Available Online through
www.ijpbs.com (or) www.ijpbsonline.com

IJPBS |Volume 5| Issue 3|JUL-SEPT|2015|136-144

Research Article
Biological Sciences

PREVALENCE OF URINARY TRACT INFECTION IN PREGNANT WOMEN IN THE REGION OF WARANGAL

[1]V.Kavitha*, [2] A.Narasimha Reddy, [3]N.Nagireddy,
[3]Mohammad Mohasin Pasha, [3]D.Anvesh & [3]M.Sasi kiran.

[1]Department of Obstetrics and Gynaecology, Kakatiya medical college, Warangal, (TS).
[2]Wise hospital-Warangal,(TS).
[3]Talla Padmavathi College of Pharmacy, Warangal, (TS).
*Corresponding Author Email: bethikavitha@yahoo.com

ABSTRACT

Urinary tract infections (UTI) are the most common bacterial infections during pregnancy. Untreated UTI can be associated with serious obstetric complications. This study was done to determine the prevalence of UTI among pregnant women attending in a private tertiary hospital of Warangal and to prevent complications of UTI. This study represents a cross-sectional study carried over a period of six months with a total of 163 pregnant women. UTI was diagnosed using mid stream urine (MSU) collection method. The prevalence was found to be 12.88%. There was a high incidence in 21–25 years age group (57.14%). There was also high incidence of infection in the second trimester of pregnancy (42.85%) compared to first (38.09%) and third trimester (19.04%). Multiparty is associated with increased urinary tract infection in pregnancy. The results underscore the importance of screening all pregnant women for significant bacteriuria, since UTI is the most common bacterial infection during pregnancy. Hence, positive cases should be treated subsequently with antibiotics in order to reduce the adverse effects on both maternal and fetal health.

KEY WORDS

Prevalence, Pregnant women, Urinary tract infection

INTRODUCTION

Pregnancy causes numerous changes in the woman's body. Hormonal and mechanical changes increase the risk of urinary stasis and vesicoureteral reflux. These changes, along with an already short urethra (approximately 3-4 cm in females) and difficulty with hygiene due to a distended pregnant belly, increase the frequency of urinary tract infections (UTIs) in pregnant women. Indeed, UTIs are among the most common bacterial infections during pregnancy.

UTI is defined as the presence of at least 100,000 organisms per milliliter of urine in an asymptomatic patient, or as more than 100 organisms/mL of urine with accompanying pyuria (> 7 white blood cells [WBCs]/mL) in a symptomatic patient. A diagnosis of UTI should be supported by a positive culture for an uropathogen, particularly in patients with vague symptoms. UTIs are associated with risks to both the fetus and the mother, including pyelonephritis, preterm birth, low birth weight, and increased perinatal mortality[1].

UTIs are characterized by the presence of infectious agents in the genito-urinary tract that cannot be explained by contamination. These agents have the potential to invade the tissues of the urinary tract and adjacent structures. The

microbiological profile is well known and pathogens such as Escherichia coli have been present in the vast majority of cases. The infection may be limited to the growth of bacteria in the urine (which frequently don't produce symptoms) or it can result in several syndromes associated with an inflammatory response to the bacterial invasion. Actually, the term UTI represent a wide variety of conditions, including asymptomatic forms of UTIs, urethritis, cystitis, acute pyelonephritis and pyelonephritis with bacteremia or sepsis[2].

In recent years bacteriuria of pregnancy has drawn attention of obstetricians all over the world because of its effects on the mother and fetus. Pregnant women are at increased risk for UTIs. Beginning in week 6 and peaking during weeks 22 to 24[3].

There is a 4-10% more incidence of urinary tract infection in pregnancy as compared to non-pregnancy woman. 60% pregnant women with asymptomatic bacteriuria in pregnancy went on to develop symptomatic infection and 20-25% developed pyelonephritis[4].

