

Review Article

BACTERIA ASSOCIATED WITH URINARY TRACT INFECTION IN PREGNANT WOMEN WITH OVERVIEW OF THEIR ANTIBIOTIC SUSCEPTIBILITY TESTS

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ABSTRACT

Urinary tract infection (UTI) is one of the most common health problems among pregnant women and the reason for morbidity during pregnancy in worldwide, most of them in developing countries. The causative agents include *Escherichia coli*, *Klebsiella* species, *Staphylococcus aureus*, *Staphylococci*, *Proteus mirabilis*, *Enterococcus species*, *Pseudomonas aeruginosa*, *Enterobacter species*, *streptococci*, and *Citrobacter* species. Risk factors in pregnant women is more in urinary tract infection (UTI). This current research aimed that which drug is resistance for pathogenic bacteria and their resistance gene patterns in pregnant women. The altogether predominance of urinary tract infections in pregnant women is approximately 13-18% overall. Gram-positive and gram-negative both bacteria were isolated. Which shows gram-negative bacteria (85%) and gram-positive bacteria were only 15%. *E. coli* is the most predominant bacteria among the study. And the antimicrobial susceptibility patterns of these isolates showed high resistance towards nitrofurantoin, ciprofloxacin, and gentamycin. More sensitive towards amoxiclav, cefuroxime, etc., Pregnant women with Asymptomatic UTI consider *E. coli*, *Klebsiella pneumonia*, *Proteus mirabilis*, *Pseudomonas aeruginosa*, *Acinetobacter baumannii*, *Staphylococcus arlettae*, *Enterococcus faecalis* and showed resistance to most drugs. The frequent appearance of isolates from urine sample along with their resistance capability tests. The antibiotics can be prescribed based on side effect to prevent pregnant women in case of empirical treatment. In order to overcome the problem of UTI in pregnant women many researches are going on, currently, the drug resistant of UTI is leading to the new technologies and identification method of drug-resistant UTI helps to overcome the infection.

Keywords: Antibiotic, *Staphylococci*, Susceptibility

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INTRODUCTION

Urinary tract infection (UTI) is one of the most common infections in pregnant women and it occurs approximately in 5%-10% of all pregnancies. This study aimed to determine bacteria associated in pregnant women and their antibiotic susceptibility test in developing countries like India. The overall magnitude of UTI organism are *Escherichia coli* which found to be the most frequent organisms and also *Klebsiella pneumonia*, *Citrobacter*, *salmonella group A*, and *Enterobacter cloacae*. Gram negative bacteria were sensitive to ciprofloxacin, gentamicin, and nitrofurantoin and fully resistant cefuroxime. The frequent appearance of isolates from urine sample are mainly growing the resistance capability. The above antibiotics can be prescribed based on side effect to prevent pregnant women in case of empirical treatment. The highest prevalence rate was observed in infected women were in the age group of 28-38yrs, with 3rd trimester of pregnant women also highest infection rate observed in the 7th month of pregnancy increased parity prone for UTI apart from individual hygiene and economic status. The condition in which bacteria are established and multiplied within the urinary tract is called Urinary Tract Infection (UTI) and mainly causes by pregnant women. It can be easily preventable and it is prevalent in women in pregnancy which shows a great challenge by physicians, pregnancy is a case associated with structural, functional and physiological changes in the urinary tract which elevate infections through urethra [1]. The majority of cases, UTI's are produced by asymptomatic bacteriuria. The risk factors such as low birth weight, preterm birth, still birth, preeclampsia, maternal anemia, sepsis, and amnionitis. Even when the infection is asymptomatic [2]. Other study reported that *Escherichia coli*, *Klebsiella spp*, and *enterococcus spp*, are the most causative agents of UTI's. The most causative agent of urinary tract infection is *Escherichia coli* bacteria belongs to the family *Enterobacteriaceae*, which are rod-shaped bacteria [3]. The most common bacteria isolated in pregnant women were *E. coli* [4]. The increase in resistance of antibiotics in the progress rate of pragmatic treatments and hence it is essential to carry out susceptibility tests. UTI can either by symptomatic or asymptomatic.

