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A STUDY ON UTI IN A TERTIARY CARE REFEERAL HOSPITAL

Mathew George, Lincy Joseph, Archana Vijai*

Pushpagiri College of Pharmacy, Tiruvalla

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For Correspondence:

ArchanaVijai

Pushpagiri College of Pharmacy, Tiruvalla

ABSTRACT

Urinary tract infections (UTI) are commonly treated in urgent care practice. Clinicians need to be aware of the advantages and limitations of diagnostic tests, as well as the proper empiric antibiotic treatment of these infections, in order to effect the best outcomes for patients. In this prospective observational study 30 patients are diagnosed with uti. Ecoli is the microorganisms that affected the majority of RUTI. A variety of antibiotics is available for treating UTIs, but changing antibiotic sensitivities make appropriate empiric treatment a moving target over time.

INTRODUCTION

Urinary tract infections (UTIs) are a frequent problem worldwide which are caused by microbial invasion to different tissues of the urinary tract. Urine is normally sterile, that is, free of bacteria, viruses, and fungi. A urinary tract infection is a condition in which one or more parts of the urinary system (the kidneys, ureters, bladder, and urethra) become infected. UTIs are one of the most common bacterial infections in the general population, with an estimated overall incidence rate of 18 per 1000 person per year. UTIs can manifest in a wide clinical range from bacteriuria with limited clinical symptoms to sepsis.

1. Depending on the factors that trigger the infections UTIs are classified as:
2. Uncomplicated or complicated,
3. Depending on whether the infection is occurring they are classified as:
4. Primary or recurrent,
5. Depending on sing and symptoms they are classified as:
6. Symptomatic or asymptomatic

The primary risk factors for the development of UTI include: age, presence of catheter, chronic comorbidities, neurogenic bladder, diminished mental status, urinary incontinence, diabetes, being female, gynaecological disorders, male prostatic hypertrophy etc. Secondary risk factors include dehydration, immobility, other infection, colonization with resistant organisms, and poor personal hygiene.Estrogen deficiency has been recognized as a risk factor for recurrent UTIs in postmenopausal women because of ensuing vaginal flora changes: protective lactobacilli are replaced by *E.coli* and other uropathogens[2]. People with indwelling catheters can also be more prone to infections of the bloodstream and they are more generally at risk of urinary infections. [3-5]. The patients are affected by microorganisms capable of inducing inflammation within the urinary and male genital tract. Nearly 95% of cases of UTIs are caused by bacteria that typically multiply at the opening of the urethra and travel up to the bladder. Organisms causing UTI are derived primarily from the aerobic members of the fecal flora. An overwhelming majority of uncomplicated urinary tract infections [95%] are caused by a single organism. In contrast, infections among hospitalized patients, patients with urinary catheters, or individuals with structural abnormalities of the urinary tract may be polymicrobial. In uncomplicated UTIs Escherichia coli is the leading organism, whereas in complicated UTIs the bacterial spectrum is much broader including Gram-negative and Gram-positive and often multiresistant organisms. The primary goal of managing UTIs is optimal administration of appropriate antimicrobial agent

and correction of any underlying genitourinary abnormalities. A rapid diagnosis is critical to meet the requirements of early goal directed therapy [4]. The diagnosis of UTI is particularly difficult in elderly patients, who are more likely to have asymptomatic bacteriuria as they get older. Urinalysis usually provides enough information to start or not treatment. A urine culture can help identify the specific bacteria causing the infection, and determine which type of antibiotics to use. Depending on difficulties of treatment: recurrent, complicated and upper UTIs are more problematic compare with other types of UTI. Complicated UTI is a very heterogeneous entity, with a common pattern of the following complicating factors:

1. Anatomical, structural or functional alterations of the urinary tract.
2. Impaired renal function, by parenchymal diseases, or pre,-intra,-or post renal nephropathies
3. Accompanying diseases, that impair the patient's immune status

