

Clinico-Social Profile And Antibiotic Uses in Pediatric Fever Cases Attending At Out Patient Department of Medical College, Kolkata.

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Abstract:

Introduction: Fever is one of the commonest symptoms presented by patients to a healthcare provider. However, most of these fever cases are poorly described which affects the outcomes. Hence it is essential to understand clinico-social profile of fever cases and their management.

Objectives: The objectives were to study the socio-demographic characteristics, classification of fever, pattern of antibiotic uses and distribution of risk factors among children attending pediatric OPD with fever.

Methodology: It is an institution based cross-sectional, observational study, conducted in Pediatric Out Patient Department of Medical College Hospital, Kolkata during February 2016 to January 2017. All the patients with chief complaint of fever constituted the study population. A 10% convenient sample (305 cases) was taken by systemic random sampling technique. Interview of the care giver with a pre-tested data collection form was done & clinical documents examined for collecting data. Data were tabulated, statistical averages were calculated and Chi-square test was done to test statistical significance at $p < 0.05$ as significance level.

Result: The largest group of study subjects were under 5 years of age (47.54%), male (58.69%), Hindu (61.6%) and urban resident (76.07%). Risk factors for transmission of infectious fever, which were included in the study were absent in most children. Acute respiratory tract infection (72.46%) was the commonest cause of fever; 43.93% cases were treated with antibiotic and amoxicillin was the commonest agent (53.73%).

Conclusion: Understanding socio-clinical profile and management pattern of fever cases can build more confidence among clinician in managing fever in children.

Keywords: Fever cases, Antibiotic treatment, Pediatric Out Patient Department, Kolkata.

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I. Introduction

Fever or pyrexia (derived from Greek word 'Pyr' for 'fire') is one of the commonest symptoms with which patients present to a healthcare provider. Worldwide, it has been estimated that nearly 5% of all patients coming to the emergency departments complain of fever, a value which jumps to nearly 60% when allied with other associated symptoms. The human body temperature is maintained in the range of 97.7 – 99.5⁰F in a natural environment. Human body surface temperature is usually higher in the evening in comparison to that of in the morning. That's why a morning temperature of more than 98.9⁰F and evening temperature of more than 99.5⁰F may be regarded as fever. The mean oral temperature is 36.8⁰±0.4⁰C (98.2⁰±0.7⁰F) with low levels at 6 A.M and higher levels at 4 – 6 P.M. The maximal normal oral temperature is 37.2⁰C (98.9⁰F) at 6 A.M. and 37.7⁰C (99.9⁰F) at 4 P.M. These values define the 99th percentile for healthy individuals. Based on the studies, an A.M. temperature of >37.2⁰C (>98.9⁰F) or a P.M. temperature of 37.7⁰C (>99.9⁰F) would define a fever.¹ Temperature above 38⁰C (101⁰F) orally, above 38.9⁰C (102⁰F) rectally, or above 37.8⁰C (100⁰F) or higher taken axillary (armpit) or measured by equivalent method.²

A seemingly innocent concept but the pathophysiology and epidemiological significance of fever is enormous. The World Health Organization (WHO) estimates that 50 to 100 million infections occur yearly, including 500,000 Dengue Hemorrhagic Fever (DHF) cases and 22,000 deaths, mostly among children.³ WHO estimates that there were 214 million cases of malaria in 2015.⁴ Both of these, along with a host of other febrile illnesses in children comprise a large number of Out Patient Department (OPD) attendance in India. However, most of these fever cases are poorly described and treated with antibiotic or antipyretic.

Fever is also a positive immunological attribute that enhances the inflammatory response, as Hippocrates himself said. "Give me the power to produce fever and I'll cure all disease." The current study,

hence essential for better understanding of the clinico-social profile of fever patient and management with antibiotic thereof.