Escherichia coli bacteria are the most causative pathogen of both symptomatic and asymptomatic infections in urinary tract during pregnancy [5, 6]. The pregnant women with bacteria should be treated, and the choices of antimicrobials which use in pregnancy treatment must be safe for both fetus and mothers [7]. Antibiotics are used to treat for asymptomatic and symptomatic urinary tract infections during pregnancy [8]. The targeted bacteria will become resistant to effective antibiotics. The purpose is to study the isolate and identify the bacteria which cause UTI and their development in antibiotic susceptibility pattern. Additionally, pregnant women's are associated with physiological changes and because of their immune-compromised UTI host. These changes increase in the risk of infections that could be symptomatic or asymptomatic. Drug resistance in bacteria causing UTI is increased by the introduction of UTI chemotherapy [9]. Urinary tract infection (UTI) is based on the invasion of microorganisms and their growth in any part of the urinary tract, which includes the ureters, kidney, urethra, and bladder etc, this is one of the most known infectious diseases which results over 150 million cases per year globally. As a result, both males and females will become infected with UTI; however, females are more susceptible to UTI than males due to their short urethra and anus, which allows for simple contamination of the urinary tract, causing hormonal changes in pregnancy.

The most frequent bacterial infection during pregnancy is urinary tract infection, which is connected to low birth weight, hypertension, early delivery, and intrauterine growth restriction. Urinary tract infection is classified under two types: Asymptomatic and symptomatic bacteriuria during pregnancy. Microbiologically significant bacterial growth in pregnant women's urine that does not cause UTI symptoms is referred to as asymptomatic bacteria [10]. If left untreated, it affects 2-15% of pregnant women, making it a common risk factor for pyelonephritis. Several reasons are associated with this increased rate of frequency of bacteriuria which include age and presence of genitourinary abnormalities (kidney, bladder stones, urethral, tumors, sexual activity, anemia, decreased immunity and past history of UTI) etc. *Escherichia coli* is the most frequent pathogenic microorganisms associated with both symptomatic and asymptomatic bacterial infection for 60-80% of pregnant women, which mainly

causes UTI. This is the major health problem of developing countries by the surveillance data of (WHO) world health organization which reports low-income countries which high level of bacterial infection are identified with *E. coli* and *K. pneumonia* that were the most resistance pathogens. As a result, regarding the bacterial profile and antimicrobial susceptibility patterns of UTI among pregnant women is increasing in the state [11]. Some of the symptoms of UTI which includes high frequency of urination and burning sensation with pain association when urine is discharged, and rigorous urinary infection that also cause nausea, fever, chills and vomiting. The infected pregnant women are treated with particular antibiotics with the special emphasis of antibiogram results [12].

Urinary tract infection

Urinary tract infection (UTI) that occurs in the part of the urinary system like the kidney, urethra, ureters, bladder. Most of urinary

tract infections involve the lower tract that are urethra and bladder. Women are more prone to UTI than men because of their shorter urinary bladder it can cause pain and annoying. Whereas, when the infection cause very serious consequences can lead to UTI spreads to the kidney. Clinicians treat UTI with the basic antibiotics. The UTI is mainly causes the pregnant women, in pregnancy, the urinary infection has divided into two types which are asymptomatic and symptomatic (fig. 1).

- **Asymptomatic:** UTI is a significant bacteriuria which shows an acute urinary tract infection without symptoms.
- **Symptomatic:** Bacteriuria is divided into acute cystitis (lower tract) and acute pyelonephritis (upper tract) infections. The pyelonephritis bacteriuria which is associated inflammation in the renal parenchyma, pelvis and calices. Whereas cystitis will associate with bladder mucosal invasion [16].

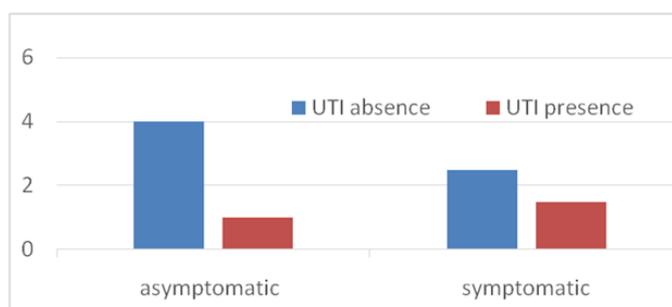


Fig. 1: Predominance of asymptomatic and symptomatic infection in UTI

Global uti cases of pregnant women

It is estimated that 150 million UTI's occurs every year on a global basis, resulting in more than 6 billion dollars in direct health care expenditures. It is the most common medical complaint among pregnant women and estimated that up to 40% of pregnant women in some point of their life, will affect UTI infection, also called bladder infection or cystitis; when bacteria enter the bladder a urinary infection, usually, it occurs through the urethra and begin to

multiply. Various microorganisms are prevalent in the urinary tract and can cause bacterial infection (UTI), which is the most common cause of premature birth. Around 40-50% of women in the world are impacted by the condition, while only 5% of men are affected.

