

Original Research Article

Clinical profile of patients of pyrexia with hepatic dysfunction in a tertiary care hospital in Southern Rajasthan region of India

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ABSTRACT

Background: Pyrexia in association with hepatic dysfunction is commonly found in clinical practice with varied etiologies like malaria, dengue, typhoid, scrub typhus, viral hepatitis, etc. The liver is frequently involved in systemic infections, resulting in various types of abnormal liver function tests. It is very important to know the frequency and pattern of abnormal liver function tests in each infection for its appropriate management.

Methods: A complete data of all the patients admitted in medicine wards and medicine ICU from January to December 2018 were studied. One hundred and ten patients with fever with abnormal liver function tests were interviewed and presenting complaints were noted. Demographic data such as age and sex were noted. These patients underwent a thorough general physical examination and systemic examination. The findings were noted on a predesigned and pretested proforma. The selected patient underwent blood investigations related to liver functions.

Results: Most of the patients were of age group of 21 to 50 years (65 patients), 67 patients (60.91%) were males and 43 (39.09%) were females. Malaria (25.45%) and dengue (26.36%) were major etiologies. Hepatomegaly (46.36%), icterus in (45.45%) and splenomegaly (42.73%) were most common clinical signs.

Conclusions: Present study will help clinicians to identify etiological factors and clinical picture in patients of pyrexia with hepatic dysfunction.

Keywords: Fever, Dengue, Hepatomegaly, Hepatic, Malaria

INTRODUCTION

Fever, also known as pyrexia or febrile response, is defined as an elevation of body temperature that exceeds the normal daily variation and occurs in conjunction with an increase in the hypothalamic set point.¹⁻³ This includes viral, bacterial and parasitic infections such as malaria, dengue, typhoid, scrub typhus, viral hepatitis and many others which include drugs, poisons, cancer, heat exposure, injuries or abnormalities in the brain and diseases of the endocrine (hormonal or glandular) system.⁴

Pyrexia in association with hepatic dysfunction is commonly found in clinical practice with varied etiologies like malaria, dengue, typhoid, scrub typhus, viral hepatitis, etc. The liver is frequently involved in systemic infections, resulting in various types of abnormal liver function tests. It is very important to know the frequency and pattern of abnormal liver function tests in each infection for its appropriate management. However, there have been few reports focusing on this issue. Such study will help the clinicians to interpret abnormal liver function tests according to the associated infection.⁶

A number of bacteria, viruses, protozoa and rickettsia can cause fever with hepatic dysfunction. It is important to maintain a proper epidemiological data so that evidence based diagnostic criteria and treatment guidelines can be developed. Health care providers lacking proper diagnostic tools are usually unable to determine specific etiologies often diagnosing patients based on clinical features.⁶ History and physical examination, the traditional tools used by health worker can provide important clues for the etiology.⁷

The present study was being aimed to document and establish correlation between clinical profile of various etiologies of pyrexia and severity of hepatic dysfunction. It would help us to know the prevalence of various etiologies causing pyrexia with hepatic dysfunction at tertiary care centre.

METHODS

The current study was cross-sectional, descriptive and hospital-based study. This study was conducted in medicine ward and medical ICU at Geetanjali medical college and hospital, Udaipur.

A complete data of all the patients admitted in medicine ward and medical ICU from January to December 2018.

In the year 2018 from January to December, a total about 110 patients admitted medicine ward and medical ICU at Geetanjali medical college & hospital, Udaipur.

Inclusion criteria included patient aged more than or equal to 18 years of both sexes. Patients of pyrexia having temperature 37.7°C (99.9°F) or more (oral) or 37.2°C (99.0°F) or more (axillary) with abnormal liver function test. Deranged liver function test and patients giving informed consent.

Exclusion criteria excluded patients of pyrexia possibly on hepatotoxic drugs, patients who give history or are HIV positive, patients who are on steroids or immunosuppressive therapy and patients not giving consent.

In data collection 110 patients with fever with abnormal liver function tests were interviewed and presenting complaints were noted. Demographic data such as age and sex were noted. These patients underwent a thorough general physical examination and systemic examination. The findings were noted on a predesigned and pretested proforma. The selected patient underwent blood investigations related to liver functions.

Statistical analysis was done using excel sheet and statistical software SPSS.

Prior to commencement, ethical clearance was obtained from Institutional Ethics Committee at Geetanjali medical college and hospital, Udaipur.

Informed consent included patient fulfilling the selection criteria were briefed about the nature of study and informed consent was obtained from patient or first-degree relatives.