II. Methodology

It is an Institution based observational study, cross-sectional in design, carried out in Pediatric Out Patient Department of Medical College Hospital, Kolkata during February 2016 to January 2017. The objectives were to study the socio-demographic characteristics of children attending pediatric OPD with complaint of fever, to classify fever according to associated symptoms, to assess magnitude of antibiotic usage for fever treatment and to elicit relative distribution of risk factors among different classes of fever. All the patients with the current complaint of fever during the period of study constituted the study population. A 10% sample was taken among the eligible patients selected by inclusion & exclusion criteria and systemic random sampling technique. A total of 305 patients constituted the sample. Inclusion criteria include – any patient with chief complaint of fever whether febrile or afebrile at the time of data collection and exclusion criteria include – seriously ill patient and care giver refusing to give consent. Informed consent was taken from the caregiver of the child. A predesigned and pre-tested data collection form was used for collecting data by face to face interview of the care-giver of the child. Document like prescriptions, OPD ticket, immunization card, referral slip and available records and reports were examined to collect additional information. Data were tabulated, statistical averages were calculated and Chi-square test was done to test statistical significance considering $p < 0.05$ as significance level.

III. Result

Total 305 children with age range being 1 – 144 months, mean 36.96 ± 63.12 years and median 24 months constitutes the study subjects. Among children, 179(58.69%) were male and 126(41.31%) were female. Maximum number of patients (47.54%) were in the age group of 12-59 months followed by 24.59% in the age group of 60 – 119 months, 16.72% in the age group of 6 – 11 months. (Table 1) Among patients 232(76.07%) were urban resident and 73(23.93%) came from rural area. Religion-wise 188(61.64%) were Hindu and 117(38.36%) were Islam. Among children under study, 6 fathers and 4 mothers died. Regarding education of parents, 46(15.38%) fathers and 63(20.93%) mothers were illiterate. (Table 2)

Among mothers, 17(5.65%) were working and others (94.35%) were home-maker excluding 4 died mothers. Among fathers, excluding 6 expired, 154(51.51%) were skilled labour, 70(23.41%) were unskilled labour, 42(14.05%) were in business, 29(9.70%) were in service and 4(1.34%) were unemployed. Among the children, 190(62.30%) had 2 – 5 family members, 96(31.48%) had 6-9 members and 19(6.22%) came from family of more than nine members. Among the children under study, 214(70.40%) children share the room with 3-4 persons, 46(15.08%) share 1-2 and 45(14.80%) share room with five or more persons. Excluding the 18 exclusively breastfed children remaining 287 children were enquired about the source of drinking water and its further household treatment. Among them, 177(61.67%) had municipality or corporation piped water supply, 102 (35.54%) had access to tubewell water and 8(2.79 %) uses ground water lifted by pump. 81(28.22%) use boiled water, 7 (2.44%) use water filter and 199(69.34%) do not have any practice of household treatment of drinking water. (Table 3)

Among 287 non-exclusively breastfed children, mothers of 213(74.22%) wash children's hand regularly, 72(25.08%) occasionally and 2(0.7%) never wash hands. Among those who wash hands, 113(39.64%) use soap and 172(60.36%) use only water for washing hands. Among 305 study subjects, 269(88.19%) given history of use latrine by the family members. For disposal of children's feces, 188(61.64%) use latrine, 29(9.50%) use drain, 25(8.19%) use street or field each, 5(1.65%) use pond and 33(10.83%) dispose it along with garbage. Among 305 study subjects, 186(60.98%) regularly uses mosquito net. Among the participants, 77(25.24%) had given history of similar illness in neighborhood and/or family within last 15 days.

Among the children under study, 221(72.46%) had 1st visit and 84(27.54%) had follow-up visit; 52(17.05%) came as referred and 253(82.95%) came by themselves. Among the 52 referred cases, 31(59.62%) referred by private practitioner, 16(30.76%) from lower tier Government Health facility and 5(9.62%) by indigenous medical practitioner.

