

Clinical Profile, Etiological Spectrum, and Outcomes of Acute Febrile Illness Among Children Admitted to a Tertiary Care Hospital

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Abstract

Introduction: Acute febrile illness (AFI) is one of the most common causes of pediatric hospital admissions in developing countries. Overlapping clinical features often make early diagnosis difficult, leading to increased risk of complications and mortality if not managed promptly.

Objectives: To study the clinical profile of acute febrile illness among hospitalized children, determine the etiological spectrum and laboratory findings, and assess treatment outcomes and complications associated with AFI.

Methodology: A hospital-based prospective observational study was conducted among 130 children aged 1 month to 12 years admitted with fever of less than 14 days duration in a tertiary care hospital. Detailed clinical history, examination, and relevant laboratory investigations were performed.

Results: The majority of children belonged to the 1–5 years age group (41.5%) with male predominance (56.9%). Fever was present in all cases, while cough/cold (52.3%), vomiting (33.8%), and loose stools (21.5%) were common associated symptoms. Thrombocytopenia showed significant association with dengue fever ($p < 0.001$). Complications were significantly higher among children with fever duration greater than five days ($p = 0.001$). Most children recovered successfully, while mortality was observed in 1.5% cases.

Conclusion: Acute febrile illness remains a major cause of pediatric hospitalization with diverse etiologies and overlapping presentations.

Keywords: Acute febrile illness, Children, Dengue fever, Thrombocytopenia, Pediatric hospitalization

Introduction

Acute febrile illness (AFI) is one of the most common causes of pediatric outpatient visits and hospital admissions, especially in developing countries. Fever in children may result from mild viral infections or serious bacterial, parasitic, and vector-borne diseases. In tropical countries like India, infections such as dengue, malaria, enteric fever, scrub typhus, respiratory tract infections, and urinary tract infections significantly contribute to pediatric AFI ^(1,2). Early clinical manifestations are often nonspecific and overlapping, making diagnosis difficult. Delayed diagnosis and inappropriate treatment may lead to complications, prolonged hospitalization, intensive care admission, and mortality ⁽³⁾.

Recent studies have shown changing trends in febrile illnesses due to urbanization, environmental changes, emerging infections, and antimicrobial resistance ⁽⁴⁾. Viral infections remain the most common cause of fever in children, while severe bacterial and vector-borne diseases continue to contribute to pediatric morbidity and mortality ⁽⁵⁾. Laboratory abnormalities such as thrombocytopenia, leukopenia, elevated inflammatory markers, and liver enzyme derangements are commonly associated with severe illness ⁽⁶⁻⁷⁾. Therefore, understanding the clinical profile and etiological spectrum of AFI is important for timely diagnosis and management.

The present study was conducted to evaluate the clinical profile, etiological spectrum, laboratory findings, and outcomes of acute febrile illness among children admitted to a tertiary care hospital.

Objectives

Primary Objective

- To study the clinical profile of acute febrile illness among hospitalized children.

Secondary Objectives

- To determine the etiological spectrum and laboratory profile of AFI.
- To assess treatment outcomes and complications associated with AFI.

Materials and Methodology

Study Design and Setting

This hospital-based prospective observational study was conducted in the Department of Pediatrics of a tertiary care teaching hospital over a period of 6 months.

Study Population

Children aged 1 month to 12 years admitted with fever of less than 14 days duration were included in the study.

Sample Size

Sample size was calculated using the formula:

$$n = \frac{4pq}{L^2}$$

Based on a previous prevalence of 48% reported by Khaleef et al. ⁽²⁾ and allowable error of 9%, the minimum sample size was 124. Considering possible incomplete data, 130 children were included.

Inclusion Criteria

- Children aged 1 month to 12 years.
- Fever duration less than 14 days.
- Consent provided by parents/guardians.

Exclusion Criteria

- Chronic infectious diseases such as tuberculosis or HIV.
- Malignancy or autoimmune disorders.
- Chronic liver or renal disease.
- Refusal of consent.

Study Procedure

After ethics committee approval and informed consent, detailed history and clinical examination were performed. Data regarding symptoms, duration of fever, and examination findings were recorded.

Investigations included complete blood count, CRP, liver and renal function tests, urine examination, blood culture, chest radiograph, dengue serology, malaria testing, Widal test, and scrub typhus serology wherever indicated.

Patients were managed according to institutional protocols, and outcomes including complications, PICU admission, recovery, referral, and mortality were documented.

Statistical Analysis

Data were analyzed using IBM SPSS Statistics version 26.0. Quantitative variables were expressed as mean $\pm$ standard deviation, while qualitative variables were expressed as frequencies and percentages. Chi-square test or Fisher's exact test was used for categorical variables. A p-value <0.05 was considered statistically significant.

Ethical Considerations

Institutional Ethics Committee approval was obtained before the study. Written informed consent was obtained from parents or guardians. Confidentiality of study participants was maintained.

Results

A total of 130 children with acute febrile illness were included. The majority belonged to the 1–5 years age group (41.5%), followed by 6–10 years (26.2%). Male children constituted 56.9% of cases. Fever was present in all children. Common associated symptoms included cough/cold (52.3%), vomiting (33.8%), loose stools (21.5%), abdominal pain (16.9%), and respiratory distress (15.4%). Hepatomegaly and splenomegaly were observed in 18.5% and 13.8% of children respectively.