Bacterial organisms, which cases this disease are *Escherichia coli*, *Klebsiella pneumonia*, *proteus*, *Saprophyticus*, *Streptococcus Group B*, *Staphylococcus*, and *Pseudomonas aeruginosa*. In this the most encountered bacteria were *E. coli* and *Klebsiella pneumonia* (fig. 2).

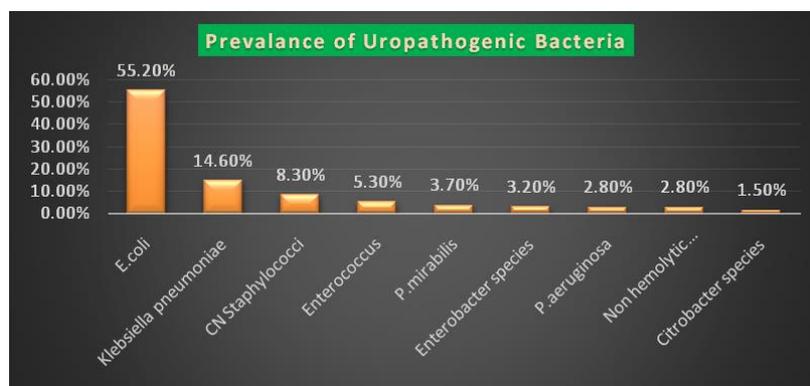


Fig. 2: Shows the prevalence of uropathogenic bacteria

Epidemiology

Urinary tract infection is the most frequent infection, with more than six million affected people visiting doctors each year. Because of the high incidence of UTI abnormalities, the occurrence of complex urine infection is increased. Even among the elderly, UTI is the most frequent bacteremia infection.

There are several risk factors for acquiring infection in the urinary tract they are sexual intercourse, history of UTI and hygiene level matters. In most of the studies showed that in use of spermicide

which is confirmed that it is the triggering change in vaginal flora and in urethral colonization by uropathogens in urinary tract. After the first infection of UTI, it is common when it is reoccurring. During this period of infection in pregnant women, the most encountered bacteria is *E. coli* which is up to 55% in the total study area [22].

In Karnataka, the number of UTI cases is are approximately from 5-10%. The main reason behind this UTI in pregnant women is there past UTI cases and amplified risk factors throughout their pregnancy which include low financial status, sickle cell trait, anaemia, and prenatal care etc.. Acute pyelonephritis and acute cystitis were

showed that 1-2% of pregnancy women with a microbial spectrum which are similar to asymptomatic infection. Mysore reports showed that 2 to 10% of pregnant women will experience asymptomatic urine. During pregnancy UTI tend to re-occur frequently.

The main common organism which is found in UTI infection is *Escherichia coli*. It is commonly called as *E. coli*, is a gram-negative, facultative anaerobic, rod-shaped, coliform bacterium of the genus *Escherichia* that is commonly found in the lower intestine of warm-blooded organisms.

Scientific name: *Escherichia coli*

Domain: Bacteria

Order: Enterobacterales

Higher classification: *Escherichia*

Family: Enterobacteriaceae

Phylum: Pseudomonadota

Rank: Species

This was mutual bacteria which causes urinary tract infection in pregnancy. Based on previous researches, in the sixth week of pregnancy UTI may occur in peaks at 22-24 w of gestational age, and *Escherichia coli* will come under the family of *Enterobacteriaceae*.

Klebsiella pneumoniae: *Klebsiella* is a Gram-negative, lactose-fermenting, encapsulated, facultative anaerobic, non-motile rod-shaped bacterium. It appears as a mucoid lactose fermenter on MacConkey agar.

Scientific name: *Klebsiella pneumoniae*

Higher classification: *Klebsiella*

Order: Enterobacterales

Rank: Species

Family: Enterobacteriaceae

Phylum: Pseudomonadota

These were the most commonly observed bacteria's in urinary tract infection among pregnant women.