RESULTS

Table 1 shows 110 patients of pyrexia with hepatic dysfunction of age ranging from 18 to 88 years. Most of the patients were of age group of 21 to 50 years (65 patients).

Table 1: Age wise distribution (n=110).

Age (Years)	Number	Percentage (%)
18-20	7	6.36
21-30	24	21.82
31-40	21	19.09
41-50	20	18.18
51-60	16	14.55
61-70	15	13.64
71-80	4	3.64
81-88	3	2.73
Total	110	100

Table 2 shows 67 patients (60.91%) were males and 43 (39.09%) were females.

Table 2: Sex wise distribution (n=110).

Sex	Number	Percentage (%)
Male	67	60.91
Female	43	39.09
Total	110	100

Figure 1 shows etiologies of pyrexia with hepatic dysfunction in 110 cases. 29 (26.36%) was of dengue fever, 28 (25.45%) of malaria, 18 (16.36%) of scrub typhus, 16 (14.55%) of hepatitis B, 10 (9.09%) of enteric fever, 5 (4.55%) of hepatitis A, 3 (2.73%) of hepatitis E and 1 (0.91%) of hepatitis C.

Table 3 shows clinical symptoms in 110 studied patients. All had fever (100%), followed by nausea/vomiting (64.55%), abdominal pain (60%), generalized body ache (59.09%), icterus (44.55%), headache (32.73%), diarrhoea (32.73%), bleeding (25.45%), coughing (23.64%).

Table 4 shows clinical signs in 110 patients studied, where hepatomegaly was seen in 51 (46.36%), icterus in 50 (45.45%), splenomegaly in 47 (42.73%), pallor in 46 (41.82%), oedema in 32 (29.09%), ascites in 16 (14.55%) and cyanosis in 1 (0.91%) patient.

Figure 2 shows malaria and dengue patient had highest prevalence of hepatomegaly, splenomegaly and both.

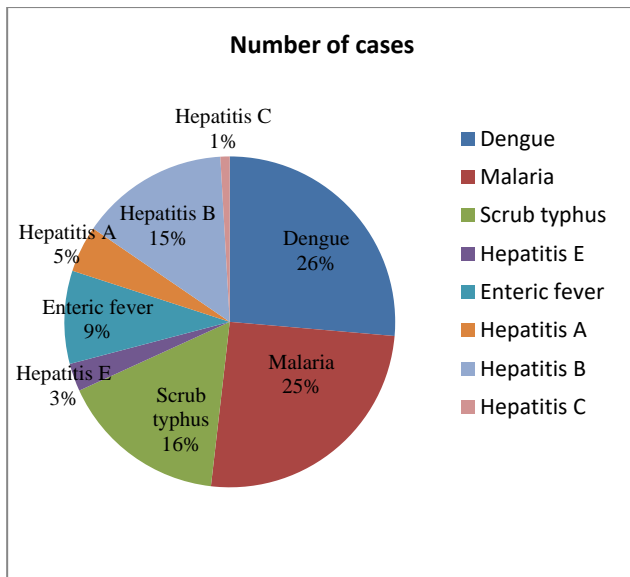


Figure 1: Etiological distribution (n=110).

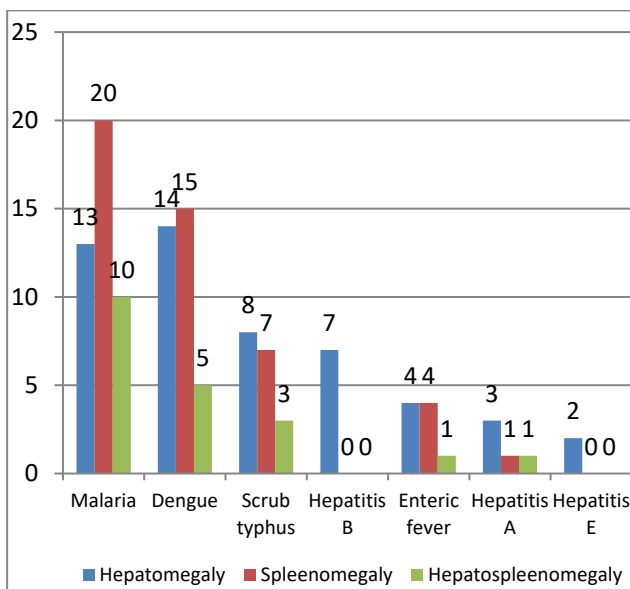


Figure 2: Hepatosplenomegaly in patients of pyrexia with hepatic dysfunction in different etiologies.

Table 3: Distribution of cases according to clinical symptoms (n=110).

