

## **Serotypes and Antimicrobial Susceptibility Patterns of *Salmonella* Species Causing Enteric Fever in Northern Sri Lanka**

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**Background:** Enteric fever is a common food- and water-borne disease in Sri Lanka. The highest number of cases is reported in Northern Province, mostly based on clinical diagnosis. Microbiological information is significantly lacking from this region due to a 26-year ethnic war which ended in 2009. *Salmonella* Paratyphi A is the main serotype identified in studies outside northern Sri Lanka. While *S. Paratyphi A* was predominant (86%) in adults, *Salmonella* Typhi was predominant (85.7%) in children. Ciprofloxacin resistance was 100% in *S. Paratyphi A* and 50% in *S. Typhi*. Reduced ceftriaxone susceptibility was reported. This study aimed to determine *Salmonella* species serotypes and antimicrobial susceptibilities related to enteric fever in northern Sri Lanka.

**Methods:** A two-and-a-half year prospective descriptive study was done at the Microbiology Department, Teaching Hospital Jaffna, Sri Lanka, analyzing blood culture isolates of *Salmonella* species from adult and paediatric patients with enteric fever. Blood culture processing, organism identification and antimicrobial susceptibility testing were performed according to standard laboratory methods.

**Results:** Blood cultures were positive in 13.5% (40/295) samples and all revealed *Salmonella* Typhi. Majority (25/40) were in the 13-60 year age group. 14/40 were in children. Ciprofloxacin resistance was 100% [complete (33/40) or intermediate (7/40)]. Nalidixic acid resistance was 85%. Ampicillin, chloramphenicol, trimethoprim-sulfamethoxazole showed 67.5%, 82.5%, 82.5% sensitivity respectively; 20% of isolates were multidrug-resistant. Ceftriaxone sensitivity was 100%.

**Conclusions:** Enteric fever in all age groups in northern Sri Lanka is caused by *Salmonella* Typhi which is 100% ciprofloxacin resistant. The serotype and ciprofloxacin susceptibility pattern differs significantly from other regions of the country. Post-war environment and living conditions in northern Sri Lanka has made the population vulnerable to salmonellosis. Broadening the target group typhoid vaccination already in place and optimizing standards of living conditions need to be implemented as preventive measures due to high occurrence of this morbid disease.