Pathogenesis

UTI are the most common infection in the period of pregnancy. Pyelonephritis (kidney infection) can affect the morbidity and can be unsafe to both fetus and the mother. The study of virulence factor and cultures of the uropathogenic bacteria are advocated for appropriate management of pyelonephritis. When antibiotic treatment will fail it is because of the lower genital tract infection which is associated with pyelonephritis. Every pregnant woman should be regularly screened and urine cultured, then it should be medicated using antibiotics [13]. Asymptomatic bacteriuria can develop into pyelonephritis or cystitis. Preterm birth is the major cause of neonatal deaths yearly. Out of 15 million newborn babies are preterm annually, and 11 million prematurity birth complications occurs in countries. Most of the people come across the preterm infants which increased risk factors of school learning, behavioral problems, chronic lung disease, lower growth accomplishment, hearing impairment. Some interpose effectively prevent prematurity birth [14].

Preventing premature birth is an important objective for maternal infection medications, especially in low-income countries. Nearly 40% of women in the world are afflicted with urogenital tract infections, while 60-80% of infected pregnant women remain asymptomatic. In a salubrious woman, most of the uropathogens arise in the intestinal flora and enter to the bladder via the urethra with a temporary phase of surrounding the urethra and bottom of urethral expansion. And the symptomatic UTIs spread when uropathogens in the bladder or kidney which stimulate cytokine and release, which resulting in an inflammatory response and symptoms. UTIs are the most common in woman, which are originated with considerable morbidity and occur frequently. The pathogenesis of UTI is complex and influenced by many host's biological and behavioral factors as well as characteristics of the infecting pathogen.

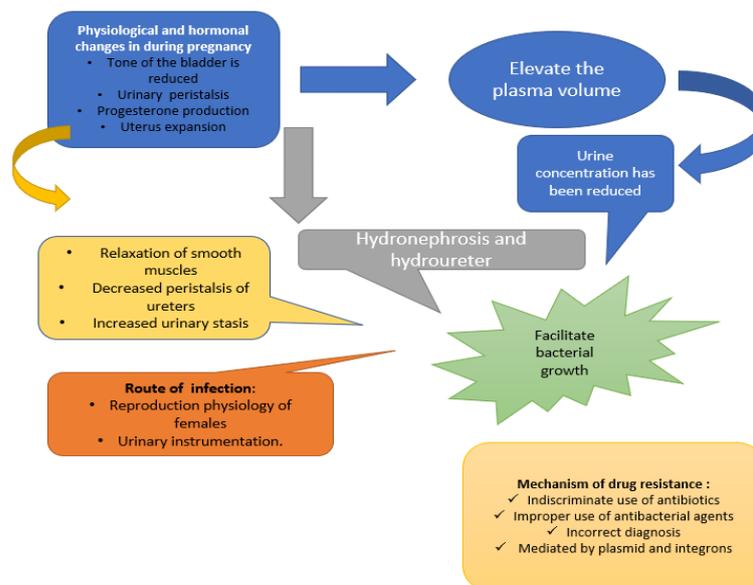


Fig. 3: Pathogenesis and risk factors of UTI among pregnant women

Risk factors

Urinary tract infection (UTI) is one of the most common clinical complications, which involves urethra, kidney, and bladder. After the cause of anemia, UTI is the second most common problem in pregnant women, if it is untreated, it can affect the health of

pregnant mother [15]. Which involves these many complications in UTI among pregnant women:

- UTI affects almost all age groups. In pregnancy very easy contamination in the urinary tract with the intestinal flora, and the absence of prostatic excretion.

