

Comparison of our antibiogram and protocol with IDSA protocol for uncomplicated UTI in women

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Abstract

Objective: Urinary tract infection (UTI) is one of the common infections in females. Non pregnant, uncomplicated UTI is one of the common presentations to the outpatient department (OPD). The objective of the study is to study the isolates and applicability of IDSA protocol and compare it with our hospital protocol. **Method:** A prospective, Hospital based study was done which incorporated 80 patients who visited the OPD for symptoms of urinary tract infection. Premenopausal, Non pregnant females above the age of 18 were included in the study. The samples will be streaked on Blood agar and Mac conkey's agar. Based on Growth, isolates were tested for sensitivity by Kirby Bauer method. Sensitivity Pattern of the Isolates was compared to the antibiotics in our protocol and IDSA protocol. Results were tabulated and evaluated. The antibiotic profile was fed to WHO net software and antibiogram was determined and clinical outcome was measured. **Results:** 80 patients were included in the study of which 63(78.75%) showed significant growth. Most of the patients 56.25% belonged to the age group of 21-30 years. Common presentations were burning micturition and fever. Common Organisms were *Escherichia coli* and *Klebsiella pneumoniae*. Co-Trimoxazole was found to be resistant in 26.9 % of isolates, hence cannot be used in our set up. Nitrofurantoin was most susceptible antibiotic among IDSA Protocol antibiotics. Amikacin and Carbapenams were most susceptible among our protocol antibiotics **Conclusion:** Both the protocols showed good sensitivity pattern to commonly used antibiotics. So IDSA protocol can be used in premenopausal, non-pregnant women in our hospital.

Keywords: IDSA Protocol, Non pregnant Premenopausal, Urinary tract infection.

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INTRODUCTION

Urinary tract infection is one of the most common infections in the world today.¹ It has been estimated that 150 Million people were infected with UTI per annum worldwide.² It contributes to high number of outpatient visits.³ Almost one in two women experience it at least once in their lifetime. It also contributes to \$6 billion for diagnosis.¹ There are two forms, community acquired and hospital acquired. Community acquired is the most common cause for the outpatient visits.⁴ Females in

reproductive age group are most commonly affected. There is a wide variation in antibiotic prescribing practices. This leads to development of resistance among the isolates.⁵ A uniform protocol helps to reduce this resistance.⁷ This study focused on the major group that is cystitis and pyelonephritis in uncomplicated, non-pregnant women. IDSA protocol is explained in the figure 1. In women having uncomplicated UTI (cystitis) the first choice antibiotic for empiric treatment is nitrofurantoin. Co-trimoxazole is the next choice antibiotic provided the resistance rates are less than 20%. Other alternatives include Quinolones; this group of drugs should be used for cases other than cystitis.⁷ In cases of acute pyelonephritis, urine culture should be done always. For empiric treatment, drug of choice is ciprofloxacin 500 mg BD, If the local resistance rate is not 100%. If resistance rates are more than 10%, an initial intravenous dose of a long-acting parenteral antimicrobial like ceftriaxone 1g or a consolidated 24-h dose of an aminoglycoside, is recommended before starting the oral therapy.⁷ In our hospital we don't have a policy for this group of patients,

but they come under category one i.e. patients at the risk for community acquired infections. We have Oral : **Norflaxacin Or Cefixime OR Amoxicillin:** Clavulanate OR Nitrofurantoin

IV/IM: Ceftriaxone OR Ofloxacin OR Ertapenem/Amikacin for community acquired ESBL.

MATERIALS AND METHOD

Urine samples were collected from all the reproductive age group and non-pregnant women in whom UTI was suspected, in Father Muller Medical College hospital.

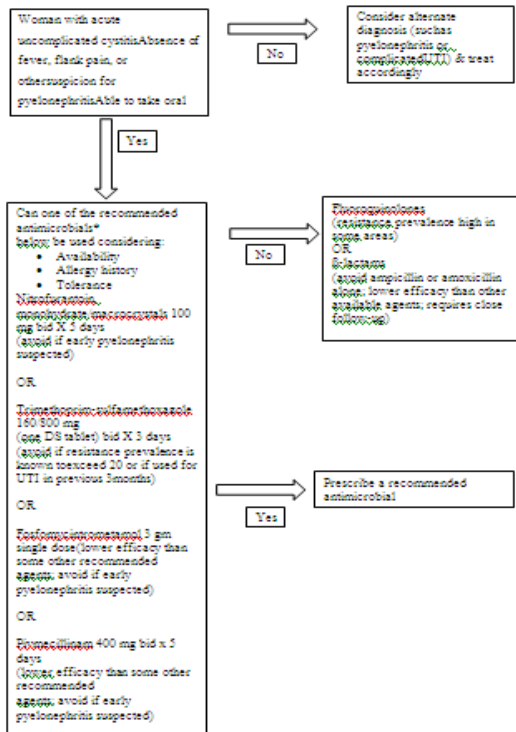


Figure 1: Reproduced from IDSA guidelines

Inclusion Criteria

All female patients > 18 yrs.

Exclusion Criteria

Recurrent UTI, patients with history of recent antibiotic intake, patients with recent hospitalization, Pregnant females. The samples were streaked on Blood agar and Mac conkey's agar. Based on Growth, isolates were tested for sensitivity by Kirby Bauer method. Sensitivity Pattern of the Isolates was compared to the antibiotics in our protocol and IDSA protocol. Results were tabulated and evaluated. The antibiotic profile was fed to WHO net software and antibiogram was determined and clinical outcome was measured.

