Original Research Paper



A CLINICAL STUDY OF PATIENT WITH FEBRILE ILLNESS HOSPITALIZED IN HAMIDIA HOSPITAL BHOPAL

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ADSIRACI the concerned geographic area would help in limiting the vast diagnostic workup to find aetiological agent and guide to an optimal treatment to avoid unwanted usage of antibiotics and antimalarials. The present study was thus conducted to study etiological, hematological, clinical profile of patients presenting with undifferentiated febrile illness. Methodology: This was a cross sectional study on adults with acute febrile illness admitted in tertiary care Hospital Bhopal for a period of 2 years on acute illinfected patient belonging to age group of 18-70 years. Detailed history regarding presenting complaints along with findings of general and systemic examination were documented in questionnaire. Blood samples were subjected to investigations to identify underlying etiology. Results: Mean age of 200 patients presenting with undifferentiated febrile illness was 39.67±17.4 years. Acute febrile illness without localizing sign was documented in 30% cases followed by LRTI (16.5%), CKD (6.5%), pneumonia (6%) and TBM (5.5%). WBC counts were raised (>11000) in 30% patients indicative of bacterial etiology whereas it was WBC counts were reduced in 2% patients suggestive of viral etiology. Platelet counts were decreased in around 43.5% patients in present study. Malarial parasite was observed in 1 (0.5%) patient whereas Widal test was positive in 3.5% patients. Conclusions: Knowledge regarding cause and clinical profile of AFIs in particular geographical area is helpful in early diagnosis and management such cases. In present study, the febrile illness presented without localizing sign whereas malaria and enteric fever were confirmed in only few cases. However non-specific test such as CBC and RFT, LFT were helpful in identifying underlying etiology as bacterial or viral.

KEYWORDS : acute febrile illness, etiology, hematological profile, tertiary care centre

INTRODUCTION

Febrile illness remains the most common cause leading to health seeking behavior of patients as well as hospitalizations among adults and children in urban and rural regions of India.^[1,2] Febrile illness are caused by diverse microbial pathogens and the pathogen depend upon various factors. In developed countries viral agents are the most common cause of febrile illness whereas in the developing countries, the etiologies of febrile illness includes potentially significant infections such as malaria, enteric fever, rickettsiosis, leptospirosis, brucellosis, dengue fever, chikungunya and Japanese encephalitis.^[3,4] Apart from this, in a resource poor setting like India, etiology for majority of patients remain unknown and the treatment is rather generic, typically with antipyretics and antibiotics.^[5]

Acute febrile illness is defined as any illness associated with fever of 2 weeks or shorter in duration, rapid in onset, caused by diverse pathogens without any evidence of organ or system-specific aetiology.⁽⁶⁾ It is common in the tropics and subtropics regions. However, acute undifferentiated febrile illness is defined as AFI with no localising sign and symptoms. ⁽⁶⁾The causes for undifferentiated febrile illness are variable and need a systematic approach to identify the cause of appropriate therapy.⁽⁷⁾The non-specific sign and symptoms of undifferentiated febrile illness along with lack of availability of accurate diagnostic modality often lead to delay in diagnosis and often leads to irrational use of antibiotics and antimalarials.

diagnosed using simple tests such as peripheral smear examination or rapid diagnostic tests (RDTs) for malaria or dengue.^[8,9] While few aetiologies require more sophisticated tests such as ELISA for rickettsial infections, MAT or ELISA for leptospirosis or PCR based tests for paramyxoviruses.^[10,11] Based upon the availability of various diagnostic modalities, majority of the undifferentiated febrile illness remain undiagnosed.

A better understanding of the prevalence and causes of undifferentiated febrile illness in the concerned geographic area would help in limiting the vast diagnostic workup to find aetiological agent and guide to an optimal treatment to avoid unwanted usage of antibiotics and antimalarials. The present study was thus conducted to study etiological, hematological, clinical profile of patients presenting with undifferentiated febrile illness.

Methodology: The present study was conducted as a cross sectional study on adults with acute febrile illness admitted in Department of Medicine, Gandhi Medical College and Associated Hamidia Hospital, Bhopal M.P for a period of 2 years i.e. from 1st July 2018 to 30th June 2020. The inclusion criteria was acute illinfected patient belonging to age group of 18-70 years and patient giving consent for study. However, severely sick patients requiring ventilator support, patients <18 years or >70 years of age and not willing to participate in the study were excluded.

However, majority of undifferentiated febrile illness can be

After obtaining ethical clearance from Institute's ethical committee, written consent was obtained from all the patients.