- Also, during pregnancy the physiological will be more in the plasma volume and it decreases the urine concentration which is up to 80% of women during their pregnancy and causes glucosuria, which stimulate the bacterial growth in the urine.
- During pregnancy women are all most prone to urogenital symptoms. The regularity of intense bladder indication will start from the early pregnancy where their urine excretion symptoms will increase with their gestational age that remain manageable.
- Lower urinary tract manifestation was the most common in all over the world in antenatal care. And these symptoms will review pregnant women includes the changes in urethra and urinary bladder or maybe effect of urethritis and cystitis.
- Gastrointestinal excretion in pregnant women which improves after the delivery is because of detrusor instability.
- UTI in pregnancy will be asymptomatic will can easily curable. In some cases, symptomatic bacteriuria which will be increased in risk of low birth weight and preterm delivery.
- Additionally, the development of cystitis is because of untreated asymptomatic bacteriuria this can lead to the growth of pyelonephritis. Whereas acute pyelonephritis can develop anemia.
- Hence, the screening is very important step in UTI in pregnancy so that a treatment regime can be incurred [17].
- Low-income, household wealth, maternal undernutrition and obstetrician were associated with the high risk of UTI. Higher education of the women is required to understand the UTI infection and the care should be taken by their husband to protect from the infection [18].

Modes of transmission

UTI is the expansion of the urinary tract with pathogenic microorganisms. This infection is caused by bacteria, fungi and viruses. The main reason for this infection is long time admissions in the hospitals, financial problems to patients and the discouragement of population. Most of the UTI's is caused by the bacteria which are found in the normal flora, bowel and results in the form of perineal areas and faecal. Infection in lower urinary tract and upper tract where organisms are very capable of invading the damage tissues. Lesions are caused by UTI with severe to morbidity in the public, which results in loss of renal function, that leads to prolonged illness. Urinary tract infection is termed by the multiplication of uropathogens, and microbial colonization in the epithelial cells and also in tissue invasion. This is one of the locations where germs can infiltrate, and a large number of pregnant women will become sick at some point during their lives. It is one of the most frequent infections, and despite the availability of increasingly potent and new medications for afflicted people, bacterial resistance persists.

The causative agent of UTI and their antibiotic resistance pattern were highly variable around the world, posing a risk of life-threatening complications and mortality. The most effective method for treating and diagnosing UTI infection is to culture a urine sample. The two clinical illnesses observed in symptomatic bacteriuria in infected patients were pyelonephritis and cystitis. Most commonly found were bacteria and more prevalent in UTI. The manifestation of UTI is burning feeling in bladder, nausea, fever, dysuria, flank pain, polyuria and the urine is milky which have foul smell [19].

Microbiology

UTI is apopular uncomplicated infection caused by uropathogenic strains causing bacterial infection particularly *E. coli* is the most common causative agent. The common organisms are *Klebsiella*, *Enterobacteriaceae*, *Proteus* and *Enterobacter* species. Gram-positive bacteria, such as *Enterococcus* and *S saprophyticus* they can produce in some situation. UTI among pregnant women occurs nearly 10% particularly in summer and autumn season. *Enterococcus* causing infection in UTI is very complicated infection, where the patients indwelling the catheters of urethra or getting the broad-spectrum antibiotics for any other bacterial infection. In primary urine

infection, *aureus* is the most causing organism which infects the urinary tract through secondary source, or from blood stream. The organisms which are antibiotic resistant or unusual bacterium they are likely complicated UTI. In urinary tract variety of organisms have been isolated such as, mycobacterium, yeast, and viruses [22]. In UTI causing patients, recently reported that when their structures will differ, it has *Actinomyces bernardiae*, *Nocardia asteroides*, *Mycobacterium terrae* and *urethralis* causing agents. Infrequently, the other enteral pathogen is nontyphoidal Salmonella which cause urinary tract infection among pregnant women. *Enterococcus faecalis* strain which cause UTI is reported that vancomycin drug will be the antibiotic-resistant bacteria for complicated UTI infection [23].

Pathophysiology

UTI (urinary tract infection) is a complex interaction between bacteria, and its virulence has a greater influence on the host's defenses. The virulent factors in *E. coli* have been thoroughly studied, and many of the theories are connected to klebsiella and other gram-negative bacteria [24]. Most of the *E. coli* strain belongs to the particular number of serotypes and they adhere some of the organelles called fimbriae. Hardly, on some cases of asymptomatic infection, the bacterial strains and P fimbriae were most found in acute pyelonephritis; they mediate for *E. coli* to uroepithelial cells [26]. Those children who carry the intestinal strain of *E. coli* with P fimbriae cause high risk of emerging UTI [25].

