

Antibiotic Susceptibility Patterns of Diarrheagenic *Escherichia coli* Strains Isolated from Diarrhoeic Children

Salman Radkarim*¹; Arif Ali²

1- Biotechnology Research Scholar Gene Expression Laborator , Department of Biotechnology, Jamia Millia Islamia, New Delhi; India

2- Department of Biosciences, Jamia Millia Islamia, New Delhi, India

radkarim@gmail.com

Background & Objectives: Diarrheagenic *Escherichia coli* (*E.coli*) is an important cause of endemic and epidemic diarrhoea worldwide. Diarrheagenic *E.coli* belongs to different categories of pathotypes which are classified based on their distinct clinical features, virulence mechanisms and serotypes. The emergence of drug resistance among diarrhoeagenic *E.coli* in the paediatric population is an important cause of morbidity and mortality in developing countries. Antimicrobial resistance is a global problem and the emergence of multidrug resistance will hinder therapeutic options, hence monitoring resistance is of paramount importance. In our study we have embarked upon a massive drive to collect as many samples as possible.

Methods: In this study we are presenting the results obtained for 500 diarrhoeic samples collected from two hospitals in Delhi from children below 5 years of age. These were screened for *E.coli* using standard microbiological procedures. Antibiotic susceptibility testing was determined by Kirby-Bauer disc-diffusion technique as described by Clinical and Laboratory Standard Institute (CLSI, formerly the NCCLS).

Results: *E.coli* resistance against most commonly used antibiotics is on the rise. Among 420 confirmed *E.coli* isolates tested for antibiotic resistant pattern 90 % were resistant to Cefpodoxime/Clavulanic acid, 60 % to Aztreonam and Kanamycin, 65% to Colistin and Ceftazidime, 70 % to Cephotaxime, 75 % to Amikacin, 50 % to Nitrofurantoin and Amoxyclav, 85 % were resistant to Cefopodoxime, 30 % to Ceftazidime/Clavulanic acid, and 0 % to Imipenem.

Conclusion: These findings confirm the significant increase in the incidence of antimicrobial resistance in *E.coli*. This may be due widespread antibiotic usage that may be exerting a selective pressure that acts as a driving force in the development of antibiotic resistance. The indiscriminate use and misuse of antibiotics should therefore be discouraged.

Keywords: Antibiotic Resistance; *Escherichia coli*; Disk Diffusion Test