

13. Wonke B. Prospects of b-thalassemia. In *Indian Pediatr* 1987, 24: 969-976.
14. Jean G, Masoia GA, Chattanao M, Tirzoli S, Piacentini G, Vallo C. Post transfusion hepatitis in thalassemia. *The Mediterranean Experience*, Milano, 1985, p 75.

## Parenteral Ciprofloxacin in Persistent Diarrhea

Gautam Ghosh  
 Sujoy Chakrabarty  
 S.K. Mukherjee

The role of empiric antibiotic therapy in hospitalized persistent diarrhea without identified pathogen is under investigation. At present use of a single systemically absorbed antibiotic may be justified(1).

Ciprofloxacin has a broad spectrum bactericidal coverage and has been successfully used in multidrug resistant Gram negative infections in children(2-4). It has been also recommended in treatment of nosocomial Gram negative infections, which fail to respond to third generation cephalosporins(5). It was planned to study

*From the Institute of Child Health, Calcutta.*

*Reprint requests: Dr. Gautam Ghosh, 1, Abinash Banerjee Lane, Shibpur, Howrah 711 102, West Bengal.*

*Received for publication: November 11, 1993;*

*Accepted: March 9, 1994*

the effect of parenteral ciprofloxacin as a mono antibiotherapy in contrast to that of a combined antibiotherapy in hospitalized persistent diarrhea of infancy.

### Material and Methods

Thirty children (0-1 yr) suffering from diarrhea for more than 14 days were enrolled. Fifteen children (Group A) were treated with parenteral ciprofloxacin (10 mg/kg/day) from the onset. The remaining 15 infants (Group B) were treated with parenteral ampicillin and chloramphenicol/ampicillin and amikacin (in neonates) in therapeutic dosage. Malnutrition and dehydration were treated with parenteral solutions (including plasma and/or blood) as per standard practices of the Institute. Antibiotherapy was resorted to all the cases after drawing blood, stool, urine, CSF and other samples as appropriate for pathological and bacteriological examinations.

### Results

Twenty one (70%) infants had malnutrition (below ICMR Grade II). Six (20%) cases had demonstrable radiological changes in the chest. Stool culture was negative in 18 (60%) cases probably due to previous antibiotherapy. *E. coli*, *Salmonella*, Gram positive cocci, proteus and other coliform organisms were present in the rest 12 infants (40%). They were all sensitive to ciprofloxacin and ampicillin *in vitro*. Blood culture was negative in all of them.

The criteria used for assigning good response were (i) Disappearance of toxicity, no weightloss; and (ii) Improvement of quality of stool within 72 hours of therapy. All 15 cases of Group A had excellent response. Nine children of Group B had no response upto day 4 and parenteral ciprofloxacin was started in them stopping all other drugs, after which they all responded favorably. The rest 6 cases of Group B showed improvement within 4 days and the therapy was continued.

Strict surveillance was monitored in all the cases:

(i) To exclude ciprofloxacin toxicity, e.g., gastrointestinal, central nervous system, skin or joint symptoms. Laboratory tests were done to look for elevation of liver enzymes, leukopenia and eosinophilia.

(ii) To exclude pseudomembranous colitis due to antibiotic therapy by sigmoidoscopy and culture to look for *Clostridium difficile*.

Follow up of all the cases were done regularly in both the groups, every two weeks for 6 months after discharge. No toxicity of ciprofloxacin was recorded.

### Discussion

Ciprofloxacin has been recently used in premature and low birth weight neonates to treat septicemia without any short term adverse effects(6,7). Cheesbrough *et al.* had reported excellent response of ciprofloxacin (20 mg/kg) on 62 children (mean age 50 months) who were suffering from suspected or proven invasive salmonellosis(8). This study also showed encouraging clinical response of ciprofloxacin, used as a mono-antibiotherapy in persistent diarrhea in infants and neonates. With this clinical

experience we suggest more such trials in children of all ages.

### Acknowledgement

The authors would like to thank Prof. U.S. Sarkar, Director, Institute of Child Health, Calcutta for allowing them to carry out the trial and editing this manuscript sincerely.

### REFERENCES

1. Bhan MK. Recommendation for Anti-microbial therapy in Persistent diarrhea: Guidelines for Management of Diarrhea in Children. Bombay, Indian Academy of Pediatrics, 1991, pp 20-21.
2. Sen S, Goyal RS, Dev R. Ciprofloxacin in the management of multidrug resistant typhoid fever. Indian Pediatr 1991, 28: 417-419.
3. Adam D. Use of quinolones in pediatric patients. Rev Infect Dis 1989, 11 (Supp 5): S1113- S1116.
4. Wang Fu, Zianjin GU, Mei-fant Zhan, Tze-ying Tai. Treatment of typhoid fever with ofloxacin. J Antimicrob Chemother 1989, 23: 785-788.
5. Qulati S, Marwaha RK. Ciprofloxacin: The current status in pediatric practice. Indian Pediatr 1991, 28: 1530-1531.
6. Bannon JM, Stutchfield PR, Weindling AM, Damjanovic V. Ciprofloxacin in neonatal *Enterobacter cloacae* septicemia. Arch Dis Child 1989, 64: 1388-1391.
7. Issacs D, Slack PME, Wilkinson AR, Westwood NW. Successful treatment of *Pseudomonas* ventriculitis with Ciprofloxacin. J Antimicrob Chemo Ther 1986, 17:535-538.
8. Cheesbrough JS, Alunga Mwema F, Gree SDR, Tillostion GS. Quinolones in children with invasive Salmonellosis. Lancet 1991, 338: 127-128.