RESULTS

A total of 80 patients were included in the study. Majority of the women were in 21- 30 years age group (55 patients), 17 were in 31-40 and 8 were below 20 (figure 2). Most common presentation was burning micturition

and fever, followed by increased frequency of urine (figure 3). 53 patients were diagnosed as cystitis, 7 were diagnosed pyelonephritis. A total of 17 cultures yielded no growth or did not have significant bacteruria (figure 4).

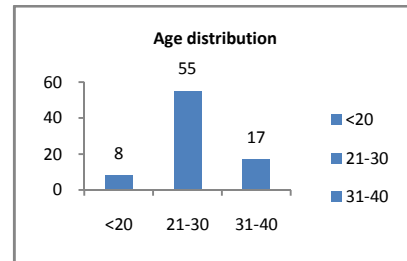


Figure 1:

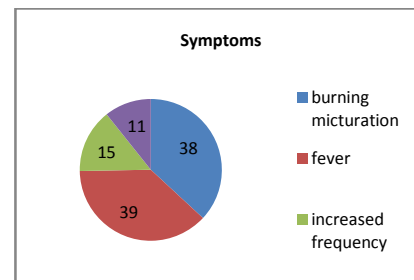


Figure 2:

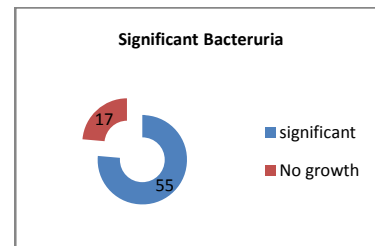


Figure 3

Among the significant growths, E. coli was the most common isolate followed by Klebsiella sp. Other isolates were Citrobacter sp, Enterobacter sp, MRSA and Proteus mirabilis. (Table: 1)

Table 1

Bacteria	No of isolates
E.coli	25
Klebsiella Pneumoniae	10
Klebsiella oxytoca	3
Citrobactersp	4
Enterobacter sp	4
MRSA	1
Proteus vulgaris	1

Resistance% for Co-Trimoxazole of all isolates in general was 27% and E. coli was 37.5%. Sensitivity for other antibiotics is given in table 2 and for E. coli in table 3

Table 2

Antibiotic	Sensitivity%
Nitrofurantoin	92
Ciprofloxacin	77.78
Levofloxacin	80

Norfloxacin	77.8
Amoxyclav	85.7
Cefixime	92
Ceftriaxone	92
Ofloxacin	77.78
Carbapenamams	95.23
Amikacin	98.40

Table 3

Antibiotic	Sensitivity%
Nitrofurantoin	100
Ciprofloxacin	75
Levofloxacin	75
Norfloxacin	25
Cefixime	95.83
Amoxyclav	95.83
Ceftriaxone	95.83
Ofloxacin	75
Carbapenamams	100
Amikacin	100

Ciprofloxacin was the most common antibiotic used followed by Nitrofurantoin (table 4). All the patients were adequately treated and were cured. In 5 cases the initial antibiotic was resistant and the antibiotic was changed to the sensitive one and then these patients recovered completely.

Table 4

Antibiotic	Frequency of use
Ciprofloxacin	29
Nitrofurantoin	21
Norfloxacin	7
Levofloxacin	5
Cefixime	2
Cefotaxime	2
Ofloxacin	1

DISCUSSION

UTI is one of the most common infections. Most of the patients were in age group of 21-30 as described in IDSA guidelines. Most common presentation was of burning micturition, consistent with diagnosis of cystitis which is the most common condition as described by. Many patients do not need any therapy. In our study 17 patients did no need any therapy. This is not the actual number, as urine samples are not sent for all the patients.⁷ *Escherichia coli* was the most common isolate. This is so common that, IDSA says that the antibiotic policy can be made with just knowledge of sensitivity of this. Other isolates in urine *Klebsiella* sp, *Citrobacter* sp, *Enterobacter* sp, *Proteus vulgaris*, MRSA.^{2,3,7} Nitrofurantoin was the most sensitive antibiotic of the IDSA protocol. This justifies this antibiotic used as the first choice antibiotic. Quinolones are to be used only if the patients have pyelonephritis, as long as the antibiotic is not 100% resistant. In this study the resistance of

ciprofloxacin was more than 10 % (22.2%). So we have to start treatment with a long acting antibiotics like ceftriaxone and Amikacin. Single dose daily (ciprofloxacin 1000 mg and levofloxacin 750 mg) regimens are preferred over twice daily dosing.⁷ Cotrimoxazole resistance exceeds 20% hence is not for empiric treatment. It was 27% overall and 35% for *E.coli*.⁷ For oral antibiotics in our policy Nitrofurantoin (92%), 3rd generation cephalosporins (92%) and amoxicillin clavulonic acid (85%) are equally effective. This also can be used.

CONCLUSION

Bacteria isolated in the study are sensitive to both the protocols hence both can be used, but having IDSA protocol gives a regulation and reduces the incidence of multi drug resistant bacteria in the community. Cotrimoxazole cannot be used for empiric therapy. If quinolones have to be used an initial intravenous dose of a long-acting parenteral antimicrobial, such as 1 g of ceftriaxone or a consolidated 24-h dose of an aminoglycoside, is recommended.

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