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Original Research Article

A study on clinical profile of acute undifferentiated febrile illness in a tertiary care hospital

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ABSTRACT

Background: Acute febrile illness is very common among patients seeking hospital care in tropical country like India. This study was conducted to evaluate etiology and clinical profile of Acute Undifferentiated Febrile Illness (AUFI) in a tertiary care hospital.
Methods: This study was conducted in 175 patients with acute febrile illness who were admitted in the medical wards and ICU from January 2018 to June 2019 in a tertiary care hospital. Clinical examination and investigations like complete hemogram, liver function test, renal function test, smear for malarial parasite, widal test, urine analysis blood and urine culture, antibody titters for dengue, Leptospirosis and imaging were done.
Results: Out of 175, 94 (54%) were males and 81 (46%) were females. The commonest etiology was dengue (19%) followed by enteric fever (18%), scrub typhus (16%), malaria (14%), tuberculosis (6%) and leptospirosis (5%). 138 (79%) patients had less than 14 days of fever of which dengue was the most common and 37 (21%) patients had more than 14 days of fever with tuberculosis being predominate. Other common symptoms were chills/rigors, headache and myalgia seen in 77%, 71% and 42% respectively. Icterus was seen in malaria (42%) and leptospirosis (38%). Elevated transaminases levels were observed with dengue, leptospirosis, scrub typhus, enteric fever and malaria. ARDS was most common in scrub typhus.
Conclusions: Among acute febrile illness, dengue and enteric fever were the most common in this study. A thorough and probing search for an eschar is very important in scrub typhus. The treating physician has to keep in mind the comprehensive list of differential diagnosis for patients with febrile illness and anticipating the complications.

Keywords: Acute undifferentiated febrile illness, Etiology, Fever, Febrile illness, Infection

INTRODUCTION

Acute febrile illness is a common syndrome among patients seeking hospital care in India. The main causes and pattern of acute febrile illness are not well characterized. Patients are empirically diagnosed and treated.[1] Several studies have been done on etiology of pyrexia of unknown origin. However, there is no data on the etiology of febrile illness of shorter duration. Most febrile illnesses of duration less than a week are due to viral infections which subside without any specific treatment and hospitalization. However, when the duration of fever is more than seven days, etiology can be varied and usually patients are admitted for evaluation. In certain infections like upper respiratory tract infection, lower respiratory tract infection, gastrointestinal tract

infection and skin infection the etiology and site of infection is evident from history and clinical examination itself, but in some cases investigations are required.

METHODS

After getting ethical committee approval and informed consent this prospective study was conducted in 175 patients. All patients above the age of 13 years with fever more than 7 days but less than one month with acute undifferentiated febrile illness who were admitted in the medical wards and ICU from January 2018 to June 2019 in a tertiary care hospital were included in this study. Patients with age less than 13, HIV and immunocompromised were excluded. Clinical examination and investigations like complete hemogram, liver function test, renal function test, smear for malarial parasite, Widal test, urine analysis blood and urine culture, antibody titers for dengue, Leptospirosis and Weil Felix tests were done. In addition to the above tests, imaging was also done. The data were collected and analysed using SPSS software. The predefined criteria for diagnosis used were as follows.

Diagnostic criteria for dengue

IgG/ IgM Antibodies to dengue virus by rapid immune chromatographic test Dengue NS1Ag and Ab Combi Card Diagnostic Enterprises, Himachal Pradesh, India.

Diagnostic criteria for scrub typhus

Eschar or IgM Elisa positive or Weil Felix test positive (OX K titre >80).

Diagnostic criteria for malaria

Peripheral smear showing malarial parasite or pLDH/ HRP2 antigen positive (sure test malarial combo kit).

Diagnostic criteria for enteric fever

Blood culture positive for *Salmonella typhi* or *para typhi* or WIDAL positive done by slide agglutination and tube agglutination method more than 1:160 titre (TYDAL-Widal Antigen Set/Antigens for Slide and Tube Tests, TULIP DIAGNOSTICS (P) LTD, Goa, INDIA).