Among the children, 144(46.23%) were febrile and others were afebrile at the time of data collection. The children under study had mean duration of fever of 5.66 ± 21.98 days, median 3 days, mode 2 days and range 1 to 120 days. The largest no. of children (76.97%) presented with fever of less than seven days, 49(16.12%) with 7-14 days and 21(6.91%) had more than 14 days.

Among the participant children, 181(59.34%) presented with cough, 51(16.72%) with running nose, 49(16.07%) with loose motion. Lesser no. of children presented with chief complaint of skin rashes (7.54%), nausea/ vomiting (7.21), convulsions (3.93%), jaundice (2.30%), headache (1.97%), breathing difficulty (1.64%) and pain abdomen (1.31%). (Diagram – 1)

Acute respiratory tract infection is the commonest cause of fever among both under and above-five children (77.93% and 57.83% respectively) though over ages incidence diminishes. Diarrhoea is the second most common association (5.41%) among under-fives where as among over-five children fever without localizing sign was the second common occurrence. (Table4)

During risk factor assessment incidence of febrile illnesses was analysed among children living with different number of family members in the house. It was seen that those who shared room with 3 or more number of family members suffered more in acute respiratory tract infection that those who shared up to 2 family members (73.36% and 68.89% respectively). (Table 5)

134(43.93%) were prescribed with antibiotic. Among them, 72(53.73) was treated with Amoxycillin, 20(14.93%) with Amoxycillin + Clavulnic Acid, 19(14.18%) with Azithromycin, 9(6.72%) with Cefixime, 5(3.73%) with Co-trimoxazole and 12(6.71%) with other (Vancomycin, Ofloxacin, ampicillin, ceftriaxone, cefotaxime, metronidazole, ornidazole, cefpodoxime) antimicrobials.

IV. Discussion

The current study revealed largest group of subjects were under 5 years of age (47.54%), male(58.69%), Hindu(61.6%) and urban resident(76.07%). Risk factors for transmission of infectious fever, which were included in the study were absent in most children. Acute Respiratory tract infection (72.46%) was the commonest cause of fever; 43.93% of all fever cases were treated with antibiotic and amoxicillin was the commonest agent (53.73%).Some literatures are available about pediatric fever⁵and fever of unknown oetiology in children^{6, 7}Many studies were done on fever but mostly on all age group participants and some cause and disease specific like enteric fever⁸, dengue,⁹infectious fever¹⁰and some others on pyrexia of unknown origin.^{11, 12, 13, 14} No exactly similar study like the present one was found which tried to reveal socio demographic aspect, risk factors and symptomatic classification of childhood fever cases.

V. Conclusion

Fever is more common in under-five children. Acute Respiratory tract infection tops the list of causation, followed by diarrhea. There is limited use of Antibiotic in management of fever cases, Amoxycillin being the commonest. Understanding socio-clinical profile and management pattern of fever cases can build more confidence among clinician in managing fever cases.

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Tables & diagrams:

Table 1. Distribution of children under study according to age. (n=305)

Age (in months)	Male No.(%)	Female No.(%)	Total No.(%)
0-5	10(38.46)	16(61.54)	26(8.52)
6-11	30(58.62)	21(41.18)	51(16.72)
12-59	87(60.00)	58(40.00)	145(47.54)
60-119	49(65.33)	26(34.67)	75(24.59)
≥120	3(37.5)	5(62.5)	8(2.62)
Total	179(58.69)	126(41.31)	305(100.00)

Table 2. Distribution of children under study according to education of parents.

Literacy	Father* No.(%)	Mother** No.(%)
Illiterate	46(15.38)	63(20.93)
Just literate	39(13.04)	35(11.63)
Primary educated	116(38.80)	127(42.19)
Secondary educated	50(16.72)	52(17.28)
Higher Secondary & above	48(16.06)	24(7.97)
Total	299(100.00)	301(100.00)

*6 fathers died, ** 4 mothers died

Table 3. Distribution of study population according to source of drinking water and its household treatment.