Versi et al described a higher prevalence of bacteriuria in pregnant white women (6.3%) than in pregnant Bangladeshi women (2%).Pregnancies that resulted in preterm deliveries were strongly associated with bacteriuria in white women; this association was not observed in Bangladeshi women. The authors hypothesized that the difference could be due to variation in hygiene practices and clothing. [5]

A large population-based study of nearly 200,000 pregnant Israeli women demonstrated a 2.5% rate of asymptomatic bacteriuria and a 2.3% rate of symptomatic UTI. In this population, asymptomatic bacteriuria was found to have an association with multiple pregnancy complications, including hypertension, diabetes, intrauterine growth retardation, prolonged hospitalization, and preterm labor. [6]

The authors suggested that these findings may be a marker for intensity of prenatal care rather than a specific causal effect of the urinary infection. Additionally, their follow-up study-examining women with symptomatic UTI showed a clear association between UTI and low birth weight and preterm delivery, a finding consistent with those of multiple previous investigations.

Urinary tract infections (asymptomatic bacteriuria, cystitis, and pyelonephritis) are frequently encountered medical complications of pregnancy. Pyelonephritis can result in significant maternal and fetal morbidity and mortality[7].

Urinary tract infections (UTIs) are one of the most frequent complications of pregnancy. When the lower UTI's of asymptomatic bacteriuria and cystitis are not eradicated, the subsequent risk of the development of pyelonephritis is increased. The associated decreased maternal morbidity and fetal prematurity are the goals of a screening and treatment program for pregnant women[8].

Untreated upper UTIs are associated with low birth weight, prematurity, premature labor, hypertension, preeclampsia, maternal anemia, and amnionitis[9-11].

MATERIALS AND METHODS

Study population:

163 patient data forms were collected.

Criteria for selection of sample:

- **Inclusion criteria:**
  - ❖ Mothers who are pregnant
  - ❖ Mothers who can understand either telugu, hindi or English
  - ❖ Mothers who are willing to participate
  - ❖ Age group of 18 to 45 years
- **Exclusion criteria:**
  - ❖ Mothers who are not willing to participate
  - ❖ Mothers who are not available at the time of data collection
  - ❖ Mothers who were on treatment with antibiotics

Sample design:

Sampling design is the method of drawing a representative part of the population from a whole population.

In the study the sample design selected is random sampling.

A sample selected after giving equal and independent chances of selection to each and every item of the population is called Random sampling.

Locus of the study:

Warangal Hospital, Warangal**.**

Wise Hospital, Warangal.

Duration of the study:- 6months.

METHODS

Urinary tract infections (UTI) study was conducted in two private hospitals. Consecutive booked antenatal women who presented at the antenatal clinics of the above mentioned hospital during the study period were randomly recruited into the study upon verbal informed consent, either had any of the symptoms suggestive of urinary tract infections or without any symptoms were only included where as non-pregnant women were excluded. A consecutive 163 pregnant women with or without symptoms of UTI were included in this study. Pregnant women having renal disease or on antibiotic therapy within 72 hours to the study days were excluded due to the fact that the antibiotic must have inhibited or destroyed the pathogens.Socio-demographic data such as age, occupation and duration of gestation were collected from the pregnant women using standard questionnaires and kept confidential during the research. Clean-catch midstream urine was collected from each pregnant women into a wide-mouthed sterile screw- capped container. With a Calibrated micro-loop 0.001 ml. of urine was cultured on to a Blood agar & a MacConkey agar plate. After overnight incubation at 37 ˚C for 24 hours, colony counts yielding bacterial growth of ≥105 / ml was taken as being significant in both symptomatic and asymptomatic pregnant women. Centrifuged urine deposit was examined microscopically at high magnification for pus cells, red blood cells, epithelial cells, casts, crystals, yeast-like cells.