Details regarding sociodemographic variables such as age, gender along with phone number and address were noted at the time of admission using a pretested semi structured questionnaire. Detailed history regarding presenting complaints, past history, dietary history, addiction and family history were also recorded in questionnaire. General examination along with anthropometric measurements such as height, weight were documented and vitals i.e. pulse, BP, Respiratory rate and temperature were also recorded and documented in questionnaire. All the patients were further subjected to detailed systemic examination. Blood samples were collected from all the patients under aseptic precautions at admission and were subjected to complete blood examination including WBC and platelet counts, renal function tests, liver function tests, peripheral smear for malarial parasite, lipid profile, RBS and Widal test. Urine samples were collected under aseptic precautions and subjected to Urine Routine and microscopy.

Statistical Analysis: Data was compiled using MsExcel and analysed using SPSS version 20.0 for Windows (IBM Corporation Armonk, NY, USA. Frequency and percentage were calculated.

RESULTS

A total of 200 patients fulfilling the inclusion criteria were included in the study. Mean age of patients presenting with undifferentiated febrile illness was 39.67 ± 17.4 years and majority of patients belonged to 21 to 30 years of age (24.5%) followed by 20.5% patients belonging to 41 to 50 years of age. Only 4.5% patients belonged to > 70 years of age. Slight female preponderance with a male to female ratio of 0.94:1 was observed in present study. About 51.5% patients in present study were females.

Table 1-Distribution according to provisional diagnosis

Provisional diagnosis	Frequency	Percentage
	(n=200)	_
Acute febrile illness	60	30
LRTI	33	16.5
CKD with AFI	13	6.5
Pneumonia	12	6.0
TBM	11	5.5
Acute exacerbation of COPD with	8	4
AFI		
AKI with sepsis	6	3
Acute viral fever	5	2.5
CLD with AFI	4	2
Koch Abdomen	4	2
Meningitis	4	2
Pleural effusion	4	2
Sickle cell disease with AFI	4	2
AFI with obstructive uropathy	3	1.5
Sepsis with MODS	3	1.5
DM with sepsis	3	1.5
Febrile encephalopathy	3	1.5
AGE with sepsis	2	1
CVA with rthydronephrosis with RF	2	1
Emphysema with renal calculi	2	1
Thyroiditis	2	1
Splenomegaly with AFI	2	1
UTI	2	1
Other	5	2.5

Acute febrile illness was the most common diagnosis observed in 30% cases in present study. This was followed by LRTI (16.5%), CKD (6.5%), pneumonia (6%) and TBM(5.5%). Other causes included Enteric fever, Nephrotic syndrome, PID, Malaria, Tuberculoma attributed to 0.5% cases each of febrile illness.

		Frequency (n=200)	Percentage
Pallor	Present	119	59.5
	Absent	81	40.5
Intomia	Present	25	12.5
Icterus	Absent	175	87.5
TTt	61-100	79	39.5
108.9±16.8	101-120	87	43.5
	>120	34	17
BP	Normal	68	34.0
	Stage I	75	37.5
	Stage II	27	13.5
	NA	30	15
Temp 102.4±1.1	100	4	2.0
	101	43	21.5
	102	76	38.0
	103	33	16.5
	104	44	22.0

Pallor was observed in 59.5% patients whereas about 12.5% patients were icteric. Tachycardia is a characteristic feature of fever. This was represented well in present study, i.e. 50.5% patients had tachycardia (HR>100); of them heart rate was >120 in 17% patients. About 37.5% patients in present study had stage I hypertension and stage II hypertension was observed in 13.5% patients. BP could not be recorded in 15% patients. Raised temperature of varying severity was observed in all patients.

Table 3-	Distribution	according to	Investigations

		<u> </u>	
Investigations		Frequency (n=200)	Percentage
	<5	11	5.5
Hb	5-7	46	23
	8-8.9	21	10.5
	9-9.9	55	27.5
0.0±2.2	10-10.9	29	14.5
	11 - 11.9	8	4.0
	>12	30	15.0
TT C	<4000	4	2.0
	4000-11000	136	68.0
9225±404	11000-15000	54	27.0
	15000 +	6	3.0
	20-40	6	3.0
Neutrophils	41-70	91	45.5
70.6±11.23	71-80	78	39.0
	>80	25	12.5
т 1 ,	<20	137	68.5
Lymphocytes	21-45	53	26.5
22.83±10.88	>45	10	5.0
Monocytes	0-8	184	92.0
4.5±3.8	>8	16	8.0
	0-6	187	93.5
Losinophils	>6	8	4.0
2.93±1.96	NA	5	2.5
	<1.5	87	43.5
Platelets	1.5-4.5	107	53.5
1.68 ± 1.9	>4	1	0.5
	NA	5	2.5
TT	<20	21	10.5
Urea 44.4+27.2	20-40	125	62.5
44.4±37.2	>40	54	27.0
Currentinium	<0.8	91	45.5
2.1±3.44	0.8-1.2	61	30.5
	>1.2	48	24.0
N	<136	48	24.0
Nα 1201±01	136-145	121	60.5
139.1±8.1	>145	31	15.5
IZ	<3.5	36	18.0
K 205±071	3.5-5	156	78.0
3.95±0.71	. г	0	4.0

