Profile of patients with acute febrile illness and multi - organ involvement during monsoon at rural coastal region of Maharashtra

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Abstract
Background: Acute febrile illness (AFI) is defined as a patient with fever of 38°C or higher at presentation or history of fever that persisted for 2–7 days with no localizing source. Fever is the main clinical symptom of various tropical infectious diseases. In India, the effect of changing climate during monsoon season leads to numerous health consequences resulting from disease transmission. Like other developing nations, India with limited resources, is facing lots of health effects due to climate change, including vector borne and water borne diseases such as leptospirosis, dengue and malaria **Aims and Objectives:** Profile of Patients with Acute Febrile illness and Multi - organ involvement during Monsoon at Rural coastal region of Maharashtra. Methodology: This was a cross-sectional study carried out in the patients admitted to the tertiary health care centre in the Patients with Acute Febrile illness and Multi - organ involvement specially during Monsoon season were selected into study. During the one year period i.e. January 2017 and January 2018 specially during Monsoon there were 68 patients were admitted with Febrile illness and Multi - organ involvement after confirmation by all required laboratory investigation at tertiary health care centre. All details of the patients like age, sex, symptoms and Diagnosis noted. The data entered to excel sheet and analyzed by excel software for windows 10. **Result:** The most common age group was 30-40 [41.18%], followed by 20-30 [22.06%,] 40-50. [19.12%], 50-60 [10.29%], >60 [7.35%]. The majority of the patients were Male 33[55.88%], Female were 30[44.12%]. The most common clinical features were Vomiting/loose stools in 55% followed by Hepatomegaly in 53%, Bleeding manifestation in 52%, Cough in 49%, Oliguria in 42%, Dyspnoea in 39%, Icterus in 28%, Pallor in 23%, Oedema in 20%, Lymphadenopathy in 15%, Splenomegaly in 12%. Dengue fever present in 33.82%, followed by Bacterial septicemia in 19.12%, Leptospirosis in 17.65%, Malaria- 16.18%, Undiagnosed infection in 13.24%. The majority of the patients recovered i.e. 85.29%, Death occurred in 10.29% of the patients and 4.41% patients referred to higher centers for the management of complications. **Conclusion:** It can be concluded from our study that The most common age group was 30-40 The most common presenting features was Vomiting/loose stools in 55% , followed by Bleeding manifestation in 52% , Cough in 49%, Oliguria in 42%, Dyspnoea in 39%, and most common clinical sign was Hepatomegaly in 53% followed by Icterus in 28%, Pallor in 23%, Oedema feet or anasarca in 20%, Lymphadenopathy in 15% and Splenomegaly in 12%. The most common conditions was Dengue, followed by Bacterial septicemia, Leptospira, Malaria, Undiagnosed infection 19%,16% and13% respectively. The mortality in our study was 10.29%.
Key Word: Acute Febrile illness, Multi - organ involvement, Dengue, Bacterial septicemia, Leptospira, Malaria, PUO.

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INTRODUCTION

Acute febrile illness (AFI) is defined as a patient with fever of 38°C or higher at presentation or history of fever that persisted for 2–7 days with no localizing source. Fever is the main clinical symptom of various tropical infectious diseases. In India, the effect of changing climate during monsoon season leads to numerous health consequences resulting from disease transmission. Like other developing

nations, India with limited resources, is facing lots of health effects due to climate change, including vector borne and water borne diseases such as leptospirosis, dengue and malaria.[1] Acute febrile illnesses in the city of Mumbai, during monsoon (July-October), rise to epidemic proportions with significant level of morbidity and mortality in the patients suffering during this period.[2] These AFI that includes scrub typhus, dengue fever, malaria, enteric fever and leptospirosis cause significant mortality and morbidity.[3] A significant number includes mixed infections with the previously mentioned agents, while a few others still remain unidentified. These patients of complicated acute febrile illness present a syndromic picture of jaundice, oliguria, thrombocytopenia, dyspnea, hemoptysis, myocarditis, and so on. So, in our study we studied Profile of Patients with Acute Febrile illness and Multi - organ involvement during Monsoon at Rural coastal region of Maharashtra.