Symptoms	Number	Percentage (%)
Fever	110	100.00
Nausea/vomiting	71	64.55
Abdominal pain	66	60.00
Generalized body ache	65	59.09
Icterus	49	44.55
Headache	36	32.73
Diarrhoea	28	25.45
Bleeding	28	25.45
Coughing	26	23.64

Table 4: Distribution of cases according to clinical signs (n=110).

Clinical signs	Number	Percentage (%)
Hepatomegaly	51	46.36
Icterus	50	45.45
Splenomegaly	47	42.73
Pallor	46	41.82
Oedema	32	29.09
Ascites	16	14.55
Cyanosis	1	0.91

DISCUSSION

Fever is the main clinical symptom of various tropical diseases. The etiologies of fever are different in different parts of India, for that, diagnosis, treatment and control programs vary depending on area specific etiologies. In southern Rajasthan common etiologies of febrile illnesses include dengue, malaria, enteric fever, scrub typhus and viral hepatitis, etc. These diseases are vector borne or transmitted by contaminated food and water. These are associated with hepatic dysfunction in varying severity.

Diagnosis is confirmed by bacteriological cultures and serological confirmation of pathogen specific antibodies. This prospective study on 110 patients presented with acute febrile illness with hepatic dysfunction was conducted in the department of general medicine, Geetanjali medical college and hospital, Udaipur, Rajasthan during period of January to December 2018.

Etiology of acute febrile illness in our study showed dengue fever in 26%, malaria in 25%, enteric fever in 9%, scrub typhus in 16% and hepatitis B in 15%. Rani et al studied 200 patients of AFI in which 27% had dengue, 2% had malaria, 4% had enteric fever and 1% had rickettsial fever.⁸ Ahmad et al studied 276 patients of AFI where 61% had malaria, 58% had dengue, 65% had scrub typhus.⁹ Mittal et al studied 2547 cases acute febrile illness where 7% had malaria, 37.4% had dengue, 14% had scrub typhus and 16.5% had enteric fever.¹⁰ Shelke et al studied 270 patients, in which 12% were positive for malaria, 17.4% dengue, 47% scrub typhus.¹¹

Chrispal et al analysed 398 patients, in which 47.5% had scrub typhus, 17.1% had malaria, 8% had enteric fever and 7% had dengue.¹² Malaria, dengue, scrub typhus, enteric fever and viral hepatitis are common causes of AFI, disparity in different percentage of etiology can be due to seasonal, monsoon and different places of study.

No specific study of acute febrile illness with hepatic dysfunction is available in literature for comparison. In present study of pyrexia with hepatic dysfunction, all patients presented with history of fever, 59% with body ache, 60% with abdominal pain and 64.5% with nausea and vomiting, 32.7% with diarrhoea and 44.5% with jaundice. Similarly, Salagre et al had all patients with fever, 85.9% patient with generalized body ache, 77.4%

with headache and 73.4% with vomiting.¹³ Kumar et al studied clinical manifestations, trend and outcome of confirmed dengue cases conducted in Karnataka from 2002 to 2008 of 466 patients, the presentation was fever in 462 (99.1%), myalgia in 301 (64.6%), vomiting in 222 (47.6%), headache in 222 (47.6%) and abdominal pain in 175 (37.6%).¹⁴ Mittal et al in their retro-prospective, observational study on 2547 patients of acute febrile illness, all patients presented with fever.¹⁰ Other symptoms in dengue were rash (83.6%), abdominal pain (5.3%); in malaria abdominal pain (14.2%) and altered bowel habits (11.4%); in scrub typhus icterus (15.8) and lymphadenopathy (10%) and in enteric fever, abdominal pain (83.9) and loose stools (70.7) were observed. These symptoms were almost similar to our observation.

In present study, 45.5% had icterus, 41.8% had pallor, 29.09% had pedal oedema, 46.36% had hepatomegaly, 42.7% had splenomegaly, 18.1% had hepatosplenomegaly and 14.55% had ascites. In malaria, 13 (46.4%) patients had hepatomegaly, 20 (71.4%) had splenomegaly and 10 (35.7%) had hepatosplenomegaly. In dengue 14 (48.2%) had hepatomegaly, 15 (51.7%) had splenomegaly and 5 (17.2%) had hepatosplenomegaly. In scrub typhus 8 (44.4%) had hepatomegaly, 7 (38.8%) had splenomegaly and 3 (16.7%) had hepatosplenomegaly. In enteric fever 4 (40%) had hepatomegaly, 4 (40%) had splenomegaly and 1 (10%) had hepatosplenomegaly. In viral hepatitis, 12 (50%) had hepatomegaly, 1 (4.1%) had splenomegaly and 1 (4.1%) had hepatosplenomegaly. Kumar et al observed hepatomegaly in 69% and splenomegaly in 41% patients of scrub typhus.¹⁵ Mittal et al observed splenomegaly in 0.2% cases of dengue, 20.2% of enteric fever, 9.8% of scrub typhus and 58.2% of malaria and hepatomegaly in 16.6% of dengue, 9.9% of enteric fever, 19.6 % of scrub typhus and 61.7% malaria which was similar to our study.¹⁰

