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Research Article

Acute Undifferentiated Fever in Pediatric Age Group: A Study of Clinical and Etiological Patterns

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Abstract **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 2–14 days with no localizing source. Fever is the main clinical symptom of various tropical infectious diseases. The objectives were to evaluate the microbiological aetiology of acute febrile illness (AFI) in pediatric patients using serological and bacterial cultures and to understand the clinical profile of acute febrile illness in pediatric patients **Materials and Method**: This is a Hospital based prospective and observational study present study emphasizes on the infective aetiologies of Acute Undifferentiated fevers with special emphasis on clinical and demographic features among patients admitted in a teaching hospital. All adult patients (≥18 years) admitted to the hospital with fever of less than 21 days duration, with temperature ≥38º C upon admission and non-detection of any specific foci of infection by history, physical examination and routine investigations were included. **Result**: In present investigation, an aggregate of 110 patients with intense identical fever were assessed out of these 59 (53.6%) were male and 51 (46.4%) were female. In this investigation typhoid fever was the most well-known reason for undifferentiated fever (30.0%) trailed by malaria (21.7%), dengue fever (18.1%), urinary tract disease (14.5%), Acute gastroenteritis (14.5%), Pneumonia (9.0%), Bronchiolitis (4.5%), Hepatitis (1.7%) and Pharyngotonsillitis (0.9%). **Conclusion**: Our data showed that the etiologic spectrum of acute undifferentiated fever was widely distributed in our region. Scrub typhus was the major cause of acute undifferentiated fever next to Dengue and Enteric fever. There were a bulk of cases which were not diagnosed and put under miscellaneous aetiology of fever, this made the second largest group in our study next to the Scrub Typhus group.

Keywords: Acute Undifferentiated Fever, Dengue, Enteric fever, Malaria, Scrub typhus

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 2–14 days with no localizing source. Fever is the main clinical symptom of various tropical infectious diseases. [1] 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, enteric fever etc with significant level of morbidity and mortality in the patients suffering during this period. A significant number includes mixed infections with the previously mentioned agents, while a few others still remain unidentified. [2] As an initial move towards the improvement of calculations that could control clinical administration of intense febrile ailments, it is essential to decide the study of disease transmission and clinic etiological and lab profile of the intense febrile ailments. [3] Fever is known to be the most common symptom in any systemic illness and has a huge role to play in morbidity. Every year, different parts of the world are affected by seasonal fevers. [4]Acute febrile illness (AFI) is classically defined as fever<2 weeks, rapid onset, caused by diverse pathogens without any system or organ-specific aetiology. Due to overlapping clinical presentation and limited microbiological services available in many low resource areas, very few patients receive an accurate and specific diagnosis at the community level, the relative importance of various causes of fever remains unknown. [5]Fever in children signifies systemic inflammation, typically in response to a viral, bacterial, parasitic, or less commonly, a non-infectious aetiology. Geographic settings and patients' ages can help point to the appropriate diagnosis and treatment if local epidemiology is well understood. AFI can be potentially fatal if the aetiology is not recognised and if not appropriately treated early. [6]Mostly seen in the tropical and subtropical regions, AFI has the highest incidence in childhood-majority between 4 and 5 years of age. In tropical countries like India, the most common reasons for AFI are Dengue, Malaria, Typhoid fever, Leptospirosis and Rickettsial infection. Acute respiratory infections and viral exanthematous fevers also affect children significantly. Population density and urbanisation may contribute to the emergence and re-emergence of some of these diseases in tropical regions. [7]In tropical countries, malaria is frequently the cause of AFI followed by other non-malarial reasons. Viral respiratory tract infections are more seen in middle east countries. [8] The most critical issue for primary-care physicians is to focus on the fever's aetiology and to rule out serious diseases. Distinguishing a patient with viral illness from one with

bacterial infection is essential as there may be considerable overlap in the clinical appearance. [9] Due to uncertainties and shortage of data in this field, clinical decision-making often gets compromised. There is deficiency of data in pediatric age group regarding AFI. Understanding the pattern of AFI and decoding various clinical and diagnostic clues will help to identify the aetiology, thereby expediting the treatment process. [10] In this context, we have conducted a cross-sectional retrospective study to determine the prevalence of local infectious diseases causing AFI in our geographical area. The objectives were to evaluate the microbiological aetiology of acute febrile illness (AFI) in pediatric patients using serological and bacterial cultures and to understand the clinical profile of acute febrile illness in pediatric patients.

