

**Clinical Profile of Multi Drug Resistant Typhoid Fever in Jaipur City**

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Typhoid fever remains a major health problem in India. Chloramphenicol resistant cases(1,2) were first reported in 1962. Recently, there has been an upsurge of multi drug resistant *S. typhi* strains (MDRST) throughout the world especially in the Middle East and South East Asia. In this study we present an experience of multi drug resistant typhoid fever in children in Jaipur city.

**Material and Methods**

Of the 91 clinically suspected cases of typhoid fever seen in Sir Padampat Mother and Child Health Institute, S.M.S. Medical College, Jaipur between June 1991 to December 1991, 69 blood culture positive

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cases were analyzed. A detailed history, clinical findings, and the course of hospital stay were recorded. A complete hemogram, X-ray chest, Widal test and blood culture was obtained in all children.

Blood cultures were done in taurocholate broth. Identification of strains was carried out by standard biochemical tests and confirmed by serological tests using polyvalent and monovalent *S. typhi* sera. Drug sensitivity was tested by Stokes diffusion method(3).

**Results**

Sixty one of 69 cases (88.4%) were in school going age (3-12 years) with a male preponderance (1.46 :1). The youngest children were 9 and 10 months, respectively.

Typhoid encephalopathy (27.5%), bronchopneumonia (11%) and hepatitis (1.4%) were some of the serious complications observed (*Table I*). Cerebrospinal fluid was normal in all patients who presented with encephalopathy. Antibiotic sensitivity pattern is shown in *Table II*.

**Discussion**

Majority of our cases (45%) were between 6-9 years of age, youngest being an infant of 9 months of age. Similar results were reported by Kapoor *et al.*(4).

Fever was continuous in 77% of cases. Fever with chills was noted in 39.1% of our patients. The finding is consistent with that reported by Pandey *et al.*(5).

Splenomegaly, seen in 55% was similar to other reports(4,6,7). Hepatitis as a complication was seen in only 1 child, which is similar to the findings of others(6,7).

**TABLE I**-Clinical Features

| Symptoms and signs   | Number | Percentage |
|----------------------|--------|------------|
| <i>General</i>       |        |            |
| Fever                |        | 100        |
| (i) Continuous       | 53     | 77         |
| (ii) Intermittent    | 16     | 23         |
| Chills               | 27     | 39         |
| <i>Abdominal</i>     |        |            |
| Vomiting             | 28     | 41         |
| Pain abdomen         | 19     | 28         |
| Tympanic abdomen     | 38     | 55         |
| Splenomegaly         | 38     | 55         |
| <i>CNS</i>           |        |            |
| Delirium             | 19     | 28         |
| Convulsion           | 1      | 1          |
| <i>Respiratory</i>   |        |            |
| Cough                | 25     | 36         |
| <i>Miscellaneous</i> |        |            |
| Jaundice             | 1      | 1          |
| PCF/hypotension      | 7      | 10         |

**TABLE II**-Antibiotic Sensitivity Resistance Pattern in 69 Children with Typhoid Fever

| Antibiotic      | Sensitive | %  | Antibiotic      | Resistant | %  |
|-----------------|-----------|----|-----------------|-----------|----|
| Chloramphenicol | 9         | 13 | Chloramphenicol | 7         | 10 |
| Cotrimoxazole   | 11        | 16 | + Cotrimoxazole |           |    |
| Centamycin      | 44        | 64 | Chloramphenicol | 7         | 10 |
| Cephalexin      | 48        | 70 | + Amoxicillin   |           |    |
| Cefotaxime      | 62        | 90 | Chloramphenicol | 46        | 67 |
| Ciprofloxacin   | 68        | 99 | + Cotrimoxazole |           |    |
|                 |           |    | + Amoxicillin   |           |    |

Typhoid encephalopathy with normal CSF was noted in 27.5% of cases while convulsion as CNS manifestation was seen in only one case. This finding is contrary to the findings of Scragg *et al.*(8) who found convulsion to be the most common neurological manifestation.

Nearly 87% cases in our series were resistant to chloramphenicol and 66% were resistant to all the three commonly used drugs, *viz.*, chloramphenicol, amoxicillin and cotrimoxazole. A total of 98.5% cases were sensitive to ciprofloxacin. Similar findings were observed by others(9,10).

#### REFERENCES

1. Sridhar H, Macaden R, Devi MC, Bhat P. Chloramphenicol resistant *Salmonella typhi* in Bangalore. Indian J Med Res 1983, 78: 314-318.
2. Panicker CKJ, Vimla KM. Transferable chloramphenicol resistance in *S. typhi*. Nature 1973, 239: 109-111.
3. Stokes EJ, Waterworth PM. Antibiotic sensitivity tests by diffusion methods. Association of Clinical Pathologists, Broadsheet No. 55, 1955.
4. Kapoor JP, Man Mohan, Talwar V, Daral TS, Bhargava SK. Typhoid fever in young children. Indian Pediatr 1985, 22: 811-813.
5. Pandey KK, Srinivasan S, Mahadevan S, Nalini P, Sambasiva Rao R. Typhoid fever below five years. Indian Pediatr 1990, 27: 153-156.
6. Thisyakoru U, Mansuwan P, Taylor DN. Typhoid and paratyphoid fever in 192 hospitalized children in Thailand. Am J Dis Child 1987, 141: 862-865.
7. Khosla SN, Singh R, Singh GP, Trehan V. The spectrum of hepatic injury in enteric fever. Am J Gastroenterol 1988, 83: 413-416.
8. Scragg J, Rubridge G, Wallace HL. Typhoid fever in African and Indian children in Durban. Arch Dis Child 1969, 44: 18-28.
9. Anand AC, Kataria VK, Singh W, Chatterjee SK. Epidemic multiresistant enteric fever in Eastern India. Lancet 1990, i: 352-353.
10. Sen S, Goyal RS, Dev R. Ciprofloxacin in the management of multidrug resistant typhoid fever. Indian Pediatr 1991, 28: 417-419.

## Cefotaxime in Multi Drug Resistant Typhoid Fever

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The recent emergence of multi-drug resistant *Salmonella typhi* (MDRST) strains has caused a great concern amongst physi-

cians(1-3). 4-flouroquinolones are increasingly being used in these cases(4). Unfortunately, they have not been approved in children because of their strong arthropathic potential(5,6). We report our experience with

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