

Current Prescribing Trends for the Treatment of Urinary Tract Infection in Adults

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ABSTRACT -AIMS AND OBJECTIVE: The aim of study was to observe the current prescribing trends for the management of urinary tract infection in male and female patients in government and private hospitals.

Methods: A descriptive cross sectional study was conducted in different government and private hospitals of Lahore, Pakistan. Data of 100 patients within 20 years-80years of age, males and females diagnosed with urinary tract infection, was collected using convenient sampling technique during face to face interview with patients. Then data was compiled, analyzed and presented in tabular and graphical form. .

Results: Results showed that the most of the medicines were prescribed according to brand names. Currently, (90%) of antibiotics including (58%) of quinolones, (34%) of cephalosporin and (4%) of penicillin antibiotics along with proton pump inhibitors (23%), analgesics (71%), antacids (27%) were prescribed as a combination therapy for the treatment of urinary tract infection. Some side effects were seen like (7%) GI irritation, (2%) insomnia, (1%) low blood pressure. 90% of patients were complied with their treatment.

Conclusion: it is concluded that although use of antibiotics is the best option to treat urinary tract infection as mostly it is caused by bacteria but it is also leading to irrational prescribing and misuse of antibiotics. Therefore it is the need of the hour to ensure rational drug therapy and decrease the health care cost to improve patient's quality of life.

INDEX TERMS: Urinary tract infection, combination therapy, prescribing trend, rational therapy, patient compliance

Introduction

Urinary tract infections are the leading infections after respiratory tract and gastro intestinal tract infections and are major cause of both the community acquired and nosocomial infections. [1] The infection may involve any part of urinary system (kidney, bladder, uterus and urethra). Infection of bladder (cystitis) and urethra (urethritis) are known as lower urinary tract infection, whereas, infection of kidneys (pyelonephritis) is termed as upper urinary tract infection. [2] Commonly, UTI is caused by bacteria (E.coli), however it can also be caused by fungi (Candida) or virus (Herpes simplex virus-2). Most of the bacteria that cause UTI enter through the intestine or through the vagina. [3]

UTIs can be categorized as complicated or uncomplicated urinary tract infection. If it occurs in patients with structurally or functionally abnormal urinary tract it is known as complicated UTI and if in patients with anatomically normal urinary tract then it is called uncomplicated UTI. [4].

Urinalysis is a physical, chemical, and microscopic examination of a urine sample (specimen) , the results obtained by this test indicates that whether the individual has urinary tract infection or not.[5] The second type of urine test is chemical examination or dipstick test in which the strips check for presence of nitrites or white blood cells (leukocytes) in urine.[6]

There is an evidence-based guideline for the treatment of UTI in adults. It includes a three day regimen of trimethoprim-sulfamethoxazole and a 5-day course of nitrofurantoin recommended as a first-line therapy for the treatment of uncomplicated UTIs. A 3-day course of fluoroquinolones can be quite effective. [7] The combination of amoxicillin + an aminoglycoside, a 2nd generation cephalosporin + an aminoglycoside or a 3rd generation cephalosporin intravenously can be recommended as first-hand

treatment of complicated UTI [8]. Low-dose antimicrobial prophylaxis remains effective in many clinical settings and can be safely used for years in patients with recurrent UTIs; however, increasing antimicrobial resistance may eventually limit its efficacy [9].

Pharmacists can play a pivotal role in management of UTI by his/her patient counseling skill on how to take the medications so that outcome of therapy can be improved. [10]

Materials and Methods:

