

Study of Azithromycin Sensitivity Pattern of *Salmonella enterica* in Pediatric Population

Shenoy.B¹, Archana.M²

¹*Division of Pediatric Infectious Diseases, Department of Pediatrics, Manipal Hospital, Bangalore, India;*

²*Fellow in Pediatric Infectious diseases, Department of Pediatrics, Manipal Hospital, Bangalore, India*

Background: Enteric fever is a major public health problem in tropical countries including India. It is complicated by a high level of drug resistance which some isolates display to drugs routinely used in treatment. Azithromycin may be a treatment option for such isolates. There have been reports of increasing resistance to azithromycin in India when compared to developed countries. The objectives of the study were to analyze azithromycin susceptibility in culture positive enteric fever and to evaluate the relationship between ciprofloxacin and azithromycin sensitivity and resistance patterns.

Methods: It is a retrospective study of case records of 363 children in the age group of 0-18 years diagnosed with culture proven enteric fever, at Manipal hospital, Bangalore, India, between June 2012 and June 2016. Inclusion criteria – Presence of clinical signs and symptoms compatible with enteric fever and isolation of *S. Typhi* or *S. Paratyphi* from blood. Blood culture was done by BacT/Alert 3D system and serotypes were identified by biochemical tests or Vitek method. Susceptibility to antimicrobial drugs was tested by the disc diffusion according to Kirby Bauer method. Azithromycin and ciprofloxacin discs with a concentration of 15µg / ml and 5 µg / ml respectively were used to determine minimum inhibitory concentration (MIC) for disc diffusion testing by E- test. They were interpreted based on CLSI guidelines 2016. Exclusion criteria – Enteric fever diagnosis based only on clinical and serologic grounds.

Results: There were 280 *S. enterica* serovar Typhi (77.13%) and 83 serovar Paratyphi A strains (22.86%) among the 363 enteric fever children. All the 363 salmonella isolates were susceptible to azithromycin and third generation cephalosporins. Azithromycin MICs were 0.064-12 µg/mL among the 363 isolates and no increase in resistance has been seen during the study period. There has not been any increased MIC for azithromycin in ciprofloxacin resistant isolates.

Conclusions: *S. Typhi* continues to remain susceptible to azithromycin and third generation cephalosporins. There has been no trend of increasing resistance to azithromycin over the years. Azithromycin can be safely used in the isolates resistant to ciprofloxacin as there is no significant correlation between their resistance. Azithromycin should be used judiciously considering the risk of developing drug resistance.