

Can Treatment of Enteric Fever Still Rely on Fluoroquinolones?

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Background: In Nepal, enteric fever still remains a persistent health problem for which fluoroquinolones are prescribed. Self-medication practices, over-the-counter sale of antibiotics and the ill practice of prescribing antibiotics without referring to antimicrobial susceptibility report has contributed to increased resistance. This study compares the changing antibiogram of *Salmonella enterica* serovar Typhi and *S. Paratyphi A* focusing on fluoroquinolones.

Methods: The study was conducted at National Public Health Laboratory from January 2008 to December 2015 during which 5,146 blood cultures were processed. Presumptive *Salmonellae* were processed for antimicrobial susceptibility. Selected isolates (n=70) were subjected to MIC against Ciprofloxacin and Levofloxacin using Etest.

Results: Of the 352 *Salmonella* isolates, 41% were *Salmonella enterica* serovar Typhi and 59% were *Salmonella enterica* serovar Paratyphi A. Change in prevalent species is noticeable. 39% of cases were from patients of 10-20 years age group with male predominance. Increase in Nalidixic acid resistant salmonella (NARS) from 80% to 100% and rapid rise in ciprofloxacin resistance from 8.3% to 100% is alarming, however, MDR isolates have declined significantly. More than 92% of *S. Typhi* and 95% of *S. Paratyphi A* isolates were susceptible to chloramphenicol but 100% were susceptible to ceftriaxone. The range of MIC for ciprofloxacin and levofloxacin was found higher in *S. Typhi* (0.008- 32 µg/ml and 0.25-16 µg/ml) as compared to *S. Paratyphi A* (0.38-2 µg/ml and 0.5-2 µg/ml). The MIC₅₀ value for both drugs increased from 0.38 µg/ml in 2012 to 1µg/ml and 0.5 µg/ml respectively by 2015. A significant rise in MIC₉₀ value for both fluoroquinolones (from 0.5 µg/ml in 2012 to 32 µg/ml and 16 µg/ml respectively in 2015) draws attention.

Conclusions: With increasing resistance to fluoroquinolones and the possibility of re-emergence of sensitivity to other drugs, treatment options need to be reconsidered.