

Assessment of Liver Function Tests in Children with Typhoid Fever: A Hospital Based Study

Ahmad S

ABSTRACT

Background: Typhoid fever is among the most endemic diseases in the tropics and which causes significant morbidity and mortality. It can lead to liver damage if not properly treated. Therefore, the liver function test assessment was conducted in children with typhoid fever. Our study aimed to evaluate the liver function test abnormalities in typhoid fever. **Material and methods:** This was a prospective observational study conducted at the department of paediatrics, Nepalgunj Medical College and Teaching hospital, Nepalgunj for a period of one year August 2018-July 2019. In the present study total 60 children of Typhoid fever were included on the basis of inclusion and exclusion criteria. On admission a detailed history and complete physical examination was carried out. Routine investigations were also carried out. The diagnosis was confirmed by serum Widal test. Liver function tests were performed i.e. Serum glutamic oxaloacetic transaminase [SGOT] and serum glutamic pyruvic transaminase [SGPT] estimation. **Result:** In the present study total children were 60 in which 43.33% were boys and 56.66% were girls. Fever was present in all the cases loss of appetite, cough, vomiting was present in majority of cases. On admission, SGOT and SGPT levels were found > 35 IU/L in 26 cases (43.33%) and 34 cases (56.66%) respectively. On discharge after 7 days of antibiotic, majority of patients had SGOT and SGPT levels < 35 IU/L. **Conclusion:** Our study concluded that on admission of children SGOT and SGPT levels were found > 35 IU/L in 43.33% and 56.66% respectively. On discharge after 7 days of antibiotic, majority of patients had SGOT and SGPT levels < 35 IU/L.

Keywords: Liver function test, SGOT, SGPT, Typhoid

1. Dr. Shakil Ahmad

Address for Correspondence:

Dr. Shakil Ahmad
Department of Paediatrics
Nepalgunj Medical College & Teaching Hospital
Nepalgunj, Banke, Nepal
Email: sheikh_shak@yahoo.com

INTRODUCTION

Typhoid fever is a very common infectious disease of tropics, related to high morbidity and mortality¹. It usually starts as an acute systemic disease without localization, and is clinically identical to other infections, including malaria, bacterial, and viral infections. Multiple organs can be affected by the disease. Hepatic involvement could be considered important, as it may be related to higher relapse rate^{2,3}. The incidence of hepatitis in enteric fever was reported more during second to fourth week of illness⁴. Abnormal liver function tests suggesting hepatic involvement has been reported as 23-60% by various authors^{5,6,7}. Few studies report incidence of elevated transaminases and alkaline phosphatase significantly in all the cases in 2nd and 3rd week of illness and mild elevations in enzyme levels in first week⁸. The present study was conducted to assess the liver function test in children with typhoid fever.

MATERIAL AND METHODS

In the present study total 60 children of typhoid fever were assessed. Before the commencement of the study ethical approval was taken from the Ethical committee an informed consent was obtained from the parents/guardians. On admission a detailed history and complete physical examination was carried out in all cases and the findings recorded. Routine investigations carried out included total and differential leukocyte count, haemoglobin estimation, urine analysis and stool examination. A clinical diagnosis of typhoid

was made on the basis of history of continuous fever, ill and toxic appearance, coated tongue and in a few cases a palpable spleen. The diagnosis was confirmed by serum widal reaction. Children of age group of 5 years to 11 years, children who were having fever of more than 7 days, children in which enteric fever confirmed by tube agglutination test were included in the study. Children with other co morbidities like malaria, children with pre-existing liver disease, children with jaundice in last 6 months were excluded from the study. Liver function tests were performed i.e. Serum glutamic oxaloacetic transaminase [SGOT] and serum glutamic pyruvic transaminase [SGPT] estimation.

RESULT

In the present study total children were 60 in which 26(43.33%) were boys and 34(56.66%) were girls. Fever was present in all the cases loss of appetite, cough, vomiting was present in majority of cases. On admission, SGOT and SGPT levels were found > 35 IU/L in 26 cases (43.33%) and 34 cases (56.66%) respectively. On discharge after 7 days of antibiotic, majority of patients had SGOT and SGPT levels < 35 IU/L.

Variables	
Gender	N (%)
Boys	26(43.33%)
Girls	34(56.66%)
Total	60(100%)

Age group(yrs)	
5-7	21(35%)
7-9	18(30%)
9-11	21(35%)
Total	60(100%)

Table I: Demographic factors

Symptoms	No. of cases (%)
Fever	60(100%)
Cough	28(46.66%)
Vomiting	31(51.66%)
Loose motion	11(18.33%)
Abdominal pain	39(65%)
Loss of appetite	38(63.33%)
Abdominal distension	19(31.66%)
Swelling all over body	1(1.66%)
Jaundice	2(3.33%)

Table II: Symptoms shown in typhoid cases

	Value	SGOT(Units)	SGPT(Units)
		N (%)	N (%)
On admission	> 35	31(51.66%)	34(56.66%)
On discharge after 7 days of antibiotic	< 35	24(77.41%)	27(79.41%)
	> 35	7(22.58%)	7(20.58%)

Table III: Showing SGOT and SGPT value in typhoid cases on admission and on discharge

DISCUSSION

The etiological agent of typhoid was *S. Typhi* in 72% of cases. *S. Paratyphi A* was the second causative agent as also found in studies^{9,10}. The reports shows that it is related to rainfall and water contamination¹¹.