The therapy of uncomplicated UTIs is almost exclusively antibacterial, whereas in complicated UTIs the complicating factors have to be treated as well [4]. Whereas community acquired UTIs are often uncomplicated, almost all nosocomial UTIs are complicated infections [1]. Until recently antimicrobial resistance and healthcare associated infections are increasing. Most clinical trials have evaluated 5-10 days of treatment. Successful antimicrobial therapy will usually ameliorate symptoms promptly, with substantial clinical improvement in 48 to 72 hours. Patients who fail to respond in this time frame should be reassessed to exclude urinary obstruction or abscess [which may require drainage], to exclude resistance of the infecting organism to the antimicrobial agents, or to consider an alternate diagnosis other than urinary infection. Follow-up cultures should be done 2-4 weeks after cessation of therapy to confirm cure [7]. Suppressive antimicrobial therapy may be considered for selected patients with frequent, recurrent, symptomatic infection in whom the underlying genitourinary abnormality cannot be corrected [9]. Guidelines suggest that antibiotic prophylaxis should not be used to prevent catheter associated UTI in catheterized patients. Although prophylaxis may decrease the incidence of asymptomatic bacteriuria in catheterized patients, it increases the risk of antimicrobial resistance. The main objective of this study was to find out the prevalence of microorganism and therapeutic regimen of UTI patients in a tertiary care referral hospital.