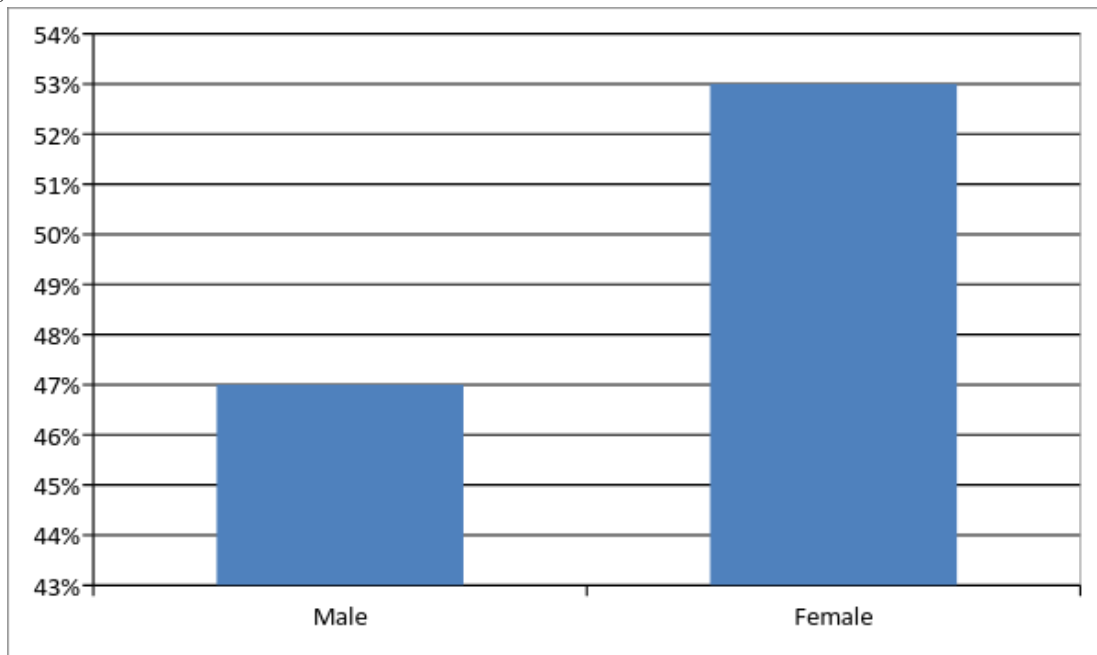
A descriptive cross sectional study was conducted in outpatient departments of different government and private hospitals of Lahore including Jinnah hospital Lahore, Services hospital Lahore, Sheikh Zayed hospital Lahore, Mayo hospital Lahore, Fatima memorial hospital Lahore and Family hospital Lahore. The duration of study was 2 months (June 2017- August 2017). Data of 100 male and female patients within age limit of 20years-80 years who were diagnosed with urinary tract infection was collected. Patients having respiratory disorder (asthma) and liver diseases were excluded. For data collection purpose an extensive form was designed covering the following aspects; patient's demographic information, family history, signs and symptoms, chief complaints, medication history and majorly the prescribing trends in management of urinary tract infection. Form was filled during face to face interview with patients then data was compiled, analyzed and presented in tabular form. Statistical functions were applied to analyze the results and led to their graphical representation.

Results:

