INTRODUCTION:
Urinary tract infections (UTIs) are one of the most common bacterial infections seen in clinical practice particularly in developing countries. Annual global incidence of UTI has been estimated at least 250 million. [1,2] Urinary tract infection results from the presence & multiplication of bacteria in one or more structures of the urinary tract with consequent tissue invasion, giving rise to a wide variety of clinical syndromes. Recurrent UTIs warrant the use of multiple courses of antibiotic therapy. Eventually, the risk of antibiotic-resistant organisms is increased. Therefore, choice of suitable antibiotics is a major determinant of appropriate therapy and prevention of chronic complications. Etiological agents of UTI are variable and usually depend on time, geographical location and age of patients. However, Escherichia coli, Proteus mirabilis, Enterobacter agglomerans, Citrobacter freundii and Klebsiella pneumonia account for over 70% of cases. [3,4] Knowledge of the local bacterial etiology and susceptibility patterns is required to trace any change that might have occurred in time so that updated recommendation for optimal empirical therapy of UTI can be made. The study was done to find out the isolates and changing trend of antimicrobial sensitivity pattern of bacterial isolate from suspected cases of urinary tract infections among both inpatients and outpatients department of a tertiary care hospital.

MATERIAL AND METHODS:
Study population
This study was conducted between January 2017 and May 2018 to find out the isolates and check the changing pattern of antibiotic sensitivity among uropathogens causing urinary tract infections (UTI). Urine samples (188) were collected from the patient admitted as well as attending outdoor patient department of a tertiary care hospital in North East India.

Sample collection and processing
Freshly voided midstream urine samples (10-20 ml) were collected from patients able to void spontaneously in wide mouth sterile container. The urine specimens were then delivered to the laboratory immediately and processed within one hour.

Culture and Identification
Urine samples were inoculated on Cysteine Lactose Electrolyte Deficient (CLED) agar, MacConkey and Blood agar plates (Hi-Media labs Ltd.) and incubated at 35-37°C for 24 hours using a calibrated loop method delivering 0.001 mL of urine. For gram-negative bacilli, more than 10° colonies per mL of urine, whereas for gram positive cocci 10°-10¹ colonies per mL was considered significant. The culture isolates were further identified by their morphologies and biochemical characteristics.

Antimicrobial susceptibility testing:
The colonies were identified by standard biochemical tests and sensitivity of the organisms was performed by Modified Kirby Bauer disk diffusion method on Mueller Hinton agar plates. A suspension of test organism was made in sterile normal saline and turbidity adjusted to 0.5 McFarland standards. The test organism was uniformly seeded over the surface of Mueller Hinton agar plates. The plates were allowed to dry for 10 minutes before application of antibiotic impregnated discs. The plates were incubated at 37°C for 16-18 hours. After incubation, clear zones around the antibiotic discs (Hi-Media Lab Ltd, Mumbai) were measured with a ruler and recorded in millimeters. Their sensitivities were interpreted according to Clinical laboratory Standards Institute guidelines.

RESULTS
Out of 188 urine samples, 134(71%) were found to be sterile and 40(21%) depicted bacterial growth and 147(7%) were found to be mixed growth. E.coli remained the most common isolate 24(13%) followed by Klebsiella spp. 6 (3%), Staphylococcus aureus 4(2%) and Citrobacter spp 2 (1%), pseudomonas species 2(1%) as shown in Table 1. E.coli isolates reflected maximum sensitivity to Nitrofurantoin, Cefotaxime, Gentamicin, Ceftriaxone-sulbactum, Piperacillin-Tazobactum(100%). This study suggested the need for constant monitoring of susceptibility of specific pathogens in different populations to commonly used anti-microbial agents and formulate local antibiotic policies.

Table 1: Frequency of bacterial isolates

<table>
<thead>
<tr>
<th>Bacterial isolate</th>
<th>Number</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>E .coli</td>
<td>24</td>
<td>13</td>
</tr>
<tr>
<td>Klebsiella species</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Staphylococcus aureus</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Citrobacter spp</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Pseudomonas aeruginosa</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Enterococcus species</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

The study was conducted between January 2017 and May 2018 to check the changing pattern of antibiotic sensitivity among uropathogens causing urinary tract infections (UTI). Out of 188 urine samples, 134(71%) were found to be sterile and 40(21%) depicted bacterial growth and 147(7%) were found to be mixed growth. The most common organisms isolated were Escherichia coli 24(13%) followed by Klebsiella spp. 6 (3%). E.coli isolates reflected maximum sensitivity to Nitrofurantoin, Cefotaxime, Gentamicin, Ceftriaxone-sulbactum, Piperacillin-Tazobactum (100%). This study suggested the need for constant monitoring of susceptibility of specific pathogens in different populations to commonly used anti-microbial agents and formulate local antibiotic policies.
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REFERENCES