

A Hospital Based Prospective Study to Assess the Various Bacterial Diseases Among Children Visited in Hospital

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Abstract

Background: Serious infections are usually defined as serious bacterial infections: pneumonia, sepsis, meningitis, pyelonephritis, bacterial gastro-enteritis, osteomyelitis and cellulitis. The present study was done to Assess the Various Bacterial Diseases Among Children Visited in Hospital. **Materials and Methods:** This prospective study was done to Assess the Various Bacterial Diseases Among Children Visited in Hospital. The sample size was 190 patients. After obtaining consent, a standardized pre-defined questionnaire containing clinical history and physical examination was filled in. The presence of SBI was confirmed using criteria. The recorded data was compiled, and data analysis was done using SPSS Version 20.0 (SPSS Inc., Chicago, Illinois, USA). P-value less than 0.05 was considered statistically significant. **Results:** The present study showed that the sample size for the study was 190 patients. In maximum patients' viral fever was present (32.10%). Bronchopneumonia was present in 19.47% followed by UTI (14.73%). **Conclusion:** The present study conclude that showed that in maximum patients' viral fever was present (32.10%). Bronchopneumonia was present in 19.47% followed by UTI (14.73%).

Keywords: Viral Fever, Bronchopneumonia, UTI, Bacterial Infections.

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Introduction

Fever in infants has been defined as a rectal temperature of 38°C (100.4°F) or higher. In older children, a rectal temperature of 38.4°C (101.1°F) or an oral temperature of 37.8°C (100°F) is generally considered abnormal[1]. Most young children with fever and no focus of infection present with a self-limiting viral illness that does not need any treatment and disappears without sequelae. Urinary tract infection is another important cause of fever in young children who are febrile with no focus of infection[2]. Children aged 2 to 36 months with fever without a source (FWS) are at risk of developing occult bacteremia (OB) and may subsequently develop serious bacterial infection (SBI)[3-7]. The underlying infectious disorder causing fever in children can range from mild and self-limiting illness such as upper respiratory tract infection to more serious viral and bacterial illnesses[8]. The overlapping manifestations of serious bacterial infections (SBIs) with other viral, fungal, parasitic and systemic inflammatory conditions and neoplasms further complicates diagnosis. The overreliance on clinical diagnosis is one of the reasons for irrational use of antibiotics[9]. The present study was done to Assess the Various Bacterial Diseases Among Children Visited in Hospital.

Materials and methods

This prospective study was done to Assess the Various Bacterial Diseases Among Children Visited in Hospital. The sample size was 190 patients.

Before the commencement of the study ethical approval was taken from the Ethical Committee of the institute and written consent was taken from the parent/guardian after explaining the study. Patients aged between 3months to 5years, admitted for fever and having an axillary temperature of 100°F (37.7°C) or more taken with mercury thermometer at the time of admission were included in the study. Children admitted with fever but having chronic co-morbidities: malignancy, renal failure, hepatic failure, congestive cardiac failure, and bone marrow aplasia, children on immunosuppressive drugs such as steroids, and HIV positive children were not included in the study. After obtaining consent, a standardized pre-defined questionnaire containing clinical history and physical examination was filled in. The questionnaire also contained epidemiological, clinical, hematological and biochemical parameters of the cases. The presence of SBI was confirmed by presence of at least one of the following criteria: 1) blood culture positive; 2) a child was considered to have bacterial pneumonia: if the child presented with breathlessness and had blood culture positive or if along with breathlessness, chest X-ray showed consolidation and C-reactive protein (CRP) value was more than 1000µg/dl. 3) a child was considered to have UTI if in a toilet trained child with suspected UTI midstream clean catch urine sample was culture positive and in non-toilet trained children with suspected UTI urine obtained by transurethral bladder catheterization was culture positive; 4) a child was diagnosed to have enteric fever when presentation was fever with malaise, headache, abdominal discomfort, coated tongue and Widal test positive with somatic antigen (O) and flagellar antigen (H) titers greater than 320 or blood culture was positive for *S. typhi*; 5) a child was considered to have bacterial meningitis in presence of clinical features suggestive of meningitis, with either blood culture and/or cerebrospinal fluid culture was positive. A fever was labelled as "no confirmed bacterial infection" when the above diagnosis was ruled out, thus viral fever was a diagnosis of exclusion. The recorded data was compiled and data analysis was done using SPSS Version 20.0 (

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SPSS Inc., Chicago, Illinois, USA). P-value less than 0.05 was considered statistically significant.

Results

The present study showed that the sample size for the study was 190 patients. In maximum patients viral fever was present (32.10%). Bronchopneumonia was present in 19.47% followed by UTI (14.73%).

Table 1: Prevalence of Serious bacterial infections in children

| Serious bacterial infections | N(%) |
|--|------------|
| Bronchopneumonia | 37(19.47%) |
| Viral fever (No confirmed bacterial infection) | 61(32.10%) |
| Urinary tract infection | 28(14.73%) |
| Febrile convulsion | 19(10%) |
| Enteric fever | 15(7.8%) |
| Bronchiolitis | 21(11.05%) |
| Bacterial Meningitis | 2(1.05%) |
| Upper respiratory tract infection | 2(1.05%) |
| Infective endocarditis in cardiac disease | 0(0%) |
| Miliary tuberculosis | 2(1.05%) |
| Dysentery | 3(1.57%) |
| Total | 190(100%) |

Discussion

There is very limited information on the incidence of serious infections in general practice. Most studies were performed in hospital. They have found serious infections such as pneumonia, meningitis, sepsis and bacterial gastroenteritis to be present in up to 25% of febrile infants presenting to the emergency department[10,11]. Byington CL et al did a study and found that for infants with viral infections, the occurrence of SBI was significantly lower than in infants without a viral infection (4.2% vs 12.3%). Rochester HR virus-positive (HR+) infants had significantly fewer bacterial infections than HR virus-negative (HR-) infants (5.5% vs 16.7%). When compared with HR- infants, HR+ infants were less likely to have bacteremia, urinary tract infection, or soft tissue infections, and HR+ infants had a similar occurrence of bacteremia as LR infants (0.92% vs 1.97%)[12].

The present study showed that the sample size for the study was 190 patients. In maximum patients viral fever was present (32.10%). Bronchopneumonia was present in 19.47% followed by UTI (14.73%). Craig JC et al. evaluate current processes by which young children presenting with a febrile illness but suspected of having serious bacterial infection are diagnosed and treated, and to develop and test a multivariable model to distinguish serious bacterial infections from self-limiting non-bacterial illnesses. The combined prevalence of any of the three infections of interest (urinary tract infection, pneumonia, or bacteraemia) was 7.2% (1120/15 781, 95% confidence interval (CI) 6.7% to 7.5%), with urinary tract infection the diagnosis in 543 (3.4%) cases of febrile illness (95% CI 3.2% to 3.7%), pneumonia in 533 (3.4%) cases (95% CI 3.1% to 3.7%), and bacteraemia in 64 (0.4%) cases (95% CI 0.3% to 0.5%). Almost all (>94%) of the children with serious bacterial infections had the appropriate test (urine culture, chest radiograph, or blood culture)[13].

Pathak A et al evaluated the epidemiological, clinical, hematological, and biochemical risks for SBI among the children admitted with fever. A total of 302 children were included in the study, out of which 47% (95% CI 41.4–52.7%) presented with SBI[14].

Conclusion

The present study concludes that showed that in maximum patients' viral fever was present (32.10%). Bronchopneumonia was present in 19.47% followed by UTI (14.73%).

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