

Original Research Article

An Observational study of clinical profile of acute febrile illness during monsoon and post monsoon period in a tertiary centre of Bihar: A Prospective Study**Jamuna Pandey¹, Amit Kumar Mishra², Amit Kumar³, Sudhir Kumar^{4*}, Samir Kumar⁵**¹Senior Resident, Department of General Medicine, IGIMS, Patna, Bihar, India²Associate Professor, Department of General Medicine, IGIMS, Patna, Bihar, India³Senior Resident, Department of General Medicine, IGIMS, Patna, Bihar, India⁴Additional Professor, Department of General Medicine, IGIMS, Patna, Bihar, India⁵Assistant Professor, Department of General Medicine, IGIMS, Patna, Bihar, India**Received: 13-09-2021 / Revised: 12-10-2021 / Accepted: 23-11-2021****Abstract**

Objective: To evaluate aetiology, clinical profile, signs and lab parameters altogether related complicated acute febrile illness among inpatients in a tertiary care clinic during monsoon and post monsoon period. **Materials & Method:** This was an observational review conducted in a tertiary care and research centre of Bihar. In this review we had incorporated the instance of patients who had admitted in the hospital with acute febrile illness during monsoon and post monsoon period. From clinical records aggregate information of laboratory, clinical, and demographic were gathered in predesigned proforma and examined. **Results:** Of the 198 cases studied 127 were dengue, 3 were hepatitis E, 29 were malaria, 28 were scrub or bush typhus fever, 6 were leptospirosis, and 5 were mixed infections. Over all major common symptoms are body ache (84.8%), headache (74.7%), nausea or vomiting (73.2%) apart of other symptoms like coloured urine (36.9%), abdominal pain (48.5%), diarrhea (15.2%), rash (20.2%) and shortness of breath (33.3%). As per statistical correlation symptoms, shortness of breath ($P=0.001$), coloured urine ($P=0.003$), diarrhea ($P=0.002$) had been noticed whereas other symptoms were not significantly associated. Rapid weak pulse (32.8%) was most common sign after tachypnoea (22.2%). Tachypnoea ($P=0.001$) and pedal edema ($P=0.001$) were clinical signs which were significantly associated with. Renal function parameters were little elevated with elevated serum creatinine and blood urea nitrogen along with high level of SGOT and SGPT. Majority of patients were affected with 3 organ followed by 2 organ and 4 organ damage. **Conclusion:** Treatment and determination of acute febrile illness were related with major complexity as there were diversity of etiological agents and similar clinical presentations. This study conclude that early referral can lead to minimise the morbidity and death related with acute febrile illness during monsoon and post monsoon period. Among acute febrile illness the most prevailing aetiologies were dengue, leptospirosis, scrub or bush typhus fever, malaria and major killer due to renal involvements and respiratory.

Keywords: Aetiology, Acute undifferentiated febrile illness, complication, monsoon, post monsoon.

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Introduction

Illness of < 1 week duration with no identified source defined as acute febrile illness (AFI) but still remain poorly characterized in many parts of the world as described in several researchers [1,2]. Due to their similar symptoms, AFI groups are often challenging to distinguish [3]. In tropical parts, among severely ill hospitalised patients 12% has been reported as mortality rate [4]. AFI can once in really difficult for the regarding doctor as the underlying finding of whose cause is frequently hypothetical. In a vast nation like India AFI aetiology might shift from one district to another. Finding of AFI is a test because of scant demonstrative devices, absent focal signs and manifestations and similarity in clinical presentation. In a vast geographically different country like India without any organ-specific symptoms any common infection like urinary tract infection (UTI) may present as AFI. Global migration, the burgeoning population, climate change and Rapid urbanisation might contribute to this problem [5-15].

There was a very small studies across country specially in eastern part of India like Bihar state. The study primarily aimed at assessing aetiology, clinical profile, laboratory parameters and signs significantly associated complicated AFI among inpatients in a tertiary care hospital.

Materials & Method

This observational review was led in a tertiary care and research centre of Bihar. In this review we had incorporated the instance of patients who had conceded in the hospital with AFI during storm and post rainstorm period. From clinical records aggregate information of laboratory, clinical, and demographic were gathered in predesigned proforma and analyzed.

Between organ specific complications and death associations were sought.

Patients with autoimmune disorders, haematological malignancies, those on immunosuppressant and having prior documented cardiovascular abnormalities were excluded from the study.

Enzyme-linked immunosorbent assay (ELISA) tests performed to detect the antigen involved like leptospira IgM, dengue IgM etc and PCR test was conducted is options were available to detect. This test results were retrieved from the care reports of the patients.

