ORIGINAL RESEARCH

Prevalence of Urinary Tract Infection in Infants with Unexplained Acute Fever

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ABSTRACT

Background: The present study was conducted for evaluating the prevalence of Urinary Tract Infection in Infants with Unexplained Acute Fever. **Materials & methods:** A total of 100 infants were enrolled. Complete demographic and clinical details of all the subjects was obtained. For calculation of point prevalence, all the 100 infants were divided into four study groups with 25 infants in each group as follows: infants aged less than 3 months, 3–6 months, 6–12 months, and children of 12 months to 24 months of age. Urinary tract infection was defined as detection of traces or higher levels of leucocyte esterase and/or nitrite in the test strips. Urine samples were obtained from all the specimens and were sent to laboratory for analysis. All the results were recorded and analysed using SPSS software. **Results:** Prevalence of urinary tract infection among subjects of age group of less than 3 months, 3–6 months, 6–12 months, and children of 12 months to 24 months of age was 48 percent, 40 percent, 32 percent and 20 percent respectively. Overall prevalence of urinary tract infection among infants with unexplained acute fever was 35 percent. **Conclusion:** Physicians need to carefully assess for UTI in infants with unexplained fever greater than 39 °C.

Key words: Urinary tract infection, infants, Fever

INTRODUCTION

Fever, a physiologic response characterized by an elevation of body temperature above normal daily variation, is one of the most common causes for medical consultation in children, being responsible for 15–25% of consultations in primary care and emergency departments.[1, 2] Although fever can be concerning to parents and caregivers, the prevalence of serious infections in children is low, estimated at <1% in primary-care settings in industrialized countries.[3]

Fever is a normal physiological response to illness that facilitates and accelerates recovery. There is no evidence that children with fever are at increased risk for adverse outcomes, though it is frequently a cause for concern among both parents and healthcare providers who fear it may be associated with increased morbidity, such as seizures, brain damage or death. There is confusion about how and whether to manage fever, and antipyretics are frequently prescribed or purchased over-the-counter (OTC) specifically to bring down body temperature in an ill child.[4, 5]

Urinary Tract Infection (UTI) is one of the most common bacterial infections in childhood. The infection may affect the upper urinary tract (referred to as pyelonephritis) or the lower urinary tract (referred to as cystitis). Unfortunately, it may be difficult, if not impossible, to distinguish pyelonephritis from cystitis based on clinical symptoms and signs, especially in infants and young children.[6, 7] Hence; the present study was conducted for evaluating the prevalence of Urinary Tract Infection in Infants with Unexplained Acute Fever.

MATERIALS & METHODS

The present study was conducted for evaluating the prevalence of Urinary Tract Infection in Infants with Unexplained Acute Fever. A total of 100 infants were enrolled. Complete demographic and clinical details of all the subjects was obtained. For calculation of point prevalence, all the 100 infants were divided into four study groups with 25 infants in each group as follows: infants aged less than 3 months, 3–6 months, 6–12 months, and children of 12 months to 24 months of age. All infants enrolled in the study underwent a standard evaluation by the managing physician at the

PED, with a history taking including the Paediatric Assessment Triangle and a physical examination. Fever of unknown origin was defined as having an axillary or rectal temperature of 38 °C or greater in the absence of cold or other respiratory signs/symptomsor diarrhoea in infants with a normal physical examination. Urinary tract infection was defined as detection of traces or higher levels of leucocyte esterase and/or nitrite in the test strips. Urine samples were obtained from all the specimens and were sent to laboratory for analysis. All the results were recorded and analysed using SPSS software.

RESULTS

Mean age of the infants of age group of less than 3 months, 3–6 months, 6–12 months, and children of 12 months to 24 months of age was 2.5 months, 4.9 months, 8.1 months and 15.6 months respectively. Prevalence of urinary tract infection among subjects of age group of less than 3 months, 3–6 months, 6–12 months, and children of 12 months to 24 months of age was 48 percent, 40 percent, 32 percent and 20 percent respectively. Overall prevalence of urinary tract infection among infants with unexplained acute fever was 35 percent.

Table 1: Demographic data

Groups	Mean age (months)	Boys (n)	Girls (n)
Less than 3 months	2.5	14	11
3 to 6 months	4.9	18	7
6 to 12 months	8.1	15	10
12 to 24 months	15.6	15	10

Table 2: Prevalence of urinary tract infection

Groups	Number	Percentage
Less than 3 months	12	48
3 to 6 months	10	40
6 to 12 months	8	32
12 to 24 months	5	20
Overall	35	35

DISCUSSION

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. 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. However, a few children may eventually develop occult bacteraemia that may be associated with serious bacterial infection.[8, 9]

Mean age of the infants of age group of less than 3 months, 3–6 months, 6–12 months, and children of 12 months to 24 months of age was 2.5 months, 4.9 months, 8.1 months and 15.6 months respectively. Prevalence of urinary tract infection among subjects of age group of less than 3 months, 3–6 months, 6–12 months, and children of 12 months to 24 months of age was 48 percent, 40 percent, 32 percent and 20 percent respectively. Our results were in concordance with the results obtained by Roberts KB et al who also reported similar findings. In their study, authors determined whether the rate is higher in febrile infants than in asymptomatic infants, and whether the yield justifies urine cultures in febrile infants. Urine cultures were done in 501 infants 0 to 2 years of age. The rate of confirmed urinary tract infections in the 193 febrile infants was 4.1%. All infections were in girls, with a rate of 7.4%. The rate of confirmed urinary tract infections in the 312 asymptomatic infants was 0.3%; again, all infections were in girls, with a rate of 0.7%. The rate in febrile girls was significantly higher than the rate in asymptomatic girls. The data support the advisability of culturing the urine of infant girls with unexplained fever.[10]

In the present study, overall prevalence of urinary tract infection among infants with unexplained acute fever was 35 percent. Because signs and symptoms are nonspecific in infants, collect a urine sample and test it using a urine dipstick. With the high rate of false-positive results, a specimen obtained using a perineal bag is helpful only when the result of a urine dipstick test is negative. If the result is positive (i.e., presence of nitrates or leukocytes), obtain another specimen by catheterization.If a urine dipstick in a urine specimen obtained by catheterization shows nitrites or leukocytes, the probability of urinary tract infection is high, and antimicrobial treatment should be started (Shaikh N et al).[11]

In another similar study conducted by Hassan RH et al, authors determined different causes of FUO and the possible diagnostic procedures.The study included children with a fever of 38.3° C or more documented by a health care provider and for which the cause could not be identified after 3 weeks of evaluation as an outpatient or after a week of evaluation in hospital.127 patients met the diagnostic criteria. Infectious diseases were the commonest causes of FUO in 46 cases (36.22%) followed by the miscellaneous causes in 38 cases (29.9%).[12] The point prevalence of UTI in children aged less than 2 years

presenting with high fever to the emergency department was assessed by Gonzalez M et al. They included a total of 1675 patients. Two hundred sixty infants (15.5%; 95% CI, 13.8–17.3%) received a diagnosis of UTI. The point prevalence of UTI in infants and toddlers with fever without source greater than 39 °C was higher in our study compared to previous studies of UTI prevalence, especially in male infants aged less than 6 months and female infants aged less than 12 months.[13]

CONCLUSION

Physicians need to carefully assess for UTI in infants with unexplained fever greater than 39 °C.

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