Viral fever was the most common etiological diagnosis (32.3%), followed by dengue fever (21.5%) and enteric fever (13.8%). Other causes included pneumonia, malaria, urinary tract infection, and scrub typhus.

Laboratory abnormalities included elevated CRP (49.2%), anemia (44.6%), thrombocytopenia (30.8%), leukocytosis (27.7%), leukopenia (16.9%), and elevated liver enzymes (20%). Thrombocytopenia showed significant association with dengue fever (Chi-square = 36.82, $p < 0.001$). Complications were significantly more common among children presenting with fever duration greater than five days (Chi-square = 13.94, $p = 0.001$). Approximately 12.3% of children required PICU admission. Most children recovered and were discharged successfully (95.4%), while mortality was observed in 1.5% of cases.

Table 1: Age and Gender of children (n = 130)

Variable	Frequency (n)	Percentage (%)
Age Group		
1 month – 1 year	28	21.5
1 – 5 years	54	41.5
6 – 10 years	34	26.2
11 – 12 years	14	10.8
Gender		
Male	74	56.9
Female	56	43.1

Table 2: Clinical Profile of Children (n = 130)

Clinical Feature	Frequency	Percentage
Fever	130	100
Cough/Cold	68	52.3
Vomiting	44	33.8
Loose stools	28	21.5
Rash	16	12.3
Seizures	14	10.8
Abdominal pain	22	16.9
Bleeding manifestations	10	7.7
Hepatomegaly	24	18.5
Splenomegaly	18	13.8
Respiratory distress	20	15.4

Table 3A: Etiological diagnosis

Variable	Frequency	Percentage (%)
Etiological Diagnosis		
Viral fever	42	32.3
Dengue fever	28	21.5
Enteric fever	18	13.8
Malaria	10	7.7
Pneumonia	14	10.8
UTI	8	6.2
Scrub typhus	6	4.6
Others	4	3.1

Table 3B: Laboratory Findings

Variable	Frequency	Percentage
Laboratory Findings		
Anemia (Hb <11 gm/dL)	58	44.6
Leukocytosis	36	27.7
Leukopenia	22	16.9
Thrombocytopenia	40	30.8
Elevated CRP	64	49.2
Elevated liver enzymes	26	20.0

Table 4: Thrombocytopenia and Dengue Fever

Thrombocytopenia	Dengue Present	Dengue Absent	Total
Present	24	16	40
Absent	4	86	90
Total	28	102	130

Chi-square = 36.82, $p < 0.001$

Table 5: Duration of Fever and Complications

Duration of Fever	Complications Present	No Complications	Total
≤5 days	10	72	82
>5 days	20	28	48
Total	30	100	130

Chi-square = 13.94, $p = 0.001$

Table 6: Outcome of Acute Febrile Illness

Outcome	Frequency (n)	Percentage (%)
Recovered and discharged	124	95.4
PICU admission	16	12.3
Referred to higher centre	4	3.1
Mortality	2	1.5

Discussion

The present study evaluated the clinical profile, etiological spectrum, laboratory abnormalities, and outcomes of acute febrile illness among hospitalized children. The majority of children belonged to the 1–5 years age group with male predominance, findings similar to those reported by Darishetty et al. and Khaleef et al. ^(1,2).

Younger children are more vulnerable because of immature immunity and increased exposure to infections.

Cough/cold, vomiting, and loose stools were common associated symptoms in the present study, similar to findings reported by Patel et al. and Rauf et al. ^(8,9). The overlapping clinical features among viral fever, dengue, malaria, and enteric fever often make early diagnosis difficult.

Viral fever was the most common etiological diagnosis, followed by dengue fever and enteric fever. Similar findings were observed in studies conducted by Khaleef et al. and Darishetty et al. ^(1,2). The high proportion of dengue cases reflects the increasing burden of vector-borne diseases in tropical regions.

Among laboratory findings, thrombocytopenia was significantly associated with dengue fever. Similar observations were reported by Singh et al. and Patel et al. ^(8,10). Laboratory parameters such as thrombocytopenia and elevated CRP may therefore help identify severe illness early.

Children presenting with fever duration greater than five days had significantly higher complications, indicating the importance of early healthcare seeking and timely referral. Similar findings were reported by Sharma et al. ⁽³⁾.

Most children in the present study recovered successfully with appropriate treatment, and mortality was low. Early diagnosis, prompt laboratory evaluation, and timely management remain essential for reducing morbidity and improving outcomes in children with acute febrile illness.

Conclusion

Acute febrile illness is a common cause of pediatric hospitalization, particularly among younger

children. Viral fever and dengue were the predominant etiological diagnoses. Respiratory and gastrointestinal symptoms were common clinical features. Thrombocytopenia and elevated inflammatory markers were frequently associated with severe illness. Early diagnosis and timely management resulted in favorable outcomes in most children.

Limitations of the Study

The study was conducted at a single tertiary care center with a relatively small sample size and short duration, which may limit the generalizability of the findings.

Author Contribution

All authors contributed equally.

Conflict of Interest

Nil.

Source of Funding

Nil.

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