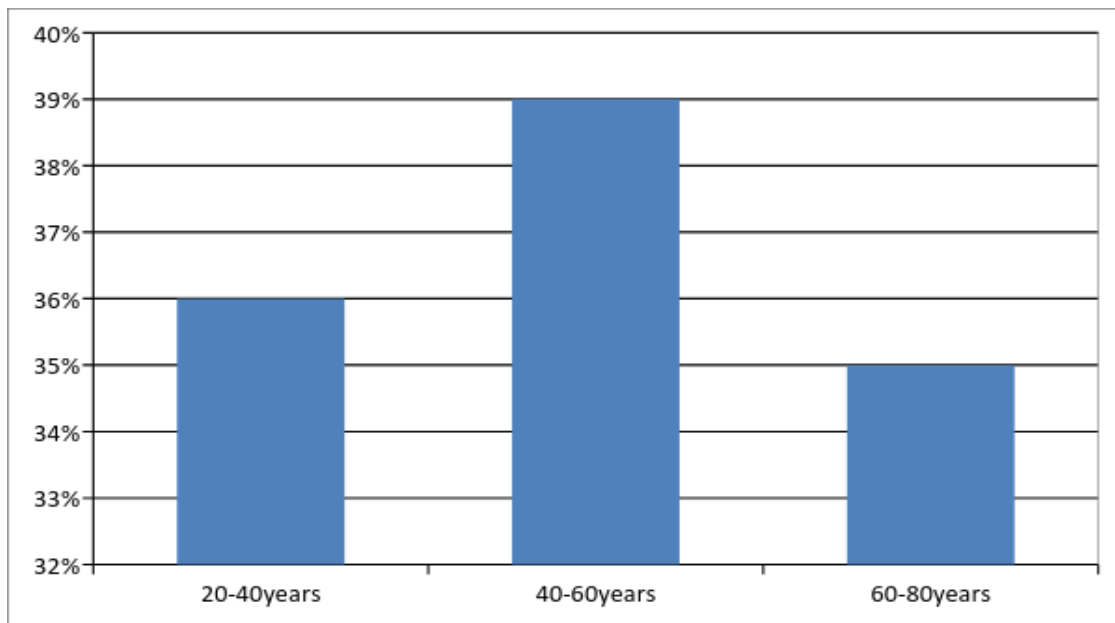
Out of 100 individuals, 47% males and 53% females were suffering from urinary tract infection (figure 1). The age limit of patients observed were 36% in (20 – 40 yrs), 39 % (40-60yrs) and 35% (60- 80yrs) (figure 2).

The major chief complaints shown were 8% fever, 44% flank pain, 14% urinary retention, 16% suprapubic pain, 8% dysuria and 10% frequent urge to urinate (figure 3). The various types of infections seen in patients were cystitis 31%, urethritis 13%, pyelonephritis 32%, urosepsis 4%, chronic kidney disease (CKD) 8%, and lower urinary tract symptoms (LUTs) 12% (figure 4).

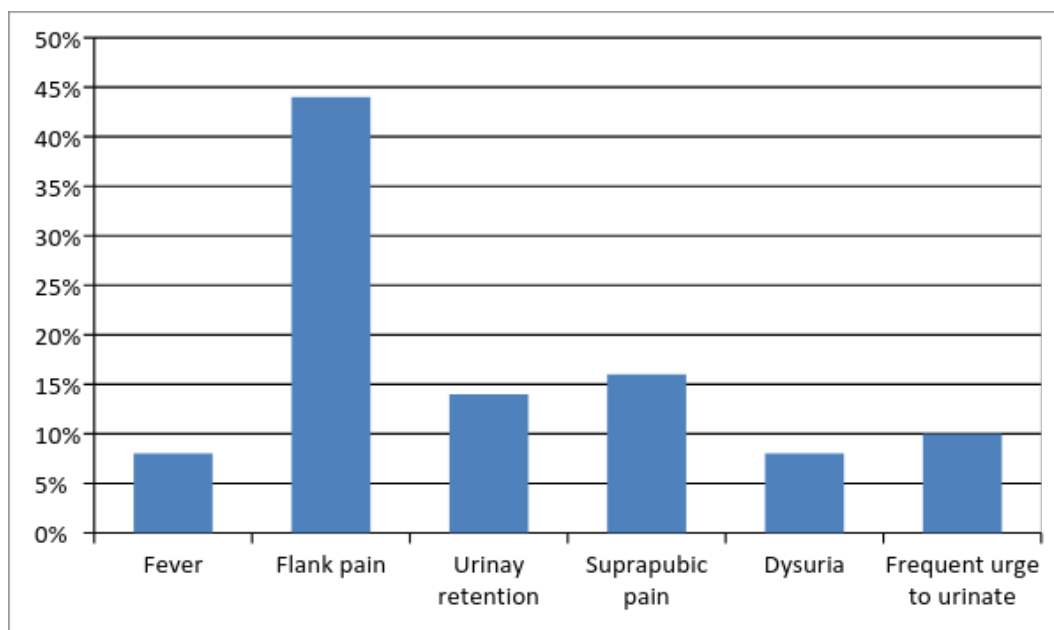
Medicines were not prescribed by their generic names whereas all medications 100% were prescribed by brand names.(figure5). Combination of medicines observed include: antibiotics 90%, analgesics 71%, antacids 27%, proton pump inhibitors 23% and anti-emetics 17% (figure 6). Antibiotics belonging to different classes were prescribed such as quinolones 58%, penicillin 4%, cephalosporin 34%, oxazolidone 2% and pyridopyrimidine 2% (figure 7). Some side effects were seen like (7%) GI irritation, (2%) insomnia, (1%) low blood pressure.(figure8)