Diagnostic criteria for leptosirosis

Positive for IgM antibodies to leptospira (Leptochek-rapid test for leptospira, Zephyr Bio Medicals, Verna Goa, India).

RESULTS

This prospective study of adult patients with acute undifferentiated febrile illnesses of 7-30 days duration included 175 patients. Out of 175, 94 (54%) were males and 81 (46%) were females. The commonest etiology was dengue (19%) followed by enteric fever (18%), scrub typhus (16%), malaria (14%), tuberculosis (6%) and leptospirosis (5%) (Figure 1). Tuberculosis and leptospirosis together constituted 11% of patients. This study has shown that a specific diagnosis could be made in 78% of patients, whereas the remaining 22%, had undifferentiated fever.

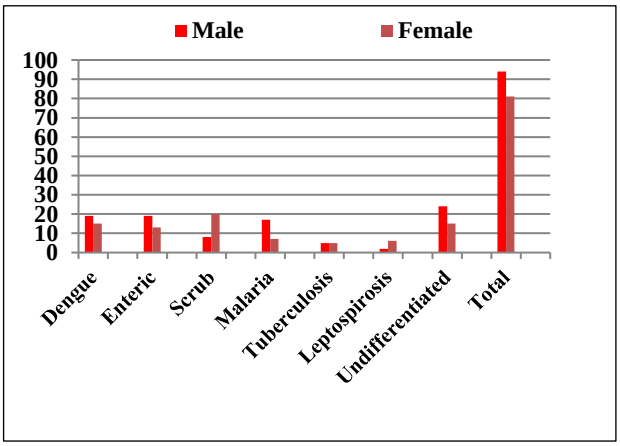

Figure 1: Etiology and sex distribution.

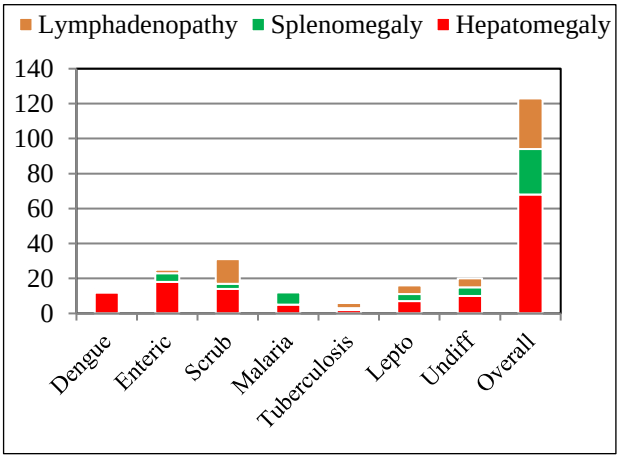

Figure 2: Distribution of hepatosplenomegaly and lymphadenopathy.

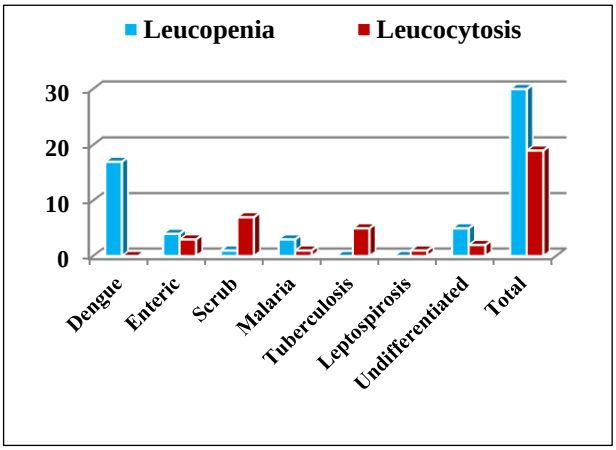

Figure 3: Distribution of leukopenia and leucocytosis.

