

# Management of patients with clinically suspected pyelonephritis in a resource poor setting

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## Abstract

**Background:** This study aimed to determine the aetiology, antimicrobial susceptibility pattern and the clinical response to antibiotics in pyelonephritis.

**Methods:** Bacterial culture and ABST, clinical response and onset of renal failure were analyzed in 240 clinically suspected pyelonephritis patients admitted to Medical Units at Base Hospital, Tangalle.

**Results:** Of the 240 patients 61% had culture positive UTI mainly due to *E. Coli* (94%). Pathogens were 100% sensitive to meropenem, imipenem and amikacin while it showed 96%, 93%, 85%, 81%, 60%, 36%, 13% sensitivity for nitrofurantoin netilmicin, gentamicin, co amoxiclav, ceftriaxone, ciprofloxacin and ampicillin. The average duration of fever in days after administration of IV antibiotic was: gentamicin 1.66, co amoxiclav 1.98, ceftriaxone 2.14, and ciprofloxacin 2.34.

**Conclusion:** Gentamicin was the most clinically effective antibiotic from the antibiotics used for the treatment of pyelonephritis in the selected patient population.

**Key words:** pyelonephritis, gentamicin, uropathogens, Sri Lanka

## Introduction

Pyelonephritis affects all age groups and is associated with serious complications, if not properly treated.<sup>1</sup> Due to significant local differences in urinary pathogens, the emergence of new pathogens, and variation of antibiotic susceptibility pattern in different

geographic locations, periodic evaluation of epidemiology of pathogens is recommended, in order to revise treatment regimes.<sup>2,3</sup> Initial diagnosis of pyelonephritis is mainly clinical and it takes three days for laboratory culture and antibiotic sensitivity test results. The extensive use of antimicrobial agents have invariably resulted in development of antibiotic resistance, and increased cost to the patient as well as to the government. Hence evaluation of clinical response to treatment together with its adverse effects, and current management modalities (treatment of pyelonephritis etc.) is important. Studies to increase knowledge on aetiological agents, their resistant patterns to antibiotics are very important to guide clinicians in empirical treatment.<sup>4</sup> Therefore in this study the aetiology, antimicrobial susceptibility pattern and the clinical response of pyelonephritis was examined without interfering with routine treatment regimes in the hospital.

## Methods

This was a non randomized descriptive study and ethical approval was granted from the ethical review committee, Faculty of Medicine, University of Ruhuna. For two years, all patients (240) admitted with (clinically suspected) acute pyelonephritis to the Medical Units at Base Hospital, Tangalle were included.

Pyelonephritis was diagnosed clinically in the presence of dysuria, fever and loin tenderness. Loin tenderness was considered as the essential clinical sign to differentiate pyelonephritis from cystitis. Patients were initially treated with a single intravenous antibiotic empirically. Antibiotics used were gentamicin as single daily dose of 4 mg/kg, ciprofloxacin twice daily, co amoxiclav three times daily and ceftriaxone twice daily, cephotaxime twice daily for three to five days. A mid stream urine sample was taken before treatment and sent for culture and antibiotic susceptibility testing (ABST). Clinical response was assessed in the terms of time taken for disappearance of fever. Information on patient was collected using a standard questionnaire.

Blood urea and creatinine was done on day one and day three for all the patients. If initial results suggested altered renal functions those tests were

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