The Incidence of uropathogens and their resistance pattern in a tertiary care hospital

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ABSTRACT

Uropathogenic strains from Bhaskar General Hospital, including both inpatient and outpatient departments were studied from October 2011 to September 2012 for their culture and susceptibility profiles. A total of 305 urine specimens were received from October 2011 to September 2012 and these were processed in the laboratory. Among the 305 urine specimens collected, 36 were positive for growth. Antibiotic susceptibility pattern of these patients revealed that Amikacin, Levofloxacin, Gentamycin and Nitrofurantoin were effective for treatment of urinary tract infection. Trimethoprim and Sulfamethoxazole combination was not found to be effective for the treatment of urinary tract infections as all the uropathogens showed high degree resistance to Co-trimoxazole. Culture and sensitivity of the isolates from urine samples should be done as a routine before advocating the therapy.

Keywords: Uropathogens, Antibiotics, Escherichia coli

INTRODUCTION

UTI remains the most common bacterial infection in the human population, despite the widespread availability of antibiotics[1]. Antibiotics are given empirically before the laboratory results of urine culture are available. To ensure appropriate therapy, correct knowledge of the organisms that cause UTI and their antibiotic susceptibility is mandatory[2]. Patterns of antibiotic resistance in a wide variety of pathogenic organisms may vary even over short periods and depend on site of isolation and on different environments, periodic evaluation of antibacterial activity is needed to update this information[3,4,5]. In this context, the present study, was carried out for In-patients with UTI and those attending the outpatient department with UTI. Clinical laboratory records of cases of urinary tract infection were studied for the spectrum of bacterial isolates and their antibiotic susceptibility results were analysed for recommending suitable therapy.

MATERIALS AND METHODS

Urine samples received at the Microbiology laboratory were plated on Macconkey and Blood agar plates incubated at 37 degree C for 48 hours. Identification of pure isolates was done by observing morphological, cultural and biochemical characters[6].

Antibiotic sensitivity testing was performed using the Kirby-Bauer disc diffusion method according to the Clinical and Laboratory Standards Institute Guidelines[7].

RESULTS

Out of 305 urine specimens collected from October 2011 to September 2012 in Bhaskar General Hospital, 36 cultures were positive for growth. The bacteria isolated were as follows.
Table 1: Bacteria Isolated in Urinary tract infection.

<table>
<thead>
<tr>
<th>Bacteria isolated</th>
<th>Number of isolates</th>
<th>Percentage(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Escherichia coli</td>
<td>22</td>
<td>61.11%</td>
</tr>
<tr>
<td>Klebsiella species</td>
<td>6</td>
<td>16.66%</td>
</tr>
<tr>
<td>Proteus species</td>
<td>5</td>
<td>13.88%</td>
</tr>
<tr>
<td>Pseudomonas aeruginosa</td>
<td>2</td>
<td>5.55%</td>
</tr>
<tr>
<td>Staphylococcus aureus</td>
<td>1</td>
<td>2.77%</td>
</tr>
</tbody>
</table>

Escherichia coli as the commonest isolate (61.11%) which was resistant to Ampicillin, Co-trimoxazole, Ciprofloxacin, Ceftriaxone, Ceftazidime, but was found to be sensitive to Amikacin and Levofloxacin. But in cases where UTI was associated with agents other than E.coli, Amikacin was found to be effective.

DISCUSSION AND CONCLUSION

In the present study, Escherichia coli is the commonest isolate. Klebsiella pneumoniae being the second common isolate. In a study from Delhi, Escherichia coli was found to be the commonest organism isolated followed by Klebsiella, Staphylococcus aureus, Proteus species, and Pseudomonas aeruginosa[8].

In a study from Aurangabad, Klebsiella species was found to be the commonest followed by Escherichia coli, Pseudomonas aeruginosa and Staphylococcus aureus[9].

REFERENCES

[7]. Clinical and Laboratory Standards Institute (2006) Sixteenth Informational Supplement. CLSI document M100-S16 [ISBN 1-56238-588-7]. Clinical and Laboratory Standards Institute, 940 West Valley Road, Suite 1400, Wayne, Pennsylvania 1908, 7-1898 USA.