RESULTS

Details of patients enrolled into the study:

Table 1: Details of patients examined:

	Number of patients	Percentage
Total no. of patients enrolled	**163**	**100**
Number of Pregnant women with UTI	**21**	**12.8**
Number of Pregnant women without UTI	**142**	**87.2**

A total of 163 pregnant women were included in the study. In this study out of 163 pregnant cases 21 patients showed significant bacterial growth making an overall prevalence of 12.88 %.

Table 2: Prevalence of Urinary Tract Infection in pregnant women in relation to age:

AGE(YEARS)	Number of patients examined	Number of positive UTI's	Percentage of Positive UTI's
18-20 years	6	0	0
21-25 years	110	12	57.142
26-30 years	45	8	38.095
31-35 years	2	1	4.761

Figure 1:Prevalence of Urinary Tract Infection in pregnant women in relation to age:

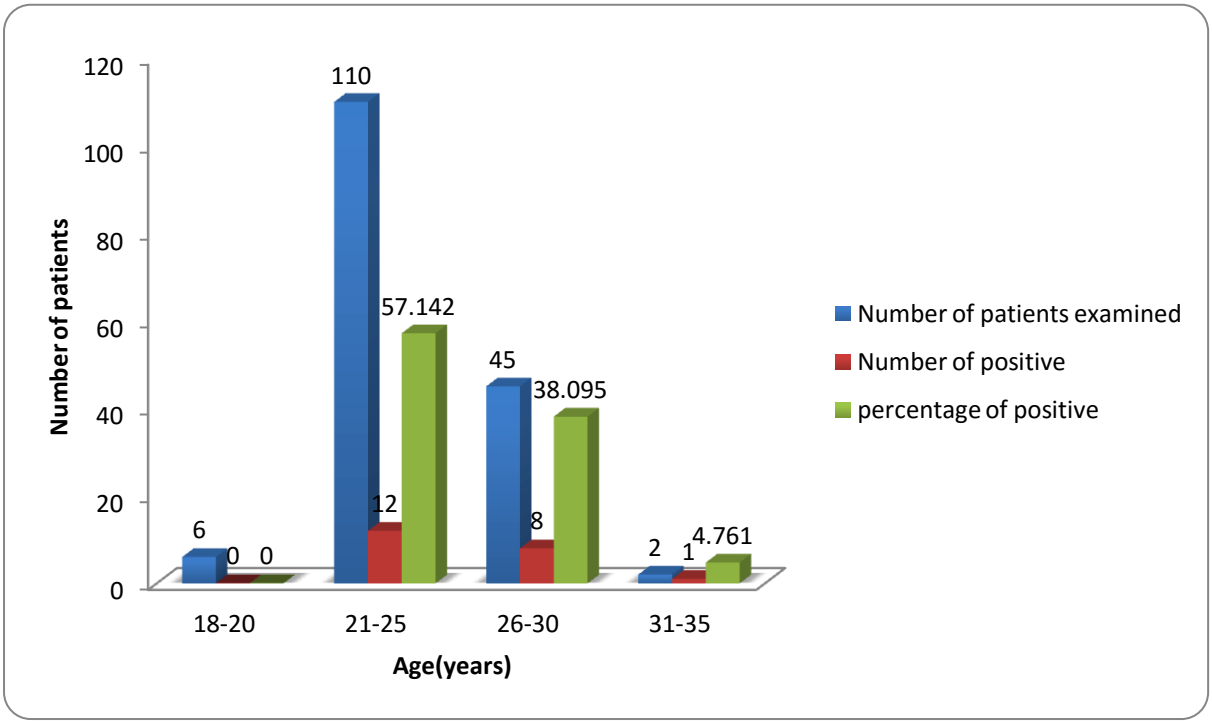


Table 3 : Prevalence of urinary tract infection in pregnant women in relation to gestational trimester:

Pregnancy Trimester	Number of patients examined	Number of positive	% Positive
1st Trimester	58	8	38.095
2nd Trimester	67	9	42.857
3rd Trimester	38	4	19.047
Total	163	21	99.999