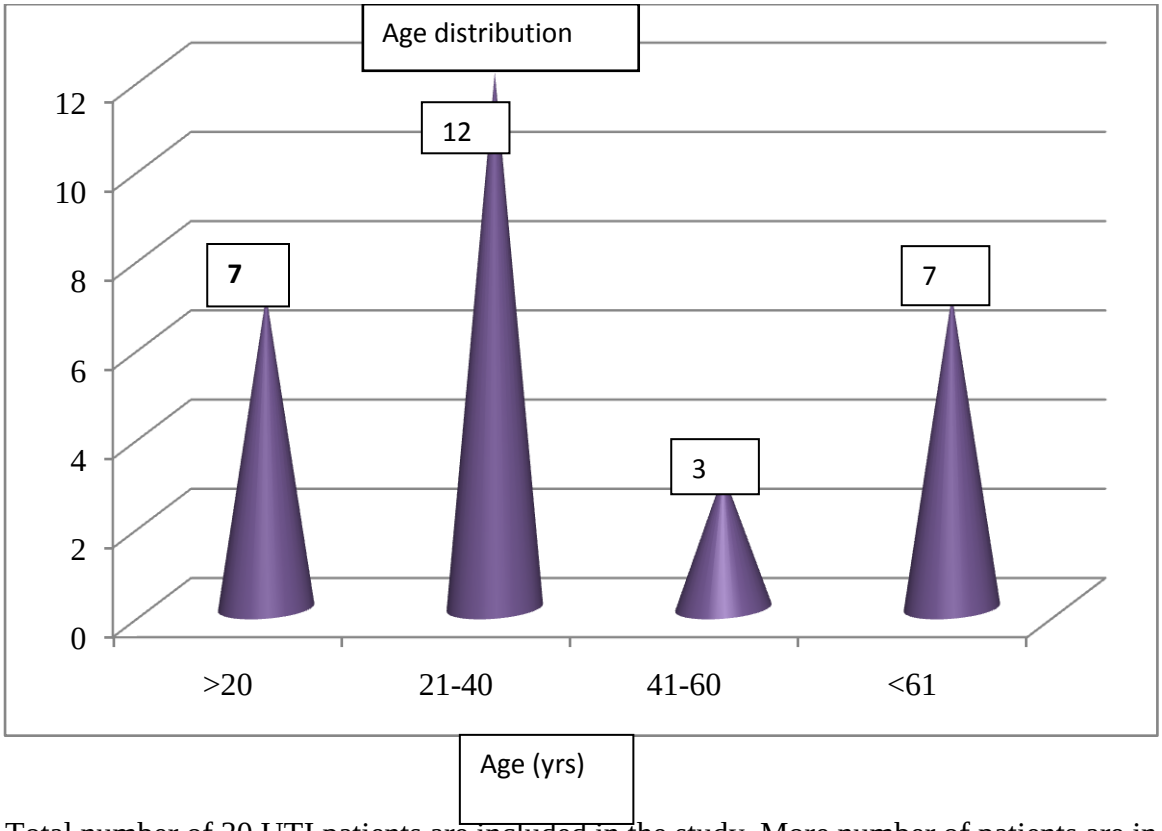
METHODOLOGY

The study was a retrospective observational study in a tertiary care referral hospital in central Travancore of kerala.The study period was about 6 months. The patients was selected according to inclusion and exclusion criteria. 30 patients were enrolled in this study. The studywere started

after getting the institutional ethical approval. The details of the study were collected from patients.