Descriptive statistics were determined for all factors. Multivariate calculated regression analyses were likewise completed to research cardiometabolic comorbidities related with general and central

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obesity. The SPSS software version 22.0 (SPSS Inc., Chicago, IL, USA) was used to conduct statistical analysis and the P values < 0.05 were statistically significant.

The ethics committee of Indira Gandhi Institute of Medical Sciences Patna, (1790/IEC/IGIMS/2020), had approved this study. Informed consents had been obtained from the participants who were involved in this study. Following the Declaration form of IGIMS, the studies had been conducted.

Results

During the study period of June 2019 to November 2019 total number of patients who were admitted in hospital with complicated febrile monsoon illness was 198 out of 672 who were diagnosed with the febrile illness including dengue, hepatitis E, malaria, leptospirosis and Enteric fever). 29.46% was the prevalence of AFI during monsoon and post monsoon period as came out in this study. Of the 198 cases studied 127 were dengue, 3 were hepatitis E, 29 were malaria, 28 were scrub typhus fever, 6 were leptospirosis, and 5 were mixed infections.

Table 1: Symptoms of patients with complicated febrile illness

Symptoms	Dengue (N= 127)	Malaria (N=29)	Scrub typhus fever (N=28)	Leptospirosis (N=6)	Hepatitis E (N=3)	Mixed infections (N=5)	Total (N=198)	P value
Body ache	111 (87.4%)	22 (75.9%)	25(89.3%)	5 (83.3%)	2 (66.6%)	3 (60%)	168 (84.8%)	0.41
Headache	98 (77.2%)	20 (69%)	22(78.6%)	3 (50%)	1 (33.3%)	4 (80%)	148 (74.7%)	0.71
Coloured urine	35 (27.6%)	11 (38%)	17(60.7%)	4 (66.7%)	2 (66.6%)	2 (40%)	73 (36.9%)	0.003
Abdominal pain	62 (48.8%)	14 (48.2%)	10(35.7%)	5 (83.3%)	2 (66.6%)	3 (60%)	96 (48.5%)	0.95
Diarrhea	12 (9.4%)	6 (20.7%)	4(14.3%)	2 (33.3%)	3 (100%)	3 (60%)	30 (15.2%)	0.002
Rash	33 (26%)	4 (13.8%)	0(0%)	2 (33.3%)	0	1 (20%)	40 (20.2%)	0.031
Nausea / Vomiting	99 (78%)	17 (58.6%)	17(60.7%)	4 (66.7%)	3 (100%)	4 (80%)	145 (73.2%)	0.064
Shortness of breath	32 (25.2%)	14 (48.3%)	13(46.4%)	5 (83.3%)	1 (33.3%)	1 (20%)	66 (33.3%)	0.001

As demonstrated in table 1 over all major common symptoms are body ache (84.8%), headache (74.7%), nausea or vomiting (73.2%) apart of other symptoms like coloured urine (36.9%), abdominal pain (48.5%), diarrhea (15.2%), rash (20.2%) and shortness go breath (33.3%). Statistical correlation symptoms like shortness of breath (P=0.001), coloured urine (P=0.003), diarrhea (P=0.002) were associated with complications whereas other symptoms were not significantly associated.

Table 2: Sign of patients with complicated febrile illness

Sign	Dengue (N= 127)	Malaria (N=29)	Scrub typhus fever (N=28)	Leptospirosis (N=6)	Hepatitis E (N=3)	Mixed infections (N=5)	Total (N=198)	P value
Ascitis	11 (8.6%)	3 (10.3%)	2(7.14%)	1 (16.7%)	0	0	17 (8.6%)	0.82
Week pulse	43 (33.9%)	8 (27.6%)	8(28.6%)	3 (50%)	2 (66.6%)	1 (20%)	65 (32.8%)	0.65
Hepatomegaly	12 (9.4%)	3 (10.3%)	3(10.7%)	3 (50%)	0	0	21 (10.6%)	0.32
Splenomegaly	6 (4.7%)	2 (6.9%)	1(3.6%)	2 (33.3%)	0	0	11 (5.5%)	0.74
Pedal edema	12 (9.4%)	9 (31%)	6(21.4%)	4 (66.7%)	0	1 (20%)	32 (16.2%)	0.001
Tachypnoea	19 (15%)	10 (34.5%)	12(42.9%)	3 (50%)	0	0	44 (22.2%)	0.001

As demonstrate in table 2, rapid week pulse (32.8%) was most common sign after tachypnoea (22.2%). Tachypnoea (P=0.001) and pedal edema (P=0.001) were clinical signs which were significantly associated with.

