Incidence of Pseudomonas species in urinary tract infection in a tertiary care hospital

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ABSTRACT

The aim of my study is to note the incidence of Pseudomonas species in urinary tract infection. A total of 1160 samples of urine were received from January 2010 to December 2013 from the inpatient & outpatient departments. They were cultured and 140 were positive for bacterial growth, out of which 8 samples Pseudomonas species was isolated. Antibiotic susceptibility pattern of these patients was also studied which revealed that the organisms are sensitive to Amikacin, Cefotaxime, Levofloxacin, Nitrofurantoin, Gentamycin.

Keywords: Asymptomatic bacteriuria, Pseudomonas, UTI

INTRODUCTION

The importance of Pseudomonas as a disease causing agent was not adequately recognised till recently, when it established itself as one of the most troublesome agents causing nosocomial infections.

In the community outside the hospital, the most common infection caused by Pseudomonas aeruginosa is suppurative otitis, which is chronic though not disabling. It is also a common cause of respiratory tract infection.

The pre-eminent role of P. aeruginosa in hospital is due to its resistance to common antibiotics and antiseptics, and its ability to establish itself widely in hospitals.

A urinary tract infection is an infection that affects part of the urinary tract. When it affects the lower urinary tract it is known as a simple cystitis and when it affects the upper urinary tract it is known as pyelonephritis.

Symptoms from a lower urinary tract include painful urination and either frequent urination or urge to urinate, while those of pyelonephritis include fever and flank pain in addition to the symptoms of a lower UTI.

In women, urinary tract infections are the most common form of bacterial infection with 10% developing urinary tract infections yearly.

These are the most common infections encountered during pregnancy. These could be grouped as Asymptomatic bacteriuria, Cystitis, Pyelonephritis. Asymptomatic Bacteriuria occurs in approximately 5% of patients, but it is worth investigating, because about 30% of these may subsequently develop acute symptomatic infection during pregnancy.

A diagnosis of asymptomatic bacteriuria is made when a routine urine culture of a clean voided specimen contains more than 1,00,000 organisms per ml.
Recurrent urinary tract infection during pregnancy is known to be associated with increased risk for preterm labour and low birth weight. UTI remains the most common bacterial infection in the human population, despite the widespread availability of antibiotics[1].

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].

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

A total of 1160 urine samples were collected from both in patients & outpatients in Bhaskar General Hospital from January 2010 to end of December 2013. They were cultured and out of these 140 were positive for bacterial growth. The bacteria isolated is as follows:-

<table>
<thead>
<tr>
<th>Bacteria Isolated</th>
<th>Number of Isolates</th>
<th>Percentage %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Escherichia coli</td>
<td>85</td>
<td>60.8%</td>
</tr>
<tr>
<td>Klebsiella species</td>
<td>26</td>
<td>18.5%</td>
</tr>
<tr>
<td>Proteus species</td>
<td>17</td>
<td>12.1%</td>
</tr>
<tr>
<td>Pseudomonas species</td>
<td>08</td>
<td>5.8%</td>
</tr>
<tr>
<td>Staphylococcus aureus</td>
<td>04</td>
<td>2.8%</td>
</tr>
</tbody>
</table>

DISCUSSION

In this study, Pseudomonas is isolated in 8 isolates (5.8%). 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].

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CONCLUSION

In this study, Pseudomonas species is isolated in 8 isolates (5.8%).

Prevention of P. aeruginosa cross-infection in hospital requires constant vigilance and strict attention to asepsis.

It should be made mandatory that urine should be sent for culture & sensitivity and the correct antibiotic therapy should be administered.

REFERENCES