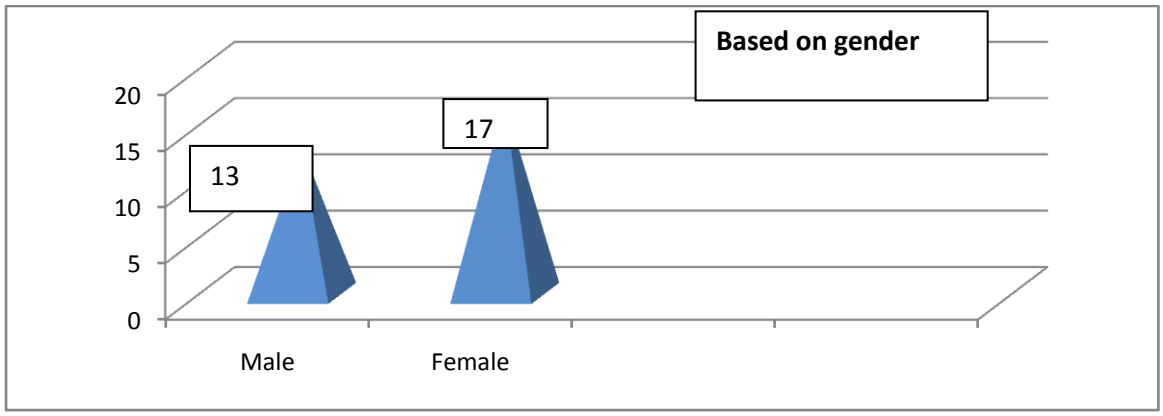
RESULTS

1. Based on age distribution



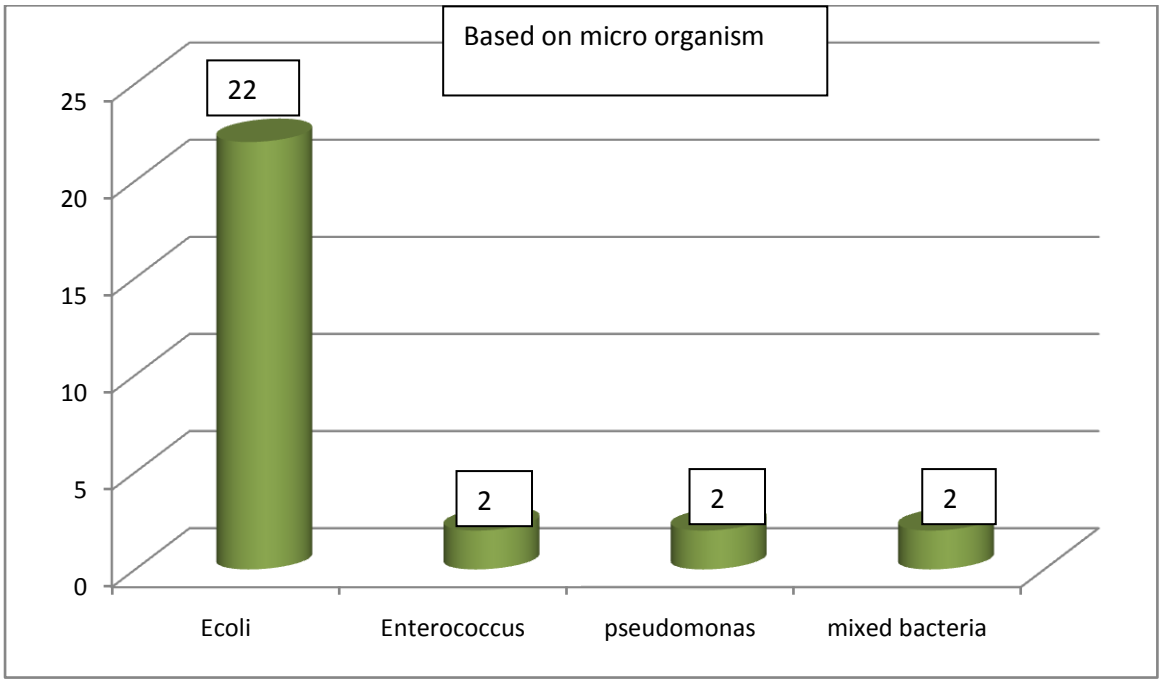
Total number of 30 UTI patients are included in the study. More number of patients are in the age group of 21-40 years (12) followed by less than 20 years and greater than 61 years of age group (7nos) and 3 patients are in the age group between 41-60 .

2. **Based on Gender**



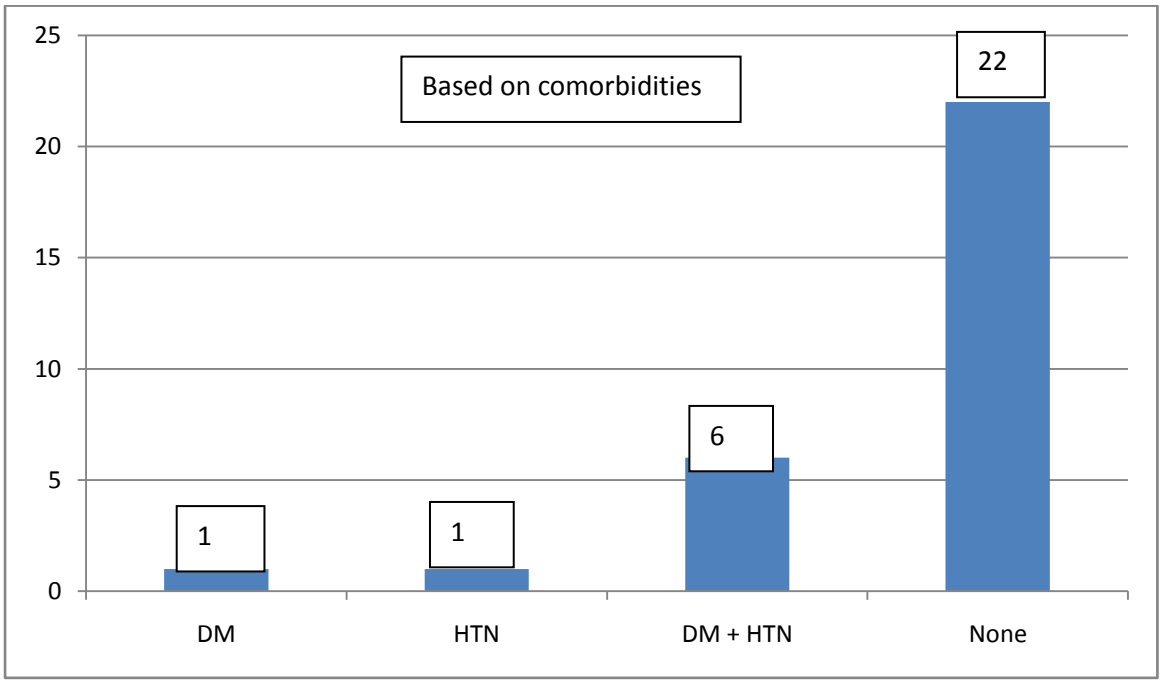
In this study, majority of the population are females (17 nos) followed by males (13 nos)

