxacin, amikacin, pefloxacin and chloramphenicol, cephalaxin has been found to be moderately effective whiles maximum number of *E. coli* isolates showed resistance against cephalaxin, lincomycin, oxytetracycline, co-trimoxazole, amoxicillin and gentamycin. Therefore, this disease problem can be checked by adopting judicious selection of suitable antibiotic based on antibiogram studies.

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60.50 and 53.30 %, respectively, against the E. coli isolates, Cephotaxim was found to be moderately effective while maximum number of E. coli isolates showed against cephalaxin (92.40%), lincomycin (97.40%), oxytetracycline (84.20%), co-trimoxazole (71.10%), amoxicillin (68.40%) and gentamycin (52.60%). Effectiveness of ciprofloxacin, norfloxacin, and pefloxacin against E. coli isolates from chicks has also been reported by Dasgupta et al. (1992). The higher efficacy of these third generation antibiotics could be attributed to their and less use in poultry industry.

Resistance of co-trimoxazole, lincomycin, oxytetracycline, and amoxicillin have been reported by many workers which may be largely attributed to the large scale and indiscriminate use of antimicrobials as feed additives and for therapeutic purposes resulting in emergence of drug resistance to various isolates (Randhopadhyay and Dhawedkar, 1985). Lambie et al. (2000) has also been reported a high level of resistance to antimicrobial drugs among pathogenic isolates. Therefore, this disease problem can be checked by adopting judicious selection of suitable antibiotic based on antibiogram studies.

REFERENCES