METHODOLOGY

This was a cross-sectional study carried out in the patients admitted to the critical care units of tertiary health care centre in the Patients with Acute Febrile illness and Multi - organ involvement specially during Mansoon season were selected into study. During the one year period i.e. January 2017 and January 2018 specially during Mansoon there were 68 patients were admitted with Febrile illness and Multi - organ involvement after confirmation by all required laboratory investigation at tertiary health care centre . All details of the patients like age, sex, symptoms and Diagnosis noted. The data entered to excel sheet and analyzed by excel software for windows 10.

RESULT

Table 1: Distribution of the patients as per the age

Age	No.	Percentage (%)
20-30	15	22.06
30-40	28	41.18
40-50	13	19.12
50-60	7	10.29
>60	5	7.35
Total	68	100.00

The most common age group was 30-40 in 28[41.18%], followed by 20-30 was in 15[22.06%], 40-50 Was in13[19.12]%, 50-60 was in 7 [10.29%], >60 were only5[7.35%].

Table 2: Distribution of the patients as per the sex

Sex	No.	Percentage (%)
Male	38	55.88
Female	30	44.12
Total	68	100.00

The majority of the patients were Male 38[55.88%], followed by Female 30[44.12%].

Table 3: Distribution of the patients as per the clinical features

Symptoms	No.	Percentage (%)
Vomiting/loose stools	37	55%
Bleeding manifestation	35	52%
Cough	33	49%
Oliguria	29	42%
Dyspnoea	27	39%

Signs		
Pallor	16	23%
Icterus	19	28%
Lymphadenopathy	10	15%
Oedema feet or polyserrositis	14	20%
Hepatomegaly	36	53%
Splenomegaly	8	12%

The most common presenting features was Vomiting/loose stools in 55% , followed by Bleeding manifestation in 52% , Cough in 49%, Oliguria in 42%, Dyspnoea in 39%, and most common clinical sign was Hepatomegaly in 53% followed by Icterus in 28%, Pallor in 23%, Oedema feet or anasarca in 20%, Lymphadenopathy in 15% Splenomegaly in 12%.

Laboratory abnormality	No.	Percentage (%)
Thrombocytopenia	46	67.65
Deranged Liver function	43	63.24
Deranged renal function	34	50
leukopenia	24	35.29
Leukocytosis	21	30.88

The most commonlaboratory features was thrombocytopenia in 46[67.65%] , followed by Deranged Liver function in 43 [63.24%], followed by Deranged renal function in34[50%], followed by leukopenia24 [35.29%] and Leukocytosis in 21[30.88%]

Table 4: Distribution of the patients as per the diagnosis

Diagnosis	No.	Percentage (%)
Dengue fever	23	33.82
Bacterial septicemia	13	19.12
Leptospira	12	17.65
Malaria	11	16.18
Undiagnosed infection	9	13.24
Total	68	100.00

Dengue fever present in 33.82%, followed by Bacterial septicemia in 19.12%, Leptospirosis in 17.65%, Malaria in 16.18%and Undiagnosed infection in 13.24%.

Table 5: Distribution of the patients as per the Outcome

Outcome	No.	Percentage (%)
Recovered	58	85.29
Death	7	10.29
Referred	3	4.41

Mortality	No.	Percentage (%)
Leptospira	3	25
Bacterial septicemia	2	15.38
Undiagnosed infection	2	22.22
Dengue fever	nil	nil
Malaria	nil	nil

The majority of the patients recovered i.e. 85.29%, Death occurred in 10.29% of the patients out of 7, 3[42.90%] were of Leptospirosis and 2 [28.55%] were each of Bacterial septicemia and Undiagnosed infection and4.41% patients referred to higher centers for the management of complications.