Figure 2: Prevalence of urinary tract infection in pregnant women in relation to gestational trimester

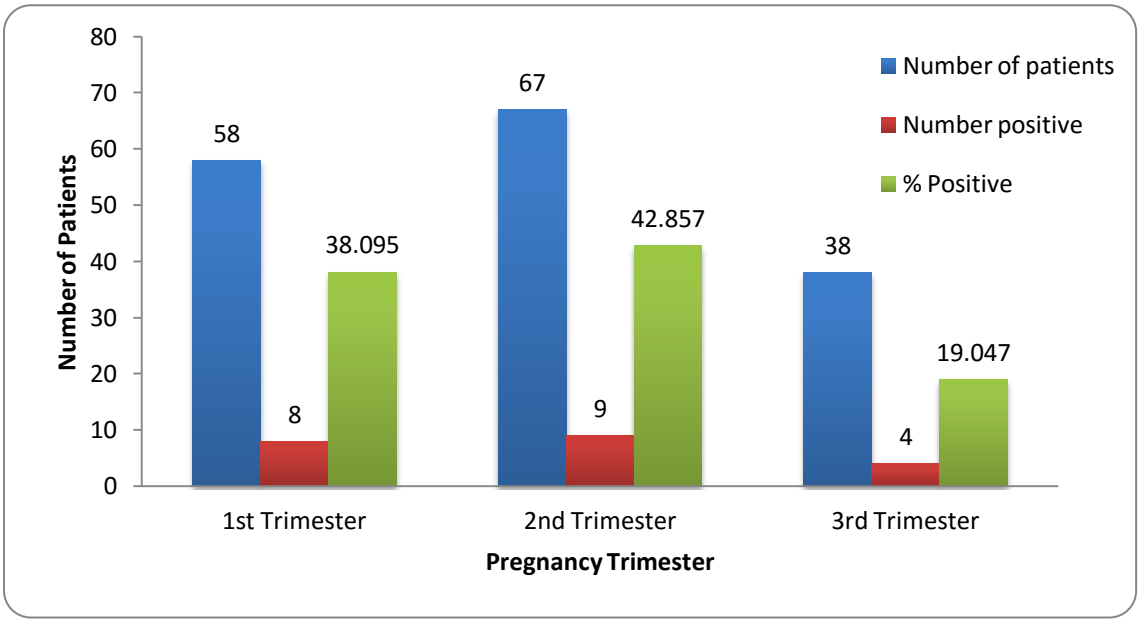


Table 4: Prevalence of urinary tract infection in pregnant women in relation to Gravida:

Gravida of Patient	Numberexamined	Number positive	% Positive
1st Gravida	91	12	57.142
2nd Gravida	67	7	33.333
3rd Gravida	5	2	9.523

Figure 3: Prevalence of urinary tract infection in pregnant women in relation to gravida:

