Auditing the Management of Childhood Urinary Tract Infections in a Regional Hospital

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Abstract

**Aim:** A clinical audit on urinary tract infection (UTI) management to identify deviations from published local guidelines and any areas of improvement. **Method:** Retrospective review of 2 cohorts of children below 2 years old admitted to paediatric wards of a regional hospital. Data were extracted according to structured questionnaires. The first cohort included children admitted for fever without foci of infection, and data were collected to evaluate the adequacy of screening for UTI. The second cohort included children with a diagnostic label of UTI. The diagnostic criteria, treatment and follow-up imaging tests were evaluated.

**Results:** Part I: 97 children were recruited. UTI was screened in 87.6% (23.7% by both dipsticks and bedside microscopy and 63.9% by dipsticks only). After an initial positive screening by dipsticks and/or bedside microscopy, only 44.4% had appropriately definitive tests by culture of a proper urine specimen (bladder tap/catheter/clean catch urine) whereas half of the cases had repeated bag urine screening. For patients who needed antibiotics immediately due to ill conditions on admission, proper urine was collected for culture in only 60%. Part II: 76 patients were recruited. UTI diagnosis was based on positive culture from a proper urine specimen in 92.1%, but of the 5 cases managed by doctors in Accident & Emergency Department or private practice, 4 (80%) were based on bag urine culture. All patients received appropriate antibiotics (mainly cefuroxime) covering the causative organisms (mainly *Escherichia coli*). Radiological investigations were arranged in >90% of patients, to look for urological abnormalities, vesicoureteric reflux or scarring, but there was a long waiting time (mean 2 months for ultrasound and 4-5 months for micturating cystourethrogram). Lastly, the documentation of clinical assessment and parental education were found to be less than adequate.

**Conclusion:** Though UTI was properly managed in most cases, areas of improvements were identified. The diagnosis might be missed by 1) not screening patients' urine in 12% of cases; 2) not doing both dipsticks and microscopy in 63.9% of cases; 3) not doing urine culture before empirical antibiotics therapy in 40% of such situations. UTI diagnosis might have been delayed by just repeating bag urine screening when it was already positive. Furthermore, UTI recurrences might be prevented by properly looking for clues of urological abnormalities and educating parents, and shortening the waiting time for urological imaging studies.

**Key words** Chinese children; Clinical audit; Clinical guidelines; Urinary tract infection

Introduction

Urinary tract infection (UTI) is a common childhood infection affecting about 5% of febrile children.1 Previous surveys have documented wide variations in the diagnosis and treatment of UTI.2 Suggested guidelines on its management have been published in North America3 and Europe.4,5 A local guideline on management of UTI in children below 2 years of age was introduced in 2002 among the public hospitals. It has been disseminated via the Hospital Authority intranet, the Hong Kong Journal of...