In the present study total children were 60 in which 43.33% were boys and 56.66% were girls. Fever was present in all the cases loss of appetite, cough, vomiting was present in majority of cases. On admission, SGOT and SGPT levels were found > 35 IU/L in 26 cases (43.33%) and 34 cases (56.66%) respectively. On discharge after 7 days of antibiotic, majority of patients had SGOT and SGPT levels < 35 IU/L.

A study by Tohme A et al revealed the result that fever was present in 97% of cases; diarrhoea was found in 36% of cases. Gastroenteritis was a frequent manifestation in 52% children¹².

The rise in transaminase along with alkaline phosphates indicates involvement of hepatobiliary system, which may be secondary to endotoxic effect on hepatic parenchyma causing oedema and biliary stasis¹³.

A study by Srikanth N shows that SGOT was raised in 44% cases and SGPT was raised in 42% cases. Hyperbilirubinemia was seen in 10% patients¹⁴.

Farzana Shafqat et al found SGOT was raised in 92.1% and SGPT in 68.3% of the subjects while hyperbilirubinemia was seen in 12.4% of the subjects¹⁵.

CONCLUSION

Our study concluded that on admission of children SGOT and SGPT levels were found > 35 IU/L in 43.33% and 56.66% respectively. On discharge after 7 days of antibiotic, majority of patients had SGOT and SGPT levels < 35 IU/L.

REFERENCES

1. Khosla SN. Changing patterns of typhoid-A reappraisal. *Asian Med J.* 1982; 25:185-98.
2. Khosla SN. Typhoid hepatitis. *Postgrad Med J.* 1990; 66:923-5.
3. Nasrullah SM, Nassar VH. Enteric fever. *Am J Gastroenterology.* 1978; 69:63-9.
4. De Brito T, Trench Vieira W, D'Agostino Dias M. Jaundice in typhoid hepatitis: a light and electron microscopy study based on liver biopsies. *Acta Hepatogastroenterol (Stuttg).* 1977 Dec; 24(6):426-33.
5. Khosla SN, Singh R, Singh GP, et al. The spectrum of hepatic injury in enteric fever. *Am J Gastroenterol* 1988; 83: 413-416.
6. Ramchandran S, Godfery JJ, Perera MVF. Typhoid hepatitis. *JAMA* 1974; 230: 236 – 240.
7. Stuart BM, Pullen RI. Typhoid clinical analysis of 360 cases. *Arch Int. Med* 1946; 78 : 629-667
8. Ricardo Morgenstern, Peter C Hyes. The Liver in Typhoid Fever: Always affected, not just a complication. *Am J Gastroenterol*, 1991; 86: 1235-1239.
9. Mendiratta DK, Deotale V, Thamke D, Narang R, Narang P. Enteric fever due to *S. Paratyphi A* – An emerging problem. *Indian J Med Microbiol* 2004; 22:196.
10. Gupta V, Kaur J, Chander J. An increase in enteric fever cases due to *Salmonella Paratyphi A* in and around Chandigarh. *Indian J Med Res* 2009; 129:95-8.
11. Sur D, von Seidlein L, Manna B, Dutta S, Deb AK, Sarkar BL, et al. The malaria and typhoid fever burden in the slums of Kolkata, India: Data from a prospective community-based study. *Trans R Soc Trop Med Hyg* 2006; 100:725-33.
12. Tohme A, Zein E, Nasnas R. Typhoid fever. Clinical and therapeutic study in 70 patients. *J Med Liban.* 2004 Apr-Jun; 52(2):71-7.
13. Khosla SN, Singh R, Singh GP, et al. The spectrum of hepatic injury in enteric fever. *Am J Gastroenterology* 1988; 83: 413-416
14. Srikanth .N, Santhosh Kumar. Liver Function Tests Abnormalities in Enteric Fever- A Recent Update. *IOSR-JDMS.*2015;14(3):17-24.
15. Farzanashafqat, ZafarIqbal, Anwar A. Khan, Farrukh Iqbal, Altaf Alam, Arshad Kamal Butt, Waqar Hassan Shah Dept of medicine and gastroenterology, sheikh Zayed Hospital, Lahore. Hepatic involvement with typhoid fever .proceeding S.Z.P.G.M.I vol: 8 (1-2) 1994, pp. 38-42.