

<b>FEVER</b>
--------------

## ANTIMICROBIAL CHOICE IN TROPICAL INFECTIONS

\***Abhay K. Shah**  
\*\***Aashay A. Shah**

**Abstract:** Febrile infections that are prevalent and unique to tropical and subtropical regions are collectively known as tropical infections. Enteric fever, leptospirosis, scrub typhus and malaria are the most commonly encountered tropical infections in our country. Epidemiology, disease pattern, morbidity and mortality varies from region to region. It is important to treat them early as delay in institution of specific therapy may lead to increased morbidity and mortality. Early diagnosis and prompt management by choosing appropriate antimicrobial agents is very crucial for favorable outcome. Blood culture is the gold standard for the diagnosis of enteric fever. Third generation cephalosporins are considered as the first choice for treatment. Azithromycin is reserved for relapses and should ideally be used for extensively drug resistant typhoid. Diagnosis of leptospirosis and scrub typhus mainly depend upon relevant epidemiological factors with typical clinical features. Drug of choice for leptospirosis is penicillin while doxycycline is the drug of choice for scrub typhus. For uncomplicated *P.vivax* chloroquine is the drug of choice. Artemesinin combination therapy is recommended for *falciparum* malaria. All severe and complicated malaria should be treated as *falciparum* malaria. Primaquine is needed for prevention of relapses in malaria.

**Keywords:** Tropical infections, Antimicrobial, Enteric fever, Scrub typhus, Leptospirosis, Malaria, Children.

## Points to Remember

- *Third generation cephalosporins are the drug of choice for multidrug resistant typhoid currently and azithromycin is to be reserved for XDR enteric fever.*
- *In mild cases of leptospirosis, doxycycline is to be used and in severe cases IV penicillin or ceftriaxone if allergic to penicillin.*
- *Doxycycline is the drug of choice irrespective of the age of the child in Indian tick typhus and scrub typhus and treatment should begin promptly without waiting for confirmatory laboratory results.*
- *For uncomplicated vivax malaria chloroquine is the drug of choice.*
- *Artemesinin combination therapy is the treatment of choice in all cases of falciparum malaria.*
- *All cases of severe and complicated malaria should be treated as falciparum malaria irrespective of the species of malarial parasite on smear examination.*
- *For rapid killing of malaria parasites, IV artesunate is a must at least for the first 24 hours, even if the child is able to take orally.*
- *Primaquine is recommended in appropriate dose and duration for prevention of relapses in malaria.*

## References

1. GBD 2017 Typhoid and Paratyphoid Collaborators. The global burden of typhoid and paratyphoid fevers: A systematic analysis for the Global Burden of Disease Study 2017. *Lancet Infect Dis* 2019; 19:369-381.
2. Ochiai RL, Acosta CJ, Danovaro-Holliday M, Baiqing D, Bhattacharya SK, Agtini MD, et al. A study of typhoid fever in five Asian countries: Disease burden and implications for controls. *Bull World Health Organ* 2008; 86:260-268.
3. Feasey NA, Gaskell K, Wong V, Msefula C, Selemani G, Kumwenda S, et al. Rapid emergence of multidrug resistant, H58-lineage *Salmonella typhi* in Blantyre, Malawi. *PLoS Negl Trop Dis* 2015; 9:e0003748.
4. Bavdekar A, Chaudhari M, Bhave S, Pandit A. Ciprofloxacin in typhoid fever. *Indian J Pediatr* 1991; 58:335-339.

---

\* Director and Infectious Diseases Consultant

\*\* Pediatric Gastroenterologist,  
Dr Abhay K Shah Children Hospital and  
Infectious Diseases Center,  
Ahmedabad, Gujarat.  
email:drabhaykshah@yahoo.com

5. Bharmoria A, Shukla A, Sharma K. Typhoid fever as a challenge for developing countries and elusive diagnostic approaches available for the enteric fever. *Int J Vaccine Res* 2017; 2: 1-16.
6. Shastri D, Singhal T. Antimicrobial therapy in enteric fever, IAP speciality series on Rational antimicrobial practice in Pediatrics, third edition, Jaypee publications New Delhi 2018 pp252-259.
7. Balaji V, Sharma A, Ranjan P, Kapil A. Revised ciprofloxacin breakpoints for Salmonella Typhi: its implications in India. *Indian J Med Microbiol* 2014; 32(2):161-163.
8. Frenck RW, Nakhla I, Sultan Y, et al. Azithromycin versus ceftriaxone for the treatment of uncomplicated typhoid fever in children. *Clin Infect Dis* 2000; 31(5):1134-1138. [PubMed]
9. Adler B, de la Peña Moctezuma A. Leptospira and leptospirosis. *Vet Microbiol* 2010;140: 287-296.
10. Leptospirosis Fact Sheet- WHO, South-East Asia. Available at: <https://apps.who.int/iris/handle/10665/205437>. Accessed on 15<sup>th</sup> August, 2021.
11. Shivakumar S. Indian Guidelines for diagnosis and management of human Leptospirosis-ICMR-[www.apiindia.org](http://www.apiindia.org)>chap07 antimicrobials
12. H Dale Davis, Kari A Simonsen. Leptospira. In: Kliegman RM, Stanton BF, Schor NF, St Geme III JW, Behrman RE. eds, Nelson Textbook of Pediatrics, 21<sup>st</sup> edn, Reed Elsevier India Private Ltd., New Delhi 2020; pp6438-6444.
13. Bithu R, Kanodia V, Maheshwari RK. Possibility of scrub typhus in FUO cases: An experience from Rajasthan. *Indian J Med Microbiol* 2014; 32:387-390.
14. Rathi N. Rickettsial Diseases in India - A long way ahead. *Pediatr Infect Dis* 2015; 7:61-63.
15. Rathi N, Rathi A. Rickettsial infections: Indian perspective. *Indian Pediatr* 2010; 47:157-164.
16. Watt G, Chouriyagune C, Ruangweerayud R, Watcharapichat P, Phulsuksombati D, Jongsakul K, et al. Scrub typhus infections poorly responsive to antibiotics in northern Thailand. *Lancet* 1996; 348:86-89.
17. Liu Q, Panpanich R. Antibiotics for treating scrub typhus. *Cochrane Database Syst Rev* 2002; 3:CD002150.
18. Elisabeth BN, Cristina S, Didier R, Philippe P. Treatment of Rickettsia spp. infections: a review. *Expert Rev Anti Infect Ther* 2012; 10:1425-1437.
19. Volovitz B, Shkap R, Amir J, Calderon S, Varsano I, Nussinovitch M. Absence of Tooth Staining With Doxycycline Treatment in Young Children. *Clin Pediatr (Phila)* 2007; 46:121-126.
20. WHO position paper, in 2015. Guidelines for the treatment of malaria. Third edition April World Health Organization, 2015.
21. World Health Organization. Guidelines for the treatment of malaria. Geneva World Health Organisation 2006. WHO/HTM/MAL/2006.1108.
22. National Vector Borne Disease Control Programme (NVBDCP), Ministry of Health & Family Welfare, Government of India. Designed and Developed by Center for Health Informatics Updated On: October 15, 2020.
23. Infectious diseases chapter, Indian Academy of pediatrics. Management of malaria in children - Update 2008. *Indian Pediatr* 2008; 45:731-735.