3. Based on micro organisms



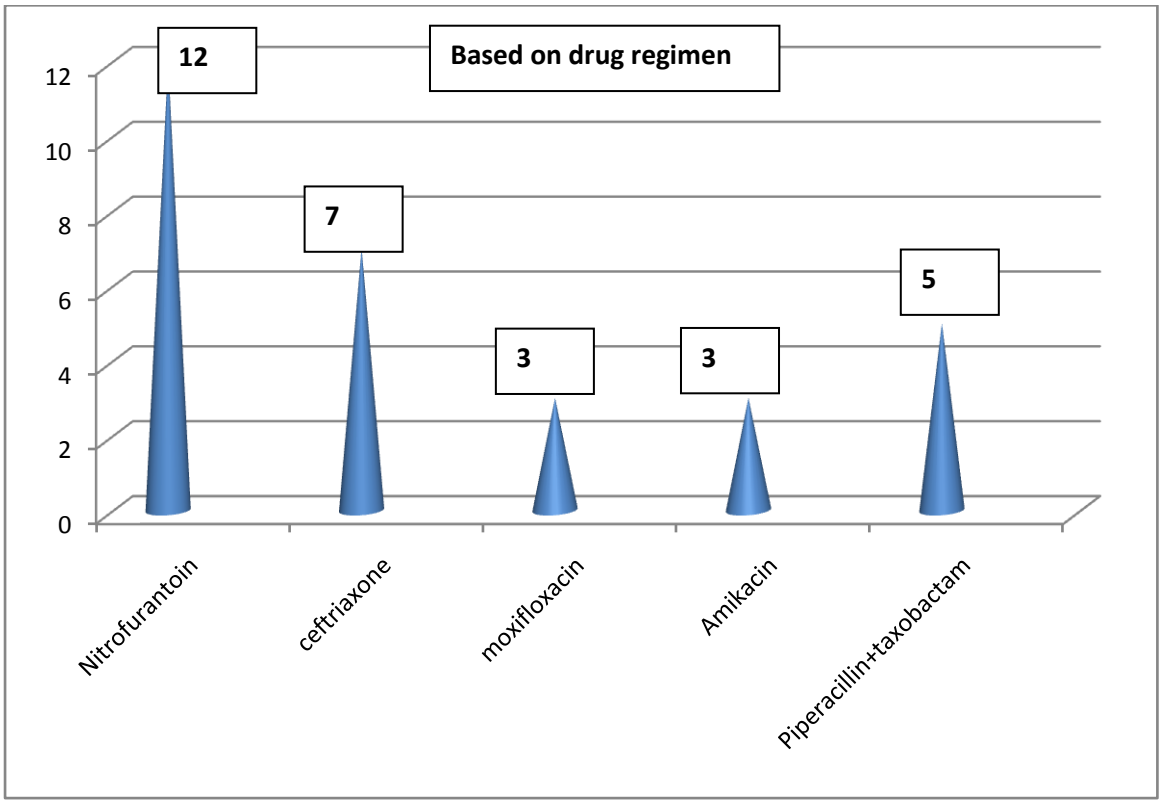
Among 30 number of patients 22 of them are infected by Ecoli followed by 2 number of patients are infected by enterococcus, pseudomonas and mixed bacteria

4 Based on comorbidities



In this group 22 patients have no comorbidities and 6 patients having diabetes with hypertension followed by one patients each in diabetes and hypertension group.