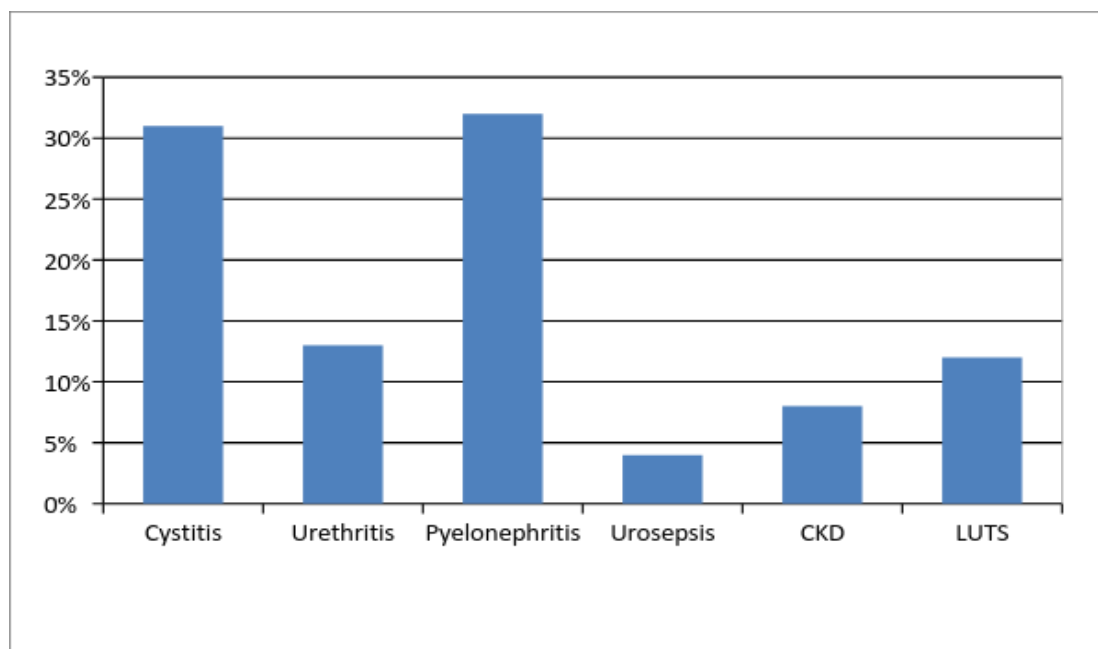
(Figure: 1 Gender distribution)