Source of drinking water	Water treatment			
	Boiling No.(%)	Filtering No.(%)	No treatment No.(%)	Total No.(%)
Municipality corporation supply	45(25.42)	3(1.69)	129(72.89)	177(100.00)
Tube well	32(31.37)	3(2.94)	67(65.64)	102(100.00)
Ground water lifted by pump	4(50.00)	1(12.50)	3(37.50)	8(100.00)
Total	81(28.22)	7(2.44)	199(69.34)	287(100.00)

*Household treatment of water for children, **18 children were exclusively breastfed.

Table 4. Classification of fever with respect to age group of the children.
(n=305)

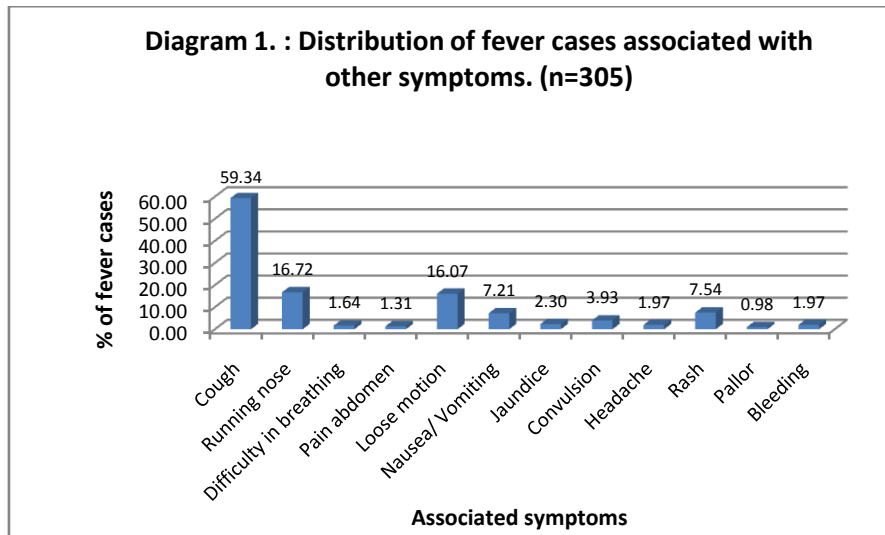
Types of Fever	Age group		
	<5 years No.(%)	≥5 years No.(%)	Total No.(%)
ARI	173(77.93)	48(57.83)	221(72.46)
Diarrhoea	12(5.41)	4(4.82)	16(5.25)
Fever with rash	9(4.05)	7(8.43)	16(5.25)
Fever with jaundice	6(2.70)	1(1.20)	7(2.30)
Fever with bleeding/ Pallor	2(0.90)	4(4.82)	6(1.97)
Fever with convulsion	5(2.25)	3(3.61)	8(2.62)
Fever without localized sign	8(3.60)	9(10.84)	17(5.57)
Others*	7(3.15)	7(8.43)	14(4.59)
Total	222(100.00)	83(100.00)	305(100.00)

*Collagen vascular disease, viral fever, enteric fever, urinary tract infection, herpes, ocular infection, head injury, headache, pain abdomen, vomiting.

Table 5. Distribution of different classes of fever with respect to the no. of person sharing the room with the child. (n=304)

Types of Fever	No. of person sharing room with the child		
	Up to 2 No.(%)	3 or more No.(%)	Total No.(%)
ARI/Pneumonia	31(68.89)	190(73.36)	221(72.70)
Diarrhoea	2(4.44)	14(5.41)	16(5.26)
Fever with rash	2(4.44)	13(5.02)	15(4.93)
Fever with jaundice	1(2.22)	6(2.320)	7(2.30)
Fever with bleeding/ Pallor	0(0.00)	8(3.09)	8(2.63)
Fever with convulsion	3(6.67)	3(1.16)	6(1.97)
Fever without localized sign	3(6.67)	14(5.41)	17(5.59)
Others	3(6.67)	11(4.25)	14(4.61)
Total	45(100.00)	259(100.00)	304(100.00)

*Data was not available for one study subject.



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