Limitations

Small sample size, repetition of tests was not analysed and no follow up of cases included were the limitations for this study.

CONCLUSION

Present study will help clinicians to identify etiological factors and clinical picture in patients of pyrexia with hepatic dysfunction. From this study it is concluded that-Major etiologies of pyrexia with hepatic dysfunction in this part of Rajasthan are dengue fever, malarial fever, scrub typhus, enteric fever and viral hepatitis. Young male persons were more affected because of more exposure to vector bite and may be consuming contaminated food and water in fields in day hours.

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REFERENCES

1. Axelrod YK, Diringer MN. Temperature management in acute neurologic disorders. *Neurol clin.* 2008;26(2):585-603.
2. Kluger MJ. Fever: its biology, evolution, and function. Princeton Legacy Library. Princeton University Press. 2015;218.
3. Herd AM, Mahadevan SV, Garmel GM editors. An introduction to clinical emergency medicine. Cambridge university press. *Can Fam Physician.* 2007;53(2):296-7.
4. Nair PS, Jain A, Khanduri U, Kumar V. A study of fever associated with thrombocytopenia. *JAPI.* 2003;51:1173.
5. Minemura M, Tajiri K, Shimizu Y. Liver involvement in systemic infection. *World J hepatol.* 2014;6(9):632.
6. Kashinkunti MD, Gundikeri SK, Dhananjaya M. Acute undifferentiated febrile illness-clinical spectrum and outcome from a tertiary care teaching hospital of north Karnataka. *Int J Biol Med Res.* 2013;4(2):3399-402.
7. Ittyachen AM, Ramachandran R. Study of acute febrile illness: a 10-year descriptive study and a proposed algorithm from a tertiary care referral hospital in rural Kerala in Southern India. *Trop doc.* 2015;45(2):114-7
8. Rani RV, Sundararajan T, Rajesh S, Jeyamurugan T. A study on common etiologies of acute febrile illness detectable by microbiological tests in a tertiary care hospital. *Int J Curr Microbiol App Sci.* 2016;5(7):670-4.
9. Ahmad S, Dhar M, Mittal G, Bhat NK, Shirazi N, Kalra V et al. A comparative hospital-based observational study of mono- and co-infections of malaria, dengue virus and scrub typhus causing acute undifferentiated fever. *Eur J Clin Microbiol Infect Dis.* 2016;35(4):705-11.
10. Mittal G, Ahmad S, Agarwal RK, Dhar M, Mittal M, Sharma S. Aetiologies of Acute Undifferentiated Febrile illness in Adult Patients - an Experience from a Tertiary Care Hospital in Northern India. *J Clin Diagn Res.* 2015;9(12):DC22-4.
11. Shelke YP, Deotale VS, Maraskolhe DL. Spectrum of infections in acute febrile illness in central India. *Indian J Med Microbiol.* 2017;35:480-4.
12. Chrispal A, Boorugu H, Gopinath KG, Chandy S, Prakash JA, Thomas EM et al. Acute

undifferentiated febrile illness in adult hospitalized patients: the disease spectrum and diagnostic predictors-an experience from a tertiary care hospital in South India'. *Trop Doc.* 2010;40(4):230-4.

13. Salagre KD, Sahay RN, Pazare AR, Dubey A, Marathe KK. A Study of Clinical Profile of Patients presenting with Complications of Acute Febrile Illnesses During Monsoon. *J Assoc Physicians India* 2017;65(9):37-42.
14. Kumar A, Rao CR, Pandit V, Shetty S, Bammigatti C, Samarasinghe CM. Clinical manifestations and trend of dengue cases admitted in a tertiary care

hospital, Udupi district, Karnataka. *Indian J Community Med.* 2010;35:386-90.

15. Kumar V, Kumar V, Yadav AK, Iyengar S, Bhalla A, Sharma N et al. Scrub typhus is an under-recognized cause of acute febrile illness with acute kidney injury in India. *PLoS neglected tropical diseases.* 2014;8(1):e2605.

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