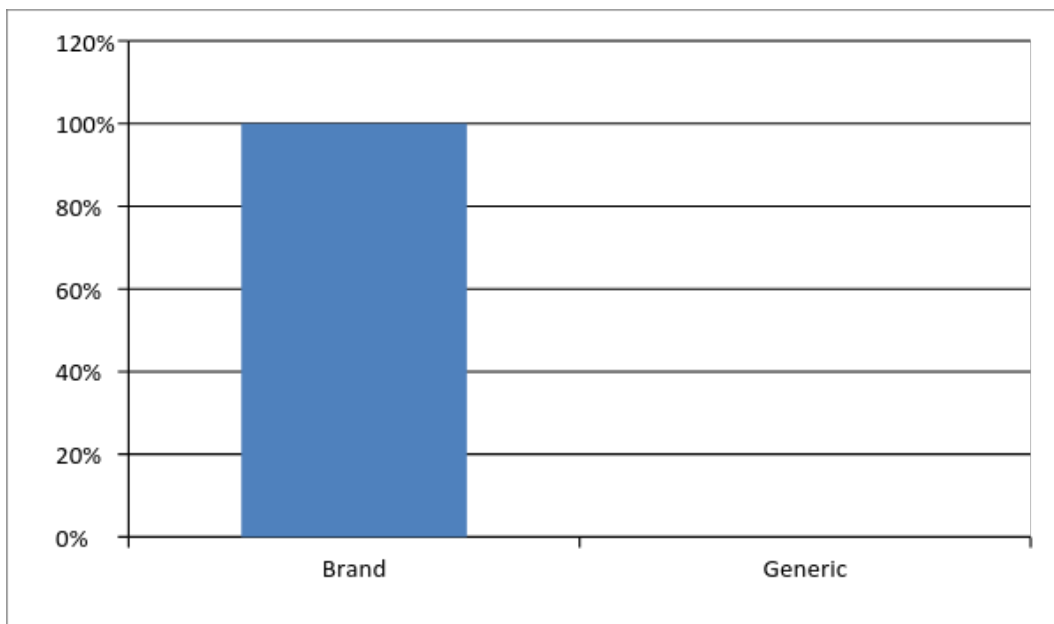
(Figure 2: Age groups)



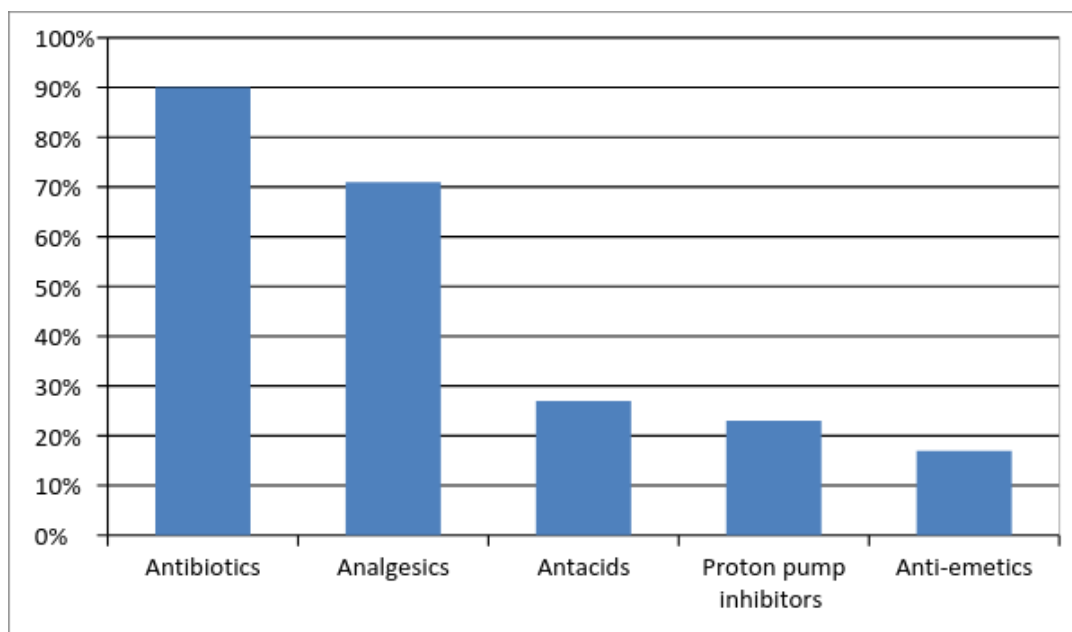
(Figure 3: Chief complaints)