The 138 (79%) patients had less than 14 days of fever of which dengue was the most common cause and 37 (21%) patients had more than 14 days of fever with tuberculosis being the most predominant cause. Apart from fever, the other common symptoms in this study were chills/rigors, headache and myalgia seen in 77%, 71% and 42% of patients respectively. Icterus was seen in 42% of patients with malaria and in 38% of patients with leptospirosis. ARDS was most commonly seen in 18% of patients with scrub typhus. Hepatosplenomegaly were frequently seen in patients with enteric fever and scrub typhus (Figure 2). Leucopenia was seen in dengue patients while leukocytosis was seen in patients with scrub typhus. (Figure 3) Elevated transaminase levels were observed in patients with dengue, leptospirosis, scrub typhus, enteric fever and malaria. Apart from patients with dengue, thrombocytopenia was also seen in enteric fever, malaria and scrub typhus patients (Table 1).

Table 1: Demonstration of grading of platelet counts.

	<20,000	20-49, 999	50-99,999	1 lakh-1,49, 999	>1.5 lakh
Dengue	5 (15%)	7 (21%)	14 (41%)	6 (18%)	2 (6%)
Enteric	0	0	1 (3%)	3 (9%)	28 (87%)
Scrub	0	1 (4%)	0	2 (7%)	25 (89%)
Malaria	0	5 (21%)	8 (33%)	6 (25%)	5 (21%)
Tuberculosis	0	0	0	1 (10%)	9 (90%)
Leptospirosis	0	0	0	1(13%)	7(88%)
Undifferentiated	1 (3%)	5(13%)	8(21%)	1 (3%)	24 (62%)
Total	6 (3%)	18(10%)	31 (18%)	20 (11%)	100 (57%)

DISCUSSION

In a study from Vellore of hospitalized adult patients with acute undifferentiated febrile illness published in October 2010, scrub typhus, malaria, enteric fever and dengue were the most common febrile illnesses accounting for 79% of all acute febrile illnesses. Importantly 48% of all patients had scrub typhus, indicating that scrub typhus is the single most important acute febrile illness in that region.[2] There was a close correlation between the results of this study and this study. The big four accounted for 79% of all cases in the Vellore study and for 82% of cases in this study. Scrub typhus was the single most common AUFI in the study accounting for 47%. Enteric fever contributed to only a small proportion of patients (8% in Vellore study) but was 18% in this study. Leptospirosis contributed to only a very small proportion of patients (3% in Vellore study and 5% of all patients in this study). Predominant studies from developing countries reports infections to be the etiology for pyrexia of unknown origin (PUO).[3]

According to the study Vivekanandan et al, eschar was seen in 46% of patients with scrub typhus.[4] In this study authors reported 29% with eschar. An eschar is the most vital diagnostic physical sign in areas endemic for scrub typhus.[5] In this study patients with fever more than 14 days duration, tuberculosis (60%) was the commonest. In a study by Bandyopadhyay et al, and Kejariwal et al, showed tuberculosis was the most common in PUO.[6,7]

In this study, dengue, enteric fever, scrub typhus and malaria were the four most important febrile illnesses. A study by Chrispal et al, in 2010 among inpatients had shown scrub typhus, malaria, and enteric fever to be the three main etiologies similar to this study.[2] A study conducted by Singh et al, from north India shows that dengue, malaria and Typhoid are the most common etiological agent of acute febrile illness.[8] In countries like Thailand, Malaysia and Nepal - dengue fever, malaria, scrub typhus, leptospirosis and enteric have been identified as main causes of acute undifferentiated fever.[9]

CONCLUSION

Among acute febrile illness, dengue and enteric fever were the most common in this study. Scrub typhus should be considered in the differential diagnosis of patients with acute febrile illness. A thorough and probing search for an eschar is very important and helps to diagnose rickettsial infection. Tuberculosis needs to be considered in the diagnosis of acute febrile illnesses. Leptospirosis was not common in this study. The treating physician has to keep in mind the comprehensive list of differential diagnosis for patients with febrile illness and anticipating the complications due to the similarity of presentation among varied aetiologies.

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