ANTIMICROBIAL UTILIZATION PATTERN OF URINARY TRACT INFECTION IN TERTIARY CARE HOSPITAL

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ABSTRACT

Objective: To study and analyze the pattern of antimicrobial utilization in urinary tract infection (UTI).

Methods: A descriptive retrospective study was conducted in tertiary care hospital for 6 months including both male and female patients of all age groups. Case sheets diagnosed with UTI based on ICD-10 disease coding were collected from medical records department. The demographic data and prescription pattern of each case sheet were evaluated in detail. Drug utilization pattern was compared among different age groups of patients.

Results: A total of 108 patients were included in the study, out of which 44.4% were males, and 55.6% were females. Most of the patients were in 40–60 years age group (40.7%). UTI confirmed by culture in 59.25% patients, in which Escherichia coli was isolated in 35.9% patients followed by Klebsiella species (13.06%) and Pseudomonas aeruginosa (7.8%). Cephalosporins (70.37%) were most commonly used antibiotic followed by fluoroquinolones (38.89%), penicillins (29.63%), and azithromycin (15.75%). The most commonly used aminoglycoside followed by gentamicin. Mean duration of treatment was 6.2±3.92 days.

Conclusion: Third generation cephalosporins (ceftriaxone and cefotaxime) were used as first line drug in most of the cases irrespective of the causative organism. This group should be reserved for complicated UTIs.

Keywords: Urinary tract infections, Escherichia coli, Cephalosporins, Fluoroquinolones.

INTRODUCTION

Drug utilization has been defined as the marketing, distribution, prescription, and use of drugs in society with special emphasis on the resulting medical and social consequences [1]. For the past few decades, more attention is being given to rational prescribing. Drug utilization studies are playing a major role in detecting any faults in the therapy and also find out solutions to rectify the same.

Rational drug prescribing is defined as “the use of the least number of drugs to obtain the best possible effect in the shortest period and at a reasonable cost” [2-4]. Monitoring of prescription and drug utilization studies could identify the associated problems and provide feedback to the prescriber so as to create awareness about the irrational use of drugs [5-7]. It is necessary to define the prescribing pattern and to target the irrational prescribing habit for sending a remedial message [8].

Urinary tract infection (UTI) is defined as the presence of bacteria in urine along with symptoms of infection [9]. UTI is an extremely common condition that occurs in both male and female of all the ages. The prevalence and incidence of UTI is higher in women than in men due to several clinical factors including anatomic differences, hormonal effects, and behavioral pattern [10]. Etiology is influenced by factors such as age, diabetes, spinal cord injury, urinary catheterization, and other factors [11]. UTI is mostly caused by gram-negative aerobic bacilli found in the gastrointestinal tract. These are Escherichia coli, Klebsiella, Enterobacter, Citrobacter, and Proteus. Other common pathogens include Staphylococcus epidermidis, Staphylococcus saprophyticus, and Enterococcus species which presumably result in UTI following colonization of the vagina or perianal skin [12].

The goals of the management of UTI are: (i) Prompt diagnosis of concomitant bacteremia; (ii) prevention of progressive renal disease by prompt eradication of the bacterial pathogen, identification of abnormalities of the urinary tract and prevention of recurrent infections; and (iii) resolution of the acute symptoms of the infection. Delay in initiation of the antibacterial therapy is associated with an increased risk of renal scarring. The initial choice of antibacterial therapy is based on the knowledge of the predominant pathogens in the patient’s age group, antibacterial sensitivity patterns in the practice area, the clinical status of the patient, and the opportunity for close follow-up. The patients with significant urinary tract abnormalities and/or frequent symptomatic UTI may benefit from prophylactic antibacterial therapy. The main long-term consequence of UTI is renal scarring which may lead to hypertension and end-stage renal disease. Prevention of recurrent UTI focuses on detection and correction if possible, of urinary tract abnormalities [13]. Empirical treatment goals should be based on accurate and up-to-date antimicrobial susceptibility. The objective was to study the distribution of UTI, to find out the antimicrobial sensitivity profile of microorganisms responsible for UTI, and to evaluate the antimicrobial utilization pattern in UTI in tertiary care hospital at Karad.

METHODS

The study was conducted in the Department of Pharmacology, Krishna Institute of Medical Sciences, Karad, Maharashtra. This is the retrospective record based study of patients admitted to Krishna Hospital and Research Centre, Karad, Maharashtra with a diagnosis of UTI during the period of September 2012-February 2013. The case sheets were collected from the medical records department based on the ICD-10 disease coding. The demographic data and prescription pattern of