Table 3 A: Laboratory investigation of patients with complicated febrile illness

Parameters	N(%)
Hemoglobin	
< 3 g %	1 (0.5%)

3 - 6.9g%	6 (3%)
7-9.9 g%	56 (28.3%)
10-12 g%	63 (31.8%)
> 12 g%	72 (36.4%)
Platelet count	
< 20,000	38 (19.2%)
20,000 - 40,000	45 (22.7%)
41,000 - 60,000	27 (13.6%)
61,000 - 80,000	21 (10.6%)
> 80,000	67 (33.8%)

Table 3 B: Laboratory investigation of patients with complicated febrile illness

Parameters	Average (Range)
Renal Function Test	
Blood Urea Nitrogen	27.7834 (4.30-198)
Serum Creatinine	1.9007 (0.50-15.48)
Liver Function Test	
SGOT (AST)	321 (3-5001)
SGPT (ALT)	169 (5-2774)

As demonstrate in table 3A, lesser haemoglobin or anaemia was in lesser number where as maximum number of patients were having haemoglobin level > 12g% (36.4%). Platelet count lesser than 20000 were observed in only 19.2% of patients where as maximum number of patients were having platelet count > 80,000. Table 3B revealed that renal function parameters were little elevated with elevated serum creatinine and blood urea nitrogen along with high level of SGOT and SGPT.

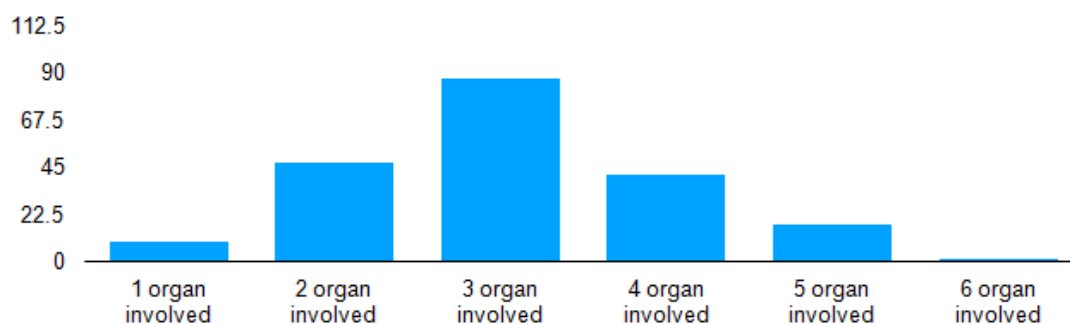
**Fig 1: Organ involvement**

Figure 1 demonstrated the frequency of affection of organ system in complicated febrile illness. Maximum number of patients were affected with 3 organ followed by 2 organ and 4 organ damage (figure 1).

Discussion

In each during monsoon and even in post monsoon the number of patients who suffer from fever increases. In the current study dengue, hepatitis E, malaria, leptospirosis and Enteric fever were predominantly more as compare to other infections which in line with the previously documents studies [15,16]. It was also observed in current study that the male was more exposed with the infection as compared to female. The actual region is though uncertain but it can

be presumed that immigration of young male population to metropolitan cities like Patna and males were more exposed to transmission of vector-borne diseases and mosquitoes with the predominantly outdoor occupational exposure [17,18]. Sharma et al and Malakar in Assam [19] and also Owais et al in Pakistan [20] had similar findings as that of our own study where an increase in typhoid fever was found. To make an etiological conclusion simply dependent on serological tests, doctors should know more statistics.

The recurrence of affection of organ system in confounded febrile illness. Maximum number of patients were affected with 3 organ followed by 2 organ and 4 organ damage. Similar observation was also noticed by earlier researcher [21,22]. As noticed in our study that among population of the 198 cases studied 127 were dengue, there were 19.2% patients presented with very low platelet count.

There were several limitations for this study. So many potential threats like hanta virus, spotted fever, chikungunya virus and scrub typhus were not routinely tested. Due to financial constraints a broader serologic testing was not able to be performed. The chance of under diagnosis of cases can not be ruled out because of study reports done by treating physician.

Conclusion

Treatment and analysis of acute febrile illness were related with significant intricacy as there were variety of etiological specialists and similitude in clinical presentation. This review infers that early reference can prompted decrease the morbidity and mortality related with AFI during monsoon and post monsoon period. Among AFI, the most prevailing aetiologies were dengue, malaria and leptospirosis and significant killer because of renal involvements and respiratory.

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Conflict of Interest: Nil **Source of support:** Nil