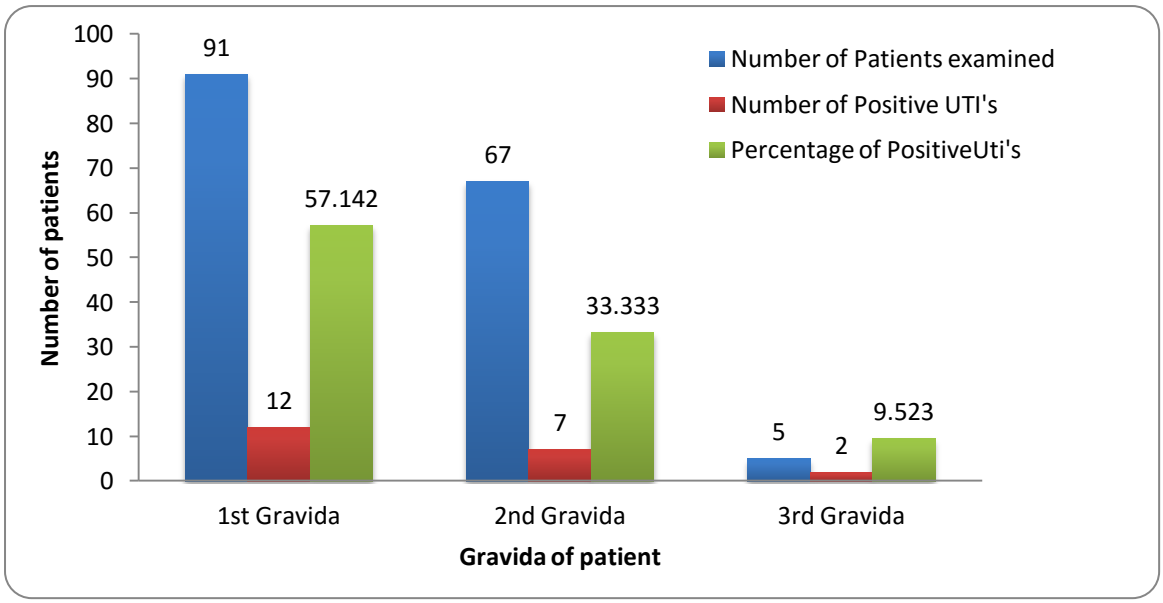


Figure 4:Prevalence of urinary tract infection in pregnant women in relation to place.

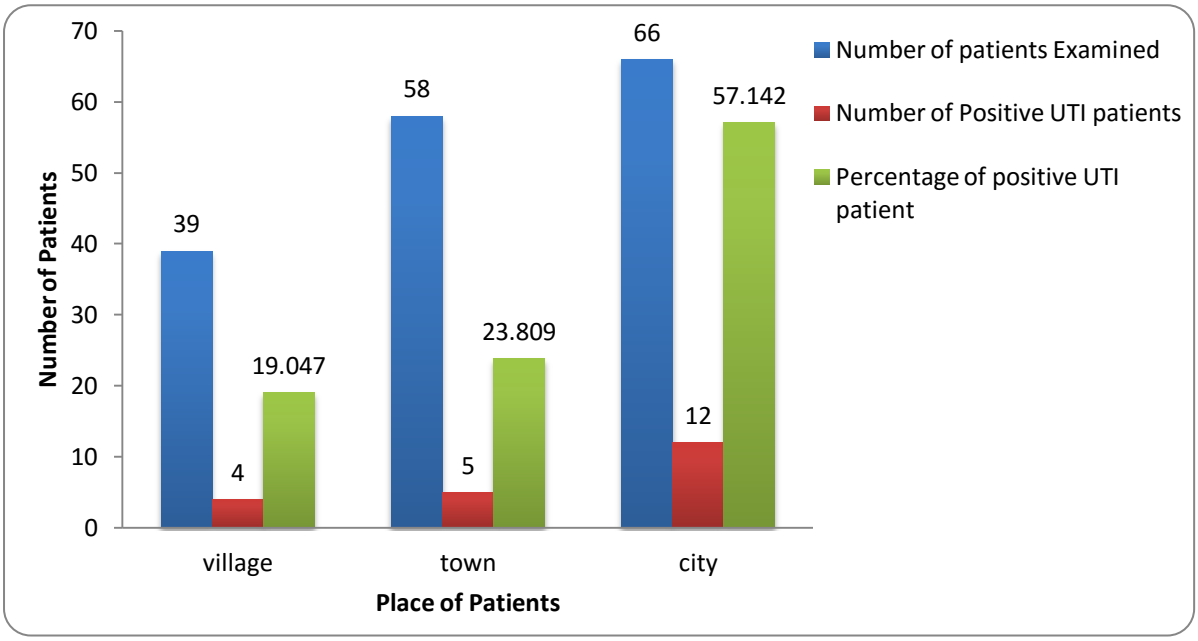


Table 5: Prevalence of urinary tract infection in pregnant women in relation to Occupation:

Occupation	Number of patients examined	Number of positive UTI's	Percentage of Positive UTI's
Non-Working women	113	14	66.666
Working women	50	7	33.333

Figure 5:Prevalence of urinary tract infection in pregnant women in relation to Occupation.