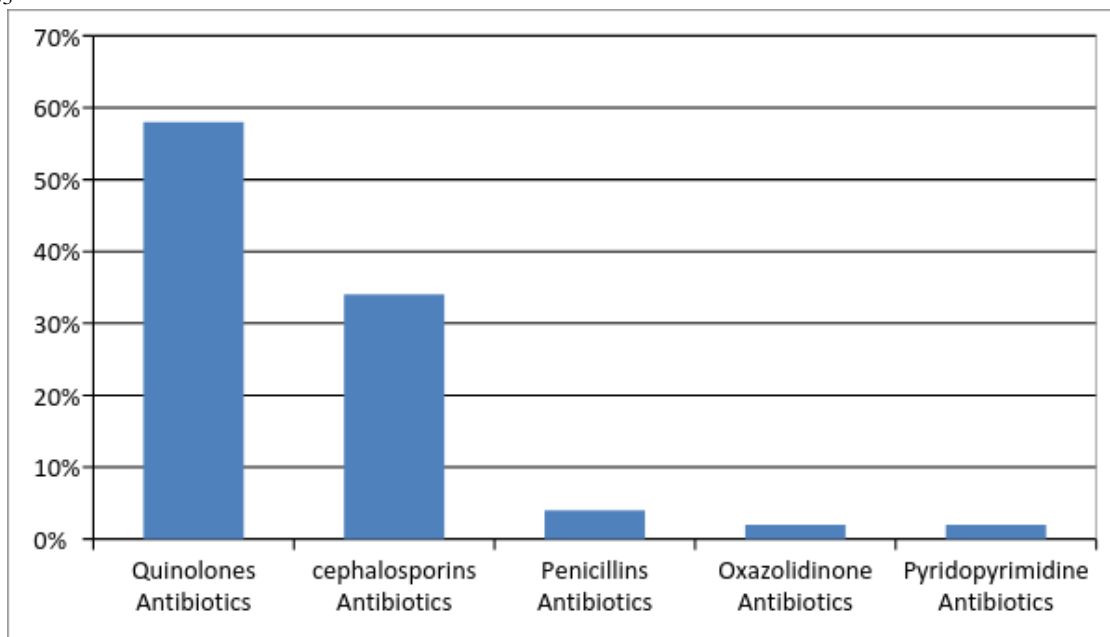
(Figure 4: Type of UTI)



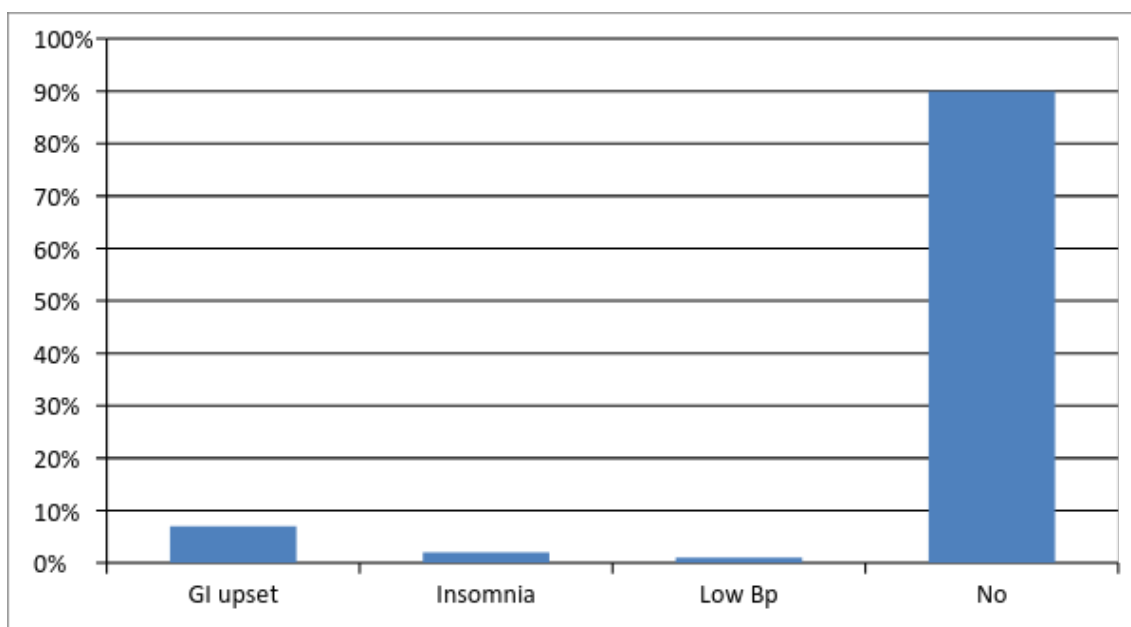
(Figure 5: prescribing pattern)