VOLUME - 10, ISSUE - 03, MARCH - 2021 • PRINT ISSN No. 2277 - 8160 • DOI : 10.36106/gjra

Bilirubin	0.1-1.0	172	86.0
1.42 ± 3.46	>1	28	14.0
SGOT	<40	89	44.5
76.22 ± 89.42	>40	111	55.5
SGPT	<45	153	76.5
52.62 ± 80.65	>45	47	23.5

Hemoglobin in majority of patients was in the range of 9 to 9.9 gm (27.5%) whereas it was in the range of severe anemia (5-7gm) in 23% cases. About 5.5% patients had Hb less than 5 gm/dl. WBC counts were raised (>11000) in 30% patients indicative of bacterial etiology whereas it was WBC counts were reduced in 2% patients suggestive of viral etiology. Platelet counts were decreased in around 43.5% patients in present study.

Serum urea was raised (>40) in 27% patients and creatinine was high (>1.2) in 24% patients. Hyponatremia, hypernatremia, hypokalemia and hyperkalemia was observed in 24%, 15.5%, 18% and 4% patients respectively.

Serum bilirubin was deranged in 14% patients in present study, SGOT and SGPT was raised in 55.5% and 23.5% patients respectively in present study.

Table 4-	Distribution	according to	Other inv	estigations

Other Investigations		Frequency (n=200)	Percentage
DGMD	Positive	1	0.5
PSIVIP	Negative	199	99.5
Widal	Positive	7	3.5
	Negative	193	96.5

Out of 200 patients, malarial parasite was observed in 1 (0.5%) patient indicating malaria as a cause of febrile illness. Widal test suggestive of typhoid as a cause of fever was positive in 3.5% patients in present study whereas it was negative in rest of the study participants.

DISCUSSIONS

Acute febrile illness has been characterized by a rapid onset of high-grade fever along with symptoms such as headache, chills or muscle and joint pain and are amongst the commonest cause for which individuals seek health care.^[12]

In presents study, mean age of patients was 39.67 ± 17.4 years and female preponderance with a male to female ratio of 0.94:1 was observed. Acute febrile illness without any localizing signs was the most common diagnosis (30% cases) followed by LRTI (16.5%), CKD (6.5%), pneumonia (6%) and TBM (5.5%) in present study. In a similar study by Andrews et al, the most common etiology was dengue in 43.5% whereas in 29.9%, the exact actiology could not be identified. Leptospirosis, enteric fever, malaria, respiratory tract infection, urinary tract infection and typhus were also documented in few cases of acute febrile illness in reference study.^[13]In another prospective study conducted by Abhilash et al in South India, Scrub typhus was the most common cause of AUFI (35.9%) followed by dengue (30.6%), malaria (10.4%), enteric fever (3.7%), and leptospirosis (0.6%).^[4]The observed difference between present study and reference study could be due to difference in geographic area between both the studies.

Fever is characterized by increase in the body temperature, usually by 1° to 4°c. It is one of the most prominent clinical manifestations of acute phase response, especially when inflammation is associated with infection.⁽¹⁴⁾ Raised temperature (>100°F) was documented in all patients.

Clinical features and blood parameters depend upon underlying etiology. Raised WBC counts (>11000) was observed in 30% patients indicative of bacterial etiology whereas it was reduced in 2% patients suggestive of viral etiology. Platelet counts were decreased in 43.5% patients in present study. In present study malarial parasite was observed in 1 (0.5%) patient and Widal test was positive in 3.5% cases only. Prasad et al in their systematic review showed that bacterial and fungal bloodstream infections, bacterial zoonoses, malaria, and viral infections were leading causes of severe febrile illness.[15] Chaudhary et al in their study compared Hematological Parameters in Various Acute Febrile Illnesses. They documented malaria in 17%, dengue in 28% and typhoid in 16.3%. Other causes included UTI, meningitis and non-specific fever. In the reference study, reduced Packed cell volume (PCV) showed a statistically significant correlation in malaria whereas in patients with dengue, a more reduction in platelet count, leucopenia with lymphocytosis and 56% cases with reduced PCV were noted. Increase in TLC and neutrophil count was consistent features seen in UTI and meningitis.^[16]

CONCLUSIONS

Knowledge regarding cause and clinical profile of AFIs in particular geographical area is helpful in early diagnosis and management such cases. In present study, the febrile illness presented without localizing sign whereas malaria and enteric fever were confirmed in only few cases. However nonspecific test such as CBC and RFT, LFT were helpful in identifying underlying etiology as bacterial or viral.

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