DISCUSSION

Fever is a common presenting complaint in the developing world and is the most common presentation in most of the healthcare delivery systems in India. Febrile illness can be localized to organ systems or non localized, commonly referred to as acute undifferentiated febrile illness (AUFI). However, in the developing world, the self limiting fever is no more restricted to general wards and clinics. There has been a recent surge in patients presenting to critical care units with AUFI rapidly progressing to multi organ dysfunction syndrome (MODS). India, being a tropical nation, is a fertile nest for potentially lethal illnesses such as malaria, dengue fever, enteric fever, leptospirosis, rickettsiosis and influenza A.[4]There is a paucity of literature on the appropriate evaluation, presentation and outcomes of adult fever patients progressively worsening on a short notice in our ICU's.[5] Acute febrile illness with obscure aetiology, also described as acute undifferentiated fever, poses a burgeoning problem in clinical practice[6]. In the routine evaluation of these cases of acute febrile illness, more commonly diagnosed diseases will be dengue fever, malarial infection, leptospirosis, rickettsial fever especially scrub typhus, salmonellosis, bacterial septicaemia[7,8] However, significant proportion of these cases still remain undiagnosed whose prevalence can vary from 8-80%[9], This non identification could be due to regional and seasonal distribution of the cases, non availability of additional serological markers and lack of knowledge about the prevailing regional infections or absence of standard working protocol. In developing countries like India, it is even worse due to limited accessibility and facility of medical services, social and financial constraints[10,11]. In our study we have seen that the most common age group was 30-40 in 28[41.18%], followed by 20-30 in15[22.06%], 40-50 in 13[19.12%], 50-60 in 7 10.29%, >60 were 5 7.35%. The majority of the patients were Male 38[55.88%], and Female were 30 [44.12%]. Mittal G *et al* (65.3%) majority of acute undifferentiated febrile illness were males. 5 This is

probably explained by the fact that exposure to mosquitoes and transmission of vector-borne diseases are more associated with the predominantly outdoor occupational exposure of males and immigration of young male population to metropolitan cities like Mumbai and Eastern Maharashtra like Kokan area.[6,7] The most common clinical features were Vomiting/loose stools in 55% followed by Hepatomegaly In 53%, Bleeding manifestation in 52% , Cough in 49%, Oliguria in 42%, Dyspnoea in 39%, Icterus in 28%, Pallor in 23%, Oedema in 20%, Lymphadenopathy in 15%, Splenomegaly in 12%. Dengue fever present in 33.82%, followed by Bacterial septicemia in 19.12%, Leptospira in 17.65%, Malaria- 16.18%, Undiagnosed infection in 13.24%. The majority of the patients recovered i.e. 85.29%, Death occurred in 10.29% of the patients and 3[4.41%] patients referred to higher centers for the management of complications. With the onset of the monsoon, the number of cases of A F I increases and this trend persists through the winter months. During this period, dengue (65.9%) was the predominant cause of febrile monsoon illness followed by leptospirosis (16.7%) and malaria (13%). Our results are similar to those found in other tropical regions of the developing world, although the relative incidence of specific pathogens varies from place to place.[8,9] Leptospirosis, malaria, scrub typhus, rickettsial infections, and dengue have been identified as major causes of AFI in Thailand and Nepal.[9] In fact, nearly half of the global burden of dengue is borne by the Southeast Asian countries of India, Indonesia, Myanmar, and Thailand.[10,11,12] These findings are similar to Kaustubh Dilip Salagre 13 Out of 276 patients enrolled male gender 187(67.8%) and age group of below 35 years comprised the larger proportion of the cases with total 115(63.2%) dengue,37(80.4%) leptospirosis, 25(69.4%) malaria cases. The most common symptoms reported amongst the enrolled patients included generalized body ache (85.9%), headache (77.4%), vomiting (73.4%), abdominal pain (50%), high coloured urine (34.2%), and breathlessness (32.1%), loose motion (25.1%) and altered Sensorium (8.8%). Clinical signs seen and significantly associated were pedal edema 14.5% (P=0.001), icterus 20.7% (P=0.0001) and tachypnoea 19.4%(P =0.001). Most common complication of dengue was shock (70.9%) followed by hepatic (66.5%) and haematological (65%) derangements, that of malaria was CNS involvement (29.4%), and for leptospirosis it was renal failure (45.9%) followed by respiratory distress (22.3%). Overall mortality in leptospirosis was 3(3.8%), malaria 2(5.6%), leptospirosis 15(32.6%), Hepatitis E 2(50%).

CONCLUSION

It can be concluded from our study that The most common age group was 30-40 The most common presenting

features was Vomiting/loose stools in37[55%],followed by Bleeding manifestation in 5[52%],most common sign was hepatomegaly 36[54%] in followed by icterus in 28%,in followed by pallor in 23%, The most common conditions was Dengue in 23[33.82%], followed by Bacterial septicemiain 13[19.12%],followed by Leptospirosis in12[17.65%], Malaria in11[16.18%], Undiagnosed infection in 9[13,24%]. The mortality in our study was 10.29%. Overall mortality in leptospirosis was 3(25%), Bacterial septicemia 2(22.22%), Undiagnosed infection 2(22.22%).

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