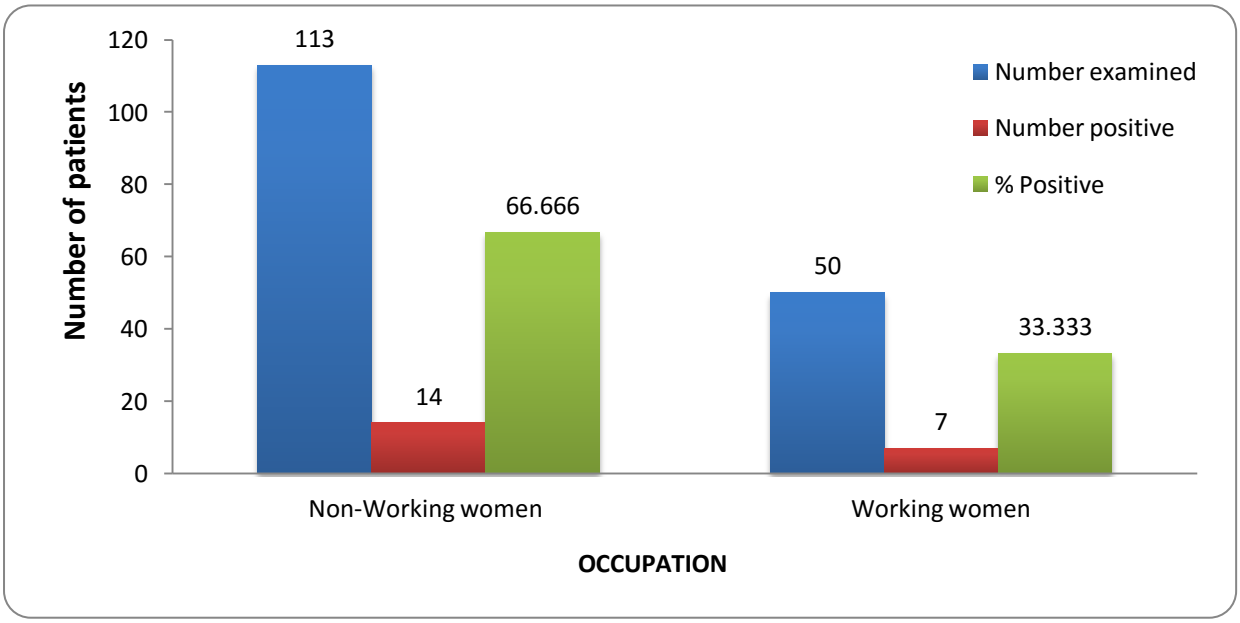
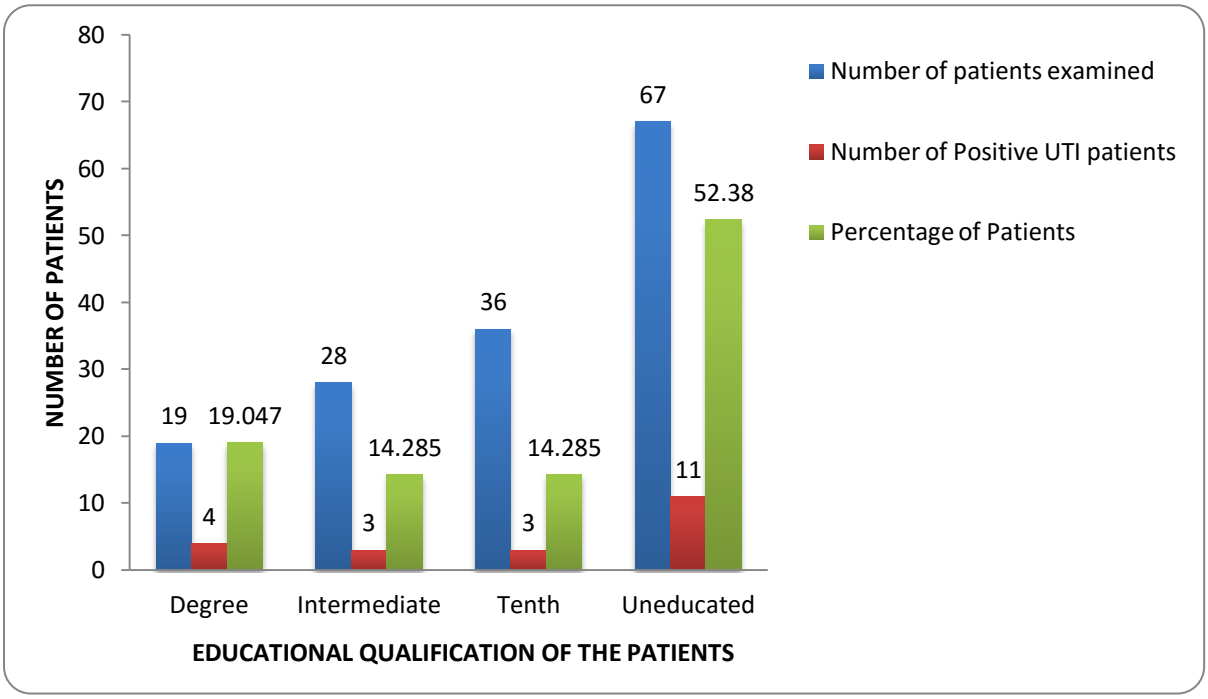