MATERIALS AND METHODS

This is a Hospital based prospective and observational study present study emphasizes on the infective aetiologies of Acute Undifferentiated fevers with special emphasis on clinical and demographic featuresamong patients admitted in a teaching hospital. Inclusion criteria: All adult patients (≥18 years) admitted to the hospital with fever of less than 21 days duration, with temperature ≥38º C upon admission and non-detection of any specific foci of infection by history, physical examination and routine investigations.Exclusion criteria: Previously diagnosed cases of, Known fevers Collagen vascular disorders, Endocrine disorder, Malignancies Immunodeficient states, Fever of duration ≥21 days, Drug induced fever.Data entry and analysis: The data was entered in Microsoft Excel and analysed using Epi Data analysis V2.2.2.186 and STATA 12.0 software. The continuous variables like age, duration of fever and ESR at 1 hour were reported as Mean (SD) or median (Inter Quartile Range) based on distribution of data. The categorical variables such as gender, presence of symptoms (myalgia, jaundice, haemorrhage, conjunctival congestion, diarrhoea and cough or dyspnoea), test results (malaria slide examination, RDT for malaria, thyroid function test, sputum examination, dengue, scrub typhus, leptospirosis, Widal test, blood culture, urine culture, HIV, HCV, Hbs Ag), finding from chest X ray, USG findings and final diagnosis of undifferentiated fever were reported as proportions. In comparison analysis, the final diagnosis categories with less number of patients were excluded from analysis. The association between continuous variables [age, duration of fever and ESR at 1 hour] and the final diagnosis of undifferentiated fever were assessed using one way ANOVA or Kruskal Wallis test and the association between categorical variable and the final diagnosis of undifferentiated fever were assessed using Chi Square test or Fisher's exact test based the cell values. The p value of <0.05 was considered for statistical significance.Ethical consideration: The ethical approval for the study was obtained from the Institute Ethical committee of Medical College and Hospital. All ethical principles were adhered in the study.Data collection: All participants were briefed about the study in the language they comprehend and their willingness to participate in the study was obtained through informed consent form. Detailed clinical history was obtained from the selected patients and a thorough physical examination done for each. Blood, urine and sputum samples were taken from the

RESULTS

DISCUSSION

The present study demonstrated a postoperative wound infection rate of 25.3%, consistent with studies reporting rates between 20–35% in emergency abdominal surgeries[16],[17]. Emergency laparotomy inherently carries a high infection risk due to contamination and lack of preoperative optimization.

Advanced age emerged as a significant factor, likely due to reduced immune response and comorbid burden[18]. Diabetes mellitus was strongly associated with SSI, consistent with global evidence linking hyperglycemia to impaired neutrophil function and delayed wound healing[19].

Anemia significantly increased SSI risk, supporting findings by recent studies that tissue hypoxia compromises healing[20]. Duration of surgery >2 hours was also independently associated with infection, aligning with WHO evidence that prolonged operative exposure increases microbial colonization[21].

Contaminated and dirty wounds had the highest infection rates, similar to findings by Allegranzi et al., who reported exponentially increasing risk with wound contamination class[22]. Delay in presentation (>24 hours) significantly influenced infection rate, reflecting advanced peritonitis and bacterial load at surgery[23].

Microbiologically, Gram-negative bacilli predominated, particularly *E. coli*, consistent with abdominal source contamination[24]. Rising antimicrobial resistance necessitates culture-guided therapy and antibiotic stewardship[25].

Preventive measures such as timely surgery, glycemic control, perioperative antibiotic prophylaxis, anemia correction, and adherence to SSI prevention bundles are essential

CONCLUSION

Postoperative wound infection remains a common complication following emergency laparotomy. Diabetes, anemia, contaminated wounds, prolonged surgery, and delayed presentation are significant risk factors. Identification and optimization of modifiable factors can substantially reduce SSI burden and improve patient outcomes

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