Some factors play a role in the development of urinary tract infection; for example, in healthy young women, the most common reason for developing UTI is due to behavioral changes such as sexual activity, spermicide use, and voiding practices, which can lead to urethral colonization in urinary tract infection [27]. In comparison to young ladies, elderly individuals have the most difficult UTIs throughout their lives. Approximately 3-10% of the world's population uses urethral catheterization. Medical disease, prostatic hypertrophy, nosocomial infection, and neurogenic bladder are the other variables associated with complex UTI in the elderly [28].

Antimicrobial susceptibility test (AST)

Antimicrobial susceptibility was done by the use of disk diffusion method under laboratory standards institute and clinical guidelines [20]. Mueller-Hinton agar is generally used for the antibiotic susceptibility test. Media is low sulfonamide and provides sufficient growth of pathogens [21]. The drugs which were used for AST plating method were according to the type of microorganisms are: *Enterobacteriaceae* (Amikacin (30µg), Levofloxacin (30µg), Gentamycin (10µg), Impinem (10µg), Ofloxacin (30µg), Gemifloxacin (30µg), Naladixic acid (30µg), Streptomycin (30µg), Ciprofloxacin (30µg), Piperacillin-Tazobactam (10µg), Fosfomycin (50µg), Nitrofurantoin (300µg), Cefotaxime (30µg), Cefepime(30µg), Cefoxitin (30µg), Ampicillin (30µg), Ampicillin-Sulbactam (10µg). Also, with *Acinetobacter* spp (Ceftazidime (5µg), Impinem (10µg), Tetracycline (30µg), Gentamycin (10µg), Gemifloxacin (30µg), Cefepime (30µg), Piperacillin-Tazobactam (100\10µg), Ciprofloxacin (30µg), Amikacin (30µg), Piperacillin-Tazobactam (100\10µg), Levofloxacin (30µg)). Antibiotics with *Pseudomonas aeruginosa* (Impinem (10µg), Gentamycin (10µg), Gemifloxacin (30µg), Cefepime (30µg), Piperacillin-Tazobactam (100\10µg), Ofloxacin (5µg), Ciprofloxacin (30µg), Amikacin (30µg), Levofloxacin (30µg)) Where use with *Staphylococcus* spp. (Penicillin (10µg), Tetracycline (30µg), Erythromycin (15µg), Clindamycin (2µg), Linezolid (30µg), Nitrofurantoin (300µg), Ciprofloxacin (30µg), Levofloxacin (30µg), Gentamycin (10µg), Ofloxacin (5µg), Gemifloxacin (30µg), Novobiocin (30µg)). Antibiotics for *Enterococcus* spp (Levofloxacin (30µg), Tetracycline (30µg), Fosfomycin (30µg), Gentamycin (30µg), Streptomycin (10µg), Ethromycin (15µg), Gemifloxacin (30µg), Vancomycin (30µg), Penicillin (10µg), Ampicillin (10µg), Linezolid (30µg), Nitrofurantoin (300µg), Ciprofloxacin (30µg)). The antibiotics were made according to the CLSI guideline. The clear zone was examined by millimeter, and zones were compared with the CLSI standards for interpretation. The report was done by showing Resistant, Intermediate, or Sensitive for the strains [20, 21]. *Klebsiella pneumonia* which is the second most isolated organism, showed high resistant to ampicillin, followed by amoxyclove, cefixime and

amikacin for each, to cefuroxime and only one strain showed resistant toward imipenem. Diameters of the zone of inhibition around the discs were measured using a digital caliper, and the isolates were classified as sensitive and resistant according to the standardized table supplied by CLSI guidelines. The clear zone was examined by millimeter, and zones were compared with the CLSI standards for interpretation. The report was done by showing Resistant, Intermediate, or Sensitive for the strains.

