Characterization of Drug Resistance Patterns Against the Third Generation of Cephalosporins in Escherichia coli Isolated from Human and Dog Faeces

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Background & Objectives: Nowadays, there is a great concern about the problem of antimicrobial resistance either in human or animal medicine that is associated with failure in the treatment of infectious diseases. *Escherichia coli* is commonly found in the intestinal tract of humans and other animal species and constitutes a reservoir of resistant genes for potentially pathogenic bacteria. Therefore the aim of the present study was to investigate and compare the drug resistance patterns against the third generation of cephalosporinsin *E. coli* isolated from human and dog faeces.

Methods: Totally 50 strains of *E. coli* (25 of humans and 25 of dogs) were isolated from faecal samples and were confirmed using routine microbiological methods. Antimicrobial susceptibility test was performed by the agar disk diffusion methods (Kirby-Bauer); using 10 antibiotics of third generation of cephalosporins.

Results: Antibiotic resistance patterns of *E. coli* isolated from human and dog against 10 conventional antibiotics were obtained respectively as, Meropenem (100%, 21%), Piperacillin (57%, 8%), Cephalothin (100%, 0%), Ceftriaxone (91%, 0%), Ciprofloxacin (96%, 13%), Amikacin (30%, 4%), Sulfamethoxazole+Trimethoprim (87%, 67%), Cefotaxime (91%, 0%), Norfloxacin (96%, 13%) and Imipenem (91%, 0%).

Conclusion: Drug resistance patterns show high percentage of antimicrobial resistance in *E. coli* especially in human's isolates. This can be caused by incorrect administration, high use and intractable consumption of different antibiotics for treatment of infectious diseases. Therefore, because of complication of antimicrobial resistance in effective treatment of infections, increasing of mortality rates and therapeutic costs; antibiotic susceptibility testing before antimicrobial treatment is necessary.

Keywords: Drug Resistance; Third Generation Cephalosporins; *E. Coli*; Kirby-Bauer Methods