STUDY OF ANTIBIOTIC RESISTANCE OF URINARY PATHOGENS IN CHANDRAPUR AREA OF MAHARASHTRA STATE

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ABSTRACT :
Urinary tract infection is most common infection experienced by both human male and female of all ages. The retrospective study was conducted to find out the antibiotic resistance pattern in patients with urinary tract infection in Chandrapur area. Total 40 urine samples were cultured and sensitivity assay was analyzed. Of the total 40 urine samples 32 (80%) samples showed culture positive and 8 samples (20%) were culture negative. Out of 32 culture positive samples 25 (78.12%)samples shows *E. Coli* , 3 (9.37) samples shows *Klebsiella*, 2 (6.25%) samples *Staphylococcus species* and 2 (6.25%) *proeus species*.Most common organism isolated was *E. coli.* More than 80% isolates were sensitive to Gentamycin and Amikacin.
KEYWORDS : Urinary tract infection , Uropathogens , Antibiotic , Sensitivity pattern.

INTRODUCTION :

The Urinary tract infection with bacterial infection is most common and major health problem found in all ages and both the sexes. (StammWE , 2001). It is estimated that about 150 millions reports of urinary tract were recorded per anuum in world and 35 % of this recorded as nosocomial origin. (DrekonjaDM,Johnson JR,2008).When the bacterial count in the urine is $1*10^5$ or more in per ml urine sample , at that time patient is suffering from urinary tract infection.(Stammand WE and Hotoon ,1999). *E. coli* is most commonest causative organism of urinary tract infection .*Staphylococcus ,Klebsiella , Proteus , Pseudomonas species* are vary rarely isolated . (Nicolle LE ,2001).

Our aim to study to know the antibiotic resistance and susceptibility in the bacterial uropathogens isolated from the patients with urinary tract infection in chandrapur area.

MATERIALS AND METHODS:

The present study includes the examination of total 40 urine specimens randomly collected from the indoor and outdoor patients from various hospitals and pathology laboratories situated in chandrapur area. Midstream clean catch urine specimens were collected in a sterile disposable plastic containers with aseptic condition. A loopful of urine sample from each of the patient was streaked on Nutrient agar medium. The plates were incubated overnight at 37 C. Pure , isolated each type of colonies was separately cultured on UTI isolation agar (Himedia) plates and antibiotic assay was carried out on Muller-Hinton agar medium. It was done on Muller –Hinton agar plates by Kirby-Bauer disc diffusion technique by using single antibiotic Himedia discs (Bauer AW et . Al. ,1966) following the Clinical Laboratory Standard Institute (CLSI) guidelines.(CLSI ;2007). The antibiotic discs used were Amikacin ,Cefotaxim , Clindamycin , Colistin , Ciprofloxacin, Cefixime , Erytromycin, Gentamycin, Norfloxacin, Ofloxacin , Prulifloxacin.

RESULT :

In the present study total 40 urine samples were studied. Of the total 40 urine samples 32 (80%) samples showed culture positive and 8 samples (20%) were culture negative. Out of 32 culture positive samples 25 (78.12%)samples shows *E. Coli* , 3 (9.37) samples shows *Klebsiella* , 2 (6.25%) samples *Staphylococci species* and 2 (6.25%) *proeus species.*

Antibiotic assay was carried out for all 32 culture positive samples. Of these 26 (81.25%) isolates are sensitive to Amikacin and Gentamycin , Most 24 or more (75 % or more) isolates of the isolates were resistant to erythromycin , Clinamycin and , cefotaxime.

Table 1.Distribution of sterile and infected urine samples.

Samples (Total No. of samples (n=40)	Number	Percentage
Sterile samples	8	20 %
Infected samples	32	80 %

Table 2. Organisms isolated from urine sample

Sr. No.	**Bacteria**	**Number**	**Percentage**
1	*E. coli*	25	78.12 %
2	*Klebsiella spp.*	03	9.37 %
3	*Staphylococcus spp.*	02	6.25 %
4	*Proteus spp.*	02	6.25 %

Table 3. Percentage of resistant pattern of UTI isolates.

Antibiotic	***E. coli* (n=25)**	***Klebsiella spp.* (n=3)**	***Staphylococcus spp.* (n=2)**	***Proteus spp.* (n=2)**
Amikacin	8.00%	00.00%	00.00%	00.00%
Cefotaxim	40.00%	100.00%	100.00%	100.00%
Clindamycin	20.00%	100.00%	100.00%	100.00%
Colistin	60.80%	100.00%	50.00%	50.00%
Ciprofloxacin	24.00%	66.66%	100.00%	100.00%
Cefixime	72.00%	33.33%	50.00%	100.00%
Erytromycin	72.00%	100.00%	100.00%	00.00%
Gentamycin	24.00%	33.33%	00.00%	00.00%
Norfloxacin	48.00%	33.33%	00.00%	50.00%
Ofloxacin	36.00%	100.00%	50.00%	00.00%
Prulifloxacin	44.00%	50.00%	50.00%	50.00%

DISCUSSION

Urinary tract infection is more coomon infection are found in all ages of male and female and was reported in various studies of urinary tract infection (Andrade SS et. Al. 2006 , A. Moirangthem et al 2013). The present study shows the most common isolated organism was *E. coli* (78.12%) followed by *Klebsiella* (9.37%) , *Staphylococci species* (6.25%) , *proteus species* (6.25%) (P. Poovendranet. Al. ,2012).

In our study various bacterial isolates was identified in urine of patients and most of them are resistant to most of the antibiotics such as erythromycin , Clindamycin, Cefotaxime.More than 80% isolates are sensitive to amikacin and gentamycin (Gupta V et Al. 2002).

CONCLUSION :

The present study concluded that the most common isolate in urinary tract infection is a *E. coli* and most sensitive antibiotics are amikacin and gentamycin. The urinary tract infection is common to large number of population and increases the risk of antibiotic resistance. Proper selection of antibiotic helps the doctors to choose antibiotic therapy of urinary tract infection to overcome the problem of antibiotic resistance.

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