AN UPDATE ON THE PREVALENCE AND DRUG-RESISTANT PROFILING OF *SALMONELLA TYPHI* ISOLATED FROM TERTIARY CARE CENTERS IN FAISALABAD, PAKISTAN

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Abstract

Salmonella (*S.*) *enterica* serovar *typhi* is the common cause of bloodstream infections leading to systemic febrile illness and typhoid. *S. typhi* is a host restricted bacterium that becomes the leading cause of death in developing countries, spread through the fecal-oral route. The current research aimed to investigate the prevalence of multidrug-resistance and extensively drug-resistance *S. typhi* isolated from the blood samples of typhoid patients. A total of 120 samples were collected from three tertiary care centers in Faisalabad, Punjab, Pakistan. Blood culture positive samples were inoculated and purified on SS-Agar and XLD agar. For the serovar characterization, Gram's staining and biochemical tests were executed, which exhibited positive results for catalase and methyl red and confirmed biochemically the test organism is *S. typhi*. After the phenotypic confirmation through biochemical tests, Antibiotic Susceptibility Testing (AST) was accomplished using the first and second line of antibiotics. Data were analyzed statistically, and an overall 10% prevalence of *S. typhi* in the research area was calculated. The 25% isolated *S. typhi* strains were observed as multidrug-resistant bacteria, 58.9% of *S. typhi* isolates were reported as extensively drug-resistant while 16.7% displayed an unusual antibiogram pattern, showing susceptibility merely against trimethoprim-sulfamethoxazole and tetracycline and exhibited a resistance pattern against all the other used antibiotics. These sequels are concerning because they will force us to rely on second-line medications. Moreover, the impact of COVID-19, development of mutation in the drug-resistant genes (*i.e.* azithromycin), and misuse of antibiotics lead to the occurrence of resistance and unusual antibiogram patterns.

Keywords: Multidrug-resistance *S. typhi,* extensively drug-resistance *S. typhi,* antibiogram pattern, prevalence, antibiotic misuse.