5 Based on drug regimen



Based on drug therapy 22 patients are receiving nitrofurantoin and 7 patients receiving ceftriaxone ,5 patients receiving piperacillin + taxobactam and 3 patients receiving moxifloxacin and amikacin.

DISCUSSION

Urinary tract infections (UTIs) are a frequent problem worldwide which are caused by microbial invasion to different tissues of the urinary tract. Urine is normally sterile, that is, free of bacteria, viruses, and fungi. A urinary tract infection is a condition in which one or more parts of the urinary system (the kidneys, ureters, bladder, and urethra) become infected. A complicated urinary tract infection (cUTI) is an infection associated with a condition, such as a structural or functional abnormality of the genitourinary tract, or the presence of an underlying disease that interferes with host defense mechanisms, which increase the risks of acquiring infection or of failing therapy . The primary risk factors for the development of UTI include: age, presence of catheter, chronic comorbidities, neurogenic bladder, diminished mental status, urinary incontinence, diabetes, being female, gynecological disorders, male prostatic hypertrophy ect. Secondary risk factors include dehydration, immobility, other infection, colonization with resistant organisms, and poor personal hygiene. The present study was conducted with the aim of determining risk factors and treatment pattern used in uti.

In this prospective observation study ,as per the data collected 30 patients were found to be infected. According to this majority of patients were female and remaining were males. This is positively correlated with the study of Edmond Puca et.al. The prevalence of UTIs increases in the female population. Pregnancy is one of the factors which increase the risk of UTI partly due to the pressure of gravid uterus on the ureters causing stasis of urine flow and is also attributed to the humoral and immunological changes during normal pregnancy .Estrogen deficiency has been recognized as a risk factor for recurrent UTIs in postmenopausal women because of ensuing vaginal flora changes: protective lactobacilli are replaced by E.coli and other uropathogens.

The current studies shows that the more number of patients are included in the age between 21—40. In this group most of the patients are pregnant. UTI is the most frequent medical complication of pregnancy. The risk factors of preterm delivery, low infant birth weight and abortions are most commonly associated with symptomatic and asymptomatic bacteriuria during pregnancy. In pregnancy, factors that contribute to UTI risk are ureteric and renal pelvis dilation; increased urinary pH; decreased muscle tone of the ureters, and glycosuria, which promotes bacterial growth. This study is positively correlated with the study of Ahmed Al-Badr et al. The remaining patients are included in the age group of less than 20 and greater than 60 followed by 41-60 age group. The patients are affected by microorganisms capable of inducing inflammation within the urinary and male genital tract. Nearly 95% of cases of UTIs are caused by bacteria that typically multiply at the opening of the urethra and travel up to the bladder. Organisms causing UTI are derived primarily from the aerobic members of the fecal flora. An overwhelming majority of uncomplicated urinary tract infections [95%] are caused by a single organism. In contrast, infections among hospitalized patients, patients with urinary catheters, or individuals with structural abnormalities of the urinary tract may be polymicrobial. In uncomplicated UTIs Escherichia coli is the leading organism, whereas in complicated UTIs the bacterial spectrum is much broader including Gram-negative and Gram-positive and often multiresistant organisms. In this study 22 patients are affected by Ecoli followed by pseudomonas , enterococcus and mixed bacteria 2 in each number of patients. This study is positively correlated with study of Edmond Puca et al. In this study among the 30 patients 6 patients having comorbidity of DM+HtN .one patients each in diabetes and hypertension alone category. The remaining 22 patients having no comorbidities. High blood glucose levels can also raise the risk of auti. People with diabetes have bladders that don’t empty as well as they should. As a result, urine stays in the bladder too long and becomes a breeding ground for bacteria.

