INFECTIOUS DISEASES

TYPHOID FEVER - CURRENT SCENARIO

*Surendranath M

Abstract: Typhoid fever is caused by a highly virulent organism Salmonella enterica serovar Typhi with a case fatality rate of 1% - 4%. In Indian subcontinent, incidence of typhoid fever is estimated to be more than 60 lakh cases per year. In many countries 27% of all cases occur in the age group of 0-4 years. Humans are the only known reservoir of S.typhi and transmission is through fecal-oral route. Though the blood culture done in the first week of illness is the gold standard for diagnosis, the sensitivity of blood culture is only 50%. Blood Widal test has poor positive predictive value but high negative preditive value. Multi drug resistant typhoid is reported in India while extremely drug resistant typhoid is reported in Pakistan since last few years. Recent reports in India suggest the susceptibility of S.typhi to first line of drugs and 100% to ceftriaxone. Improved sanitation, protected water supply, rational use of antibiotics and immunization with typhoid conjugate vaccine will reduce the disease burden.

Keywords: Salmonella enterica serovar Typhi, Enteric fever, Anti microbial resistance, Typhoid conjugate vaccine.

Points to Remember

- Typhoid fever continuous to be an important public health issue in India with many reports of incidence of MDR typhoid.
- Though the blood culture is the gold standard in the diagnosis of typhoid, positive blood culture rates are low.
- Blood Widal test has high negative predictive value.
- Improving sanitation, hygiene and vaccination with typhoid conjugate vaccine may reduce the disease burden.

References

- 1. Typhoid vaccine: WHO position paper-March 2018 https://www.who.int/immunization/policy/position_papers/typhoid/en/. Accessed on
- 2. Onchaiai RL, Acosta CJ, Danovaro-holiday MC, Baiquing D, Bhattacharya SK, Agtini MD, et al. A study of typhoid fever in five Asian countries. Bull Health Organ 2008; 86:260-268.
- 3. John J, Van Aart CJC, Grassly NC. The burden of Typhoid and Paratyphoid in India: Systematic review and meta analysis. PLoSNegl Trop Dis 2016; 10(4):e0004616.
- 4. Crump JA, Mintz ED. Global trends in typhoid and paratyphoid Fever. Clin Infect Dis. 2010; 50(2):241-246.
- Vaccine preventable diseases -surveillance standards https://www.who.int/immunization/monitoring_surveillance/ burden/vpd/WHO_Surveillance Vaccine Preventable_21_ Typhoid_R1.pdf?ua=1. Accessed on 24th January, 2019.
- National Treatment Guidelines for Antimicrobial Use in Infectious Diseases. Volume1.0 (2016) National Centre for Disease Control. Accessed on 24th January, 2019.
- World Health Organization. Immunization, Vaccines and Biologicals – Typhoid. https://www.who.int/immunization/ diseases/typhoid/en/. Accessed on 20th January, 2019.
- Kundu R, Ganguly N, Ghosh TK, Yewale VN, Shah RC, Shah NK. IAP Task Force Report: Diagnosis of Enteric Fever in Children; Indian Pediatr 2006; 43:875-883.
- 9. Kundu R, Ganguly N, Ghosh TK, Yewale VN, Shah RC, Shah NK. IAP Task Force Report: Management of Enteric Fever. Indian Pediatr 2006; 43:884-887.
- 10. Divyasree S, Nabarro LEB, Veeraraghavan B, Rupali P. Enteric fever in India: current scenario. Trop Med Int

 ^{*} HOD, Department of Pediatrics, Vijay Marie Hospital, Hyderabad.
email: drmsurendra@gmail.com

Health 2016; 21(10):1255-1262. doi: 10.1111/tmi.12762. Epub 2016 Sep 8.