(Figure 6: combination of medicines)



(Figure 7: Nature of antibiotics)



(Figure 8: Side effects)

Table 1: Gender Distribution

Sex	f	%
Male	47	47%

Female	53	53%
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Table 2: Age Groups

20-40 Years	f	40-60years	F	60-80years	f
62%	62	28%	28	12%	6

Table 3: Chief Complaints

Fever	f	Flank pain	f	Urinary retention	f	Suprapubic pain	f	Dysuria	f	Frequent urge to urinate	f
8%	8	44%	44	14%	14	16%	16	8%	8	10%	10

Table 4: Type of UTI

Cystitis	f	Urethritis	f	Pyelonephritis	f	Urosepsis	f	CKD	f	LUTS	f
31%	31	13%	13	32%	32	4%	4	8%	8	12%	12

Table 5: Prescribing Pattern

Brand	f	Generic	f
100%	100	0%	0

Table 6: Combination of Medicines

Antibiotics	f	Analgesics	f	Antacids	f	Proton pump inhibitors	f	Anti-emetics	f
90%	90	71	71	27	27	23	23	17	17

Table 7: Class of Antibiotic prescribed

Quinolone Antibiotics	f	Penicillin Antibiotics	f	Cephalosporin Antibiotics	f	Oxazolidinone Antibiotics	f	Pyridopyrimidine Antibiotics	f
58%	58	4%	4	34%	34	2%	2	2%	2

Table 8: Side effects

GI upset	f	Insomnia	f	Low Bp	f	No	f
7%	7	2%	2	1%	1	90%	90

Discussion:

Urinary tract infection is an infection of any part of urinary system including kidneys, ureters, bladder and urethra. The incidence of UTI is higher in females than in males due to several clinical factors.. Commonly it is caused by Escherichia coli but can also be occurred by other bacteria and fungi [11].

Urine sample is collected and the results obtained by microscopic examination are evaluated to identify the causative agent responsible for urinary tract infection. For urinary tract infection patient's blood urea nitrogen (BUN), creatinine, sodium and potassium levels are also checked for effective treatment. Our study showed high prevalence rate of UTI in females than in males which is similar to a study conducted in Nigeria. [12]. According to our study 39% of patients with a age limit between 40-60 years were suffering from urinary tract infection this result coincide with the previous study done by Mahesh E. et al in south India where higher incidences were noted in the age group of 40 and above [13].

Mostly 90% of antibiotics were prescribed for UTI .Antibiotic resistance is one of the emerging problem due to inappropriate use of antibiotics. 58% of patients were prescribed with quinolone antibiotics due to its effectiveness but it may also develop resistance in some patients this result relates to the study conducted by Ahmad S in Kashmir [14]. All drugs were prescribed by brand names. Usually generic name help the hospital pharmacy to have better inventory control and drugs are also economical.34% of patients were prescribed with 3rd generation cephalosporin's such as ceftriaxone this result of our study is similar to the one conducted by Harish and his colleagues in Kerala [15].

Physicians also advised the patients to make some changes in their lifestyle including dietary habits, water intake and also to practice a good hygiene so that the risk of urinary tract infection may be reduced .This point of our study also correlates with the study of John L Bruschi which was conducted for the prevention of urinary tract infection [16].

Conclusion:

It is apparent from our study that currently antibiotics along with proton pump inhibitors and analgesics were prescribed as a combination therapy for urinary tract infection. Commonly 3rd generation cephalosporin such as ceftriaxone and quinolones such as ciprofloxacin and levofloxacin were prescribed. Prescribing by brand names was followed by all practitioners, therefore prescribing by generic names need to be encouraged. Personal hygiene and more water intake can plays an important role in the prevention of urinary tract infection.

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