Treatment of urinary-tract infection is based on its location and on patient characteristics. A variety of antibiotics are available, and choices depend on many factors, including whether the infection is complicated or uncomplicated, primary or recurrent, symptomatic or asymptomatic. Although antibiotics are the first treatment choice for urinary tract infections, antibiotic-resistant strains of E. coli, the most common cause of UTIs, are increasing worldwide. Depending on difficulties of treatment: recurrent, complicated and upper UTIs are more problematic compare with other types of UTI. Complicated UTI is a very heterogeneous entity, with a common pattern of the following complicating factors: 1. Anatomical, structural or functional alterations of the urinary tract. 2. Impaired renal function, by parenchymal diseases, or pre,-intra,- or post renal nephropathies 3. Accompanying diseases, that impair the patient's immune status The therapy of uncomplicated UTIs is almost exclusively antibacterial, whereas in complicated UTIs the complicating factors have to be treated as well . Whereas community acquired UTIs are often uncomplicated, almost all nosocomial UTIs are complicated infections . Until recently antimicrobial resistance and healthcare associated infections are increasing.

In this study 12 patients were receiving nitrofurantoin, followed by 7 patients with ceftriaxone, 5 patients by piperacillin + taxobactum,3 patients each in moxifloxacin and amikacin therapy. It is depend upon physician , hospitals and micro organisms.

CONCLUSION

UTIs are some of the most frequent clinical bacterial infections in women. RUTIs are less common and are mainly caused by reinfection by the same pathogen. UTI is a common disorder seen in urgent care practice. The clinician should use history, physical examination, and focused testing to confirm the diagnosis and evaluate, when appropriate, for other diagnoses or more complicated situations. Most patients with uncomplicated UTI can be effectively managed as outpatients using empiric antibiotics in accordance with the most recent guidelines and appropriate discharge instructions.

REFERENCES

1. Gupta K, Hooton TM, Naber KG, et al. Infectious Diseases Society of America, European Society for Microbiology and Infectious Diseases. International clinical practice guidelines for the treatment of acute uncomplicated cystitis and pyelonephritis in women: a 2010 update by the Infectious Diseases Society of America and the European Society for Microbiology and Infectious Diseases. *Clin Infect Dis.* 2011;Mar;52(5):e103-20.
2. Weinick RM, Burns RM, Mehrotra A. Many emergency department visits could be managed at urgent care centers and retail clinics. *Health Affairs.* 2010;29(9)1630-36.
3. Laupland KB, Ross T, Pitout JD, Church DL, Gregson DB (2007) Community-onset urinary tract infections: a population-based assessment. Infection 35:150–153.
4. Puca E (2014) Urinary Tract Infection in Adults.ClinMicrobiol 3: e120.

5. Rahn DD. Urinary tract infections: contemporary management. UrolNurs. 2008;28:333–41.
6. Foxman B, Barlow R, D'Arcy H, Gillespie B, Sobel JD. Urinary tract infection: self-reported incidence and associated costs. Ann Epidemiol. 2000;10:509–15.
7. Foxman B. Epidemiology of urinary tract infections: incidence, morbidity, and economic costs. Am J Med. 2002;113:5–11S.
8. Mignini L, Carroli G, Abalos E, Widmer M, Amigot S, Nardin JM, et al. World Health Organization Asymptomatic Bacteriuria Trial Group Accuracy of diagnostic tests to detect asymptomatic bacteriuria during pregnancy. Obstet Gynecol. 2009;113:346–52.
9. Mohsin R, Siddiqui KM. Recurrent urinary tract infections in females. J Pak Med Assoc. 2010;60:55–9.
10. Albert X, Huertas I, Pereiro I, Sanfelix J, Gosalbes V, Perrotta C. Antibiotics for preventing recurrent urinary tract infection in non-pregnant women. Cochrane Database Syst Rev. 2004;3:CD001209.
11. Gopal M, Northington G, Arya L. Clinical symptoms predictive of recurrent urinary tract infections. Am J Obstet Gynecol. 2007;197:74.e1–4.
12. Ahmed Al-Badr[1] Recurrent Urinary Tract Infections Management in Women Sultan Qaboos Univ Med J. 2013 Aug; 13(3): 359–367.