- 11. Upadhyay R, Nadka MY, Muruganathan A, Tiwaskar M, Amarapurkar D, Banka NH, et.al. API Recommendations of the Management of Typhoid Fever. J Assoc Physicians India 2015; 63: 77- 96.
- Bhattacharya P, Saha BK. Paul UK, Bandhopadhay A. Blood Culture in Clinically Suspected Typhoid Fever. Int J Sci Stud 2017; 4(11):53-56.
- Antillon M, Saad NJ, Baker S, Pollard AJ, Pitzer VE. The relationship betweenblood sample volume and diagnostic sensitivity of blood culture for Tyhoid and Paratyphoid fever: A systematic review and meta analysis. J Infect Dis 2018; 218(S4):S255-S267.
- 14. Paul UK, Bandyopadhyay A. Typhoid fever: a review. Int J Adv Med 2017; 4(2):300-306.
- Agarwal Y, Gupta DK, Sethi RS. Enteric Fever: Resurrecting the epidemiologic footprints. Astrocyte 2016; 3:153-161.
- Andualem G, Abebe T, Kebede N, Gebre-Selassie S, Mihret A, Alemayehu H. A comparative study of widal test with blood culture in diagnosis of typhoid fever in febrile illness patients. BMC Res Notes 2014; 7:653.
- Pal S, Prakash R, Juyal D, Sharma N, Rana A, Negi S. The baseline widaltitre among the healthy individual of hilly areas in Garhwal Region of Uttarakhand, India. J Clin Diagn Res 2013; 7(3):437-440.
- Patki R, Lilani S, Lanjewar D. Baseline antibody titre against Salmonella enterica in healthy population of Mumbai, Maharashtra, India. Int J Microbiol 2017; Article ID 9042125, 4 pages. https://doi.org/10.1155/2017/ 9042125.
- Maulingkar SV, Prakash R, Harish PV, Salabha B. Study of Widaltitres in a healthy population of Wayanad district, Kerala, India. Trop Doct 2015; 45:12-14.
- Patil AM, Kulkarni ML, Kulkarni AM. Baseline Widal titres in healthy children. Indian J Peditr 2007; 74:1081-1083.
- 21. Lateef A Olopoenia, Aprileona L King. Widal agglutination test-100 years later: still plagued by controversy. Postgrd Med J 2000; 76:80-84.
- 22. Veeraraghavan B, Pragasam AK, Bakthavatchalam YD, Ralph R. Typhoid fever: issues in laboratory detection, treatment options & concerns in management in developing countries. Future Sci OA 2018; 4(06):FSO312.
- 23. Garg S, Sankhe A, Joshi A, Mehta S. Comparison of Typhidot IgM test and blood culture in children with clinically compatible enteric fever. Int J Contem Pediatr 2018; 5:2129-2132.

- 24. Britto CD, Wong VK, Dougan G, Pollard AJ. A systematic review of antimicrobial resistsance in Salmonella enterica serovar Typhi, the etiological agent of typhoid. PLoS Negl Trop Dis 2018; 12(10):e0006779.
- 25. Zika SA, Karande S. Multidrug- resistant typhoid fever: a review. J Inf Dev Ctries 2011; 5:324-337.
- 26. Typhoid fever- Islamic republic of Pakistan: https:// www.who.int/csr/don/27-december-2018-typhoidpakistan/en/. Accessed on 24th January, 2019.
- 27. Joshi S. Antibiogram of S. enterica serovar Typhi and S. enterica serovar paratyphi A: a multi-centre study from India. WHO South-East Asia J Public Health 2012; 1(2);182-188.
- Sharma P, Dahiya S, Manral N, Kumari B, Kumar S, Pandey S, et al. Changing trends of culture positive typhoid fever and microbial susceptibility in a tertiary care North Indian Hospital over last decade. Ind J of Med Micro 2018; 36(1): 70-76.
- 29. UNICEF. Water in India; situation and prospects, 2013. http://www.indiaenvironmentportal.org.in/files/file/ water%20in%20india.pdf. Accessed on 26th January, 2019.
- India Go. Swachh Bharat Swachh Vidyalaya; A national mission (Clean India: Clean Schools, A Handbook), 2014. Accessed on 24th January, 2019.
- India Go. Swachh Bharat Mission https:// swachhbharat.mygov.in: Government of India, 2014. Accessed on 28th January, 2019.
- 32. Townsend J, Greenland K, Curtis V. Costs of diarrhea and acute respiratory infection attributable to not handwashing: the cases of India and China. Trop Med Int Health 2017; 22(1):74-81.
- 33. Biran A, Schmidt WP, Varadharajan KS, Rajaraman D, Kumar R, Greenland K, et al. Effect of a behaviour change intervention on handwashing with soap in India (Super Amma): a cluster randomised trial. Lancet Glob Health 2014; 2:e145-e154.
- 34. Team CD. "Chennai Declaration": 5 year plan to tackle the challenge of anti microbial resistance. Indian J Med Microbiol 2014: 32: 221-222.
- 35. Balasubramanian S, Abhay Shah, Harish K Pemde, Pallab Chatterjee, Shivananda S, Vijay Kumar Guduru, Santosh Soans, Digant Shastri, Remesh Kumar. IAP ACVIP recommended immunization schedule (2018-19) and update on immunization for children aged 0 through 18 years. Indian Pediatr 2018; 55:1066-1074.
- N'cho HS, Masunda KP, Mukeredzi I, Manangazira P, Govore E, Duri C, et al. Notes from the field: Typhoid Fever Outbreak-Harare, Zimbabwe, October 2017-February 2018. MMWR Morb Mortal Rep 2019; 68: 44-45.