

Revival of Conventional First Line Drugs in *Salmonella enterica* Clinical Isolates: Assessment of MICs for Therapeutic Antimicrobials in Enteric Fever Cases from Nepal

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Background: Enteric fever caused by *Salmonella enterica* is a life-threatening systemic illness of gastrointestinal tract especially in tropical countries. Antimicrobial therapy is generally indicated but resistance towards commonly used antibiotics has limited their therapeutic usefulness. Therefore, we aimed to determine the antimicrobial susceptibility pattern by minimum inhibitory concentration method of common therapeutic regimens against *Salmonella enterica* from enteric fever clinical cases.

Methods: Patients suspected with enteric fever whose blood samples were submitted to microbiology laboratory of Manmohan Memorial Community Hospital, Kathmandu from March 2016 to July 2016 were studied. The *Salmonella enterica* clinical strains isolated from blood samples were subjected to antimicrobial susceptibility testing against common therapeutic antimicrobials by Kirby-Bauer disk diffusion method. The minimum inhibitory concentration of ciprofloxacin, Azithromycin, Chloramphenicol and Cefixime was determined by Agar dilution method based on latest CLSI protocol.

Results: A total of 44 isolates of *Salmonella enterica* were recovered from blood samples of enteric fever cases. Out of them, 37 (84.09%) were *Salmonella* Typhi and 7 (15.9%) were *Salmonella* Paratyphi A. On Kirby Bauer disk diffusion antimicrobial susceptibility testing, entire isolates were susceptible to Ampicillin, Cotrimoxazole, Cefixime, Ceftriaxone, Azithromycin, Tetracycline and chloramphenicol. Thirty two (72.73%) of *Salmonella* strains were Nalidixic acid resistant and non-susceptible to Ciprofloxacin, Levofloxacin and Ofloxacin. On MIC determination, two *Salmonella* strains were ciprofloxacin resistant with MIC 1 µg/ml and one was intermediate with MIC 0.5 µg/ml. The MIC of Azithromycin was 0.125 µg/ml whereas that for Chloramphenicol and Cefixime was (4.00-8.00) µg/ml and (0.0075-0.06) µg/ml respectively.

Conclusions: Despite global surge of antimicrobial resistance among *Salmonella enterica* clinical isolates, the level of drug resistance in our study was not so high. However, higher level of NARST strains limits therapeutic use of flouroquinolones and necessitates the routine monitoring of such resistance determinants in order to effective and rational management of enteric fever cases.