Eradication of uti among pregnant women

Clinical manifestations

Signs of acute UTI which includes dysuria and commonly voiding. The urine is cloudy and occasionally, it encompasses with blood. In uncomplicated acute cystitis fever is not characterized. Hence, the acute pyelonephritis may affect high fever and cost vertebral pain. As results are normal in physical examination, they show suprapubic inflammation in cystitis, and the patients have the bulging flank in perinephric swelling [29]. Some of the signs and symptoms of the classic UTI in aged patients they are nausea, vomiting, and gastrointestinal syndrome. They do not have fever with pyelonephritis or urosepsis. More significant bacterial infection occurs in women with asymptomatic infection. They suggest that, the infected patients with low bacterial count of the colony are mainly identified that it has been established in the bladder of urethra, and should be treated if the patients are causing symptomatic bacteria. Urethral syndrome which refers to a sign in patients with bacterial colony count which is less than 10⁵ units/ml in the infected urine sample. Additionally, the UTI which causes acute urethral syndrome is because of chlamydia trachomatis and Neisseria gonorrhoeae infection which affects in allergic reactions in the urinary tract [30]. In aged patients, the asymptomatic bacteria with some circumstance which does not need much treatment. Who mainly works in nursing hospitals they affect 25% of women and 20% in men with significant bacterial infection and the elderly patients those who are not in hospitals, only 5% of men and women were infected with bacteria [31]. Then the treatment for infected asymptomatic patients which leads to uncomplicated infection with resistant organisms and prescribed antibiotics and patients with this infectious disease should be treated because to control the urinary stones.

UTI treatment

The algorithm of MIST treatment for positive urine culture is used. If there is high growth is urine culture of pregnant women then the UTI is treated that is approximately (> 10⁵ CFU/ml of pus cells) as per ACOG (American College of Obstetricians and Gynecologists) guild lines. The first step treatment was given to infected patients is cefixime of 400 mg once in a day for 3 d then *E. coli* showed only 2-3 susceptible to cefixime in the first step of treatment. Then it was changed to nitrofurantoin which is of 100 mg for 7 d course. After prescribing nitrofurantoin the symptomatically infected patients were going easy. For pregnant women who obtain positive cultures and antibiotics for one week. If second urine culture will remain positive, then the physician will prescribe the antibiotic based upon the AST pattern. When treating the UTI-infected patients have been grouped into 5 group they are:

- 1) Young women with acute uncomplicated pyelonephritis.
- 2) Adults with complicated UTI
- 3) Regular cystitis in young women
- 4) Acute uncomplicated cystitis in young women
- 5) All adults with asymptomatic bacteria

Treatment of infected patients with therapy and antibiotics will depends on the above classification of these groups. The 3 d course of antibiotics will be prescribed for symptomatic cystitis in young women, for *E. coli*, *S saprophyticus*, *Proteus mirabilis*, and *Klebsiella pneumoniae* the mentioned treatment is trimethoprim-sulfamethoxazole or a fluoroquinolone for eradication of those bacterial infection. For young women with acute uncomplicated pyelonephritis, the oral therapy with trimethoprim-sulfamethoxazole or fluoroquinolone for 14 d of treatment is

prescribed [32]. Therapy is required for complicated UTI infected patients, and urine cultures with antibiotic sensitivity testing have been performed. Antibiotics should be given to patients with Enterococcus and pseudomonas bacterial infections. Before undergoing a difficult urological surgical treatment, pregnant women should be screened for asymptomatic bacterial infection. Treatment of a urinary tract infection (UTI) during pregnancy lowers the risk of preterm and pyelonephritis.

Diagnosis of UTI is based on the presence of an increased level of urine infection signs in pregnant women are bloody or cloudy urine, dysuria, suprapubic, fever, tiredness and costovertebral pain. A certain diagnosis which depends up on the demonstration of pyuria and bacteriuria. For the detection of nitrate and leukocyte esterase, urine dipstick test should be done rapidly to check the pyuria and bacteriuria which causing UTI in pregnant women [33].

CONCLUSION

This study shows that UTI is the most common infection in pregnant women compared to normal peoples. The main reason to this infection is poor hygiene, bladder catheters, urethral problem and low income in socials. The overall prevalence of urinary tract infection among pregnant women attending antenatal care was 7.80% that is *Escherichia coli* were the dominate isolated bacteria followed by *klebsiella pneumoniae*; gram-negative isolates are highly sensitive to ciprofloxacin, gentamicin, nitrofurantoin, cefuroxime and nitrofurantoin. To overcome this problem in the upcoming days the screening method and three days of prescribed antibiotics for infected women will help to reducing the UTI complications. Even though it is asymptomatic infection, monthly dipstick routines has to be done regularly. Special care should be taken for infected pregnancy women because it is related to fetus and the mother. The above antibiotics can be prescribed based on the side effect to pregnant women in case empirical treatment is mandatory in the study area.

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AUTHORS CONTRIBUTIONS

All the authors have contributed equally.

CONFLICT OF INTERESTS

The author's declare no conflict of interest.

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