Figure 6 :Prevalence of urinary tract infection in pregnant women in relation to Education.



DISCUSSION

Urinary tract infections are one of the common infections occurring during pregnancy. The intent of present study is to determine the prevalence of urinary tract infection in pregnancy

A total of 163 pregnant women were included in the study. In this study out of 163 pregnant cases 21 patients showed significant bacterial growth making an overall prevalence of 12.88 %.

The prevalence of infection in relation to age, individuals of the age group 21-25 years had the highest incidence of infection 57.142%. Followed by age group 26-30 years of 38.095%, 31-35 years of 4.761% and no incidence in the age group 16 -20 years. The reason could be due to the fact that many women within this age group are likely to have had many children before the present pregnancy and it has been reported that multiparty is a risk factor for acquiring bacteriuria in pregnancy. Sexual activity and certain contraceptive methods are also said to increase the risk and women are mostly sexually active at this age. The report of this study is also similar to that of Leigh and Onuh et al , who also found the similar age group has highest incidence in developing urinary tract infection in pregnancy.

There was higher rate of infection in the Second trimester (42.857%) compared to first trimester (38.095 %) and second trimester (19.047%). There is an increased frequency of urinary tract infection in the second trimester compared to the first and third trimester of pregnancy. This difference may be as a result of either change in urinary stasis and vesicoureteral reflux or decrease in urinary progesterones and estrogens in the various trimester of pregnancy.

There was a high frequency of infection occurring in those having >0-1 children (57.142%). Followed by those having 2 children (33.33%) while the lowest frequency of infection occurred in those with 3 Children (9.523 %). Multiparity has an increased risk factor of developing bacteriuria among pregnant women. Leigh and Sharma J.B. et alhad similar observation regarding the risk of urinary incontinence and other urinary problem which according to them increases by 37.04% with

pariety of > 3 as compared to 18.75% in nulliparous but disagreement was evident with the findings of Onuh et al,who reported that there was no relationship to parity. These differences may be as a result of the different locations in which these studies were being carried out.

There was higher rate of infection in the city (57.142%) compared to town (23.809%) and village (19.047%). The reason could be due to use of public toilets in city. When there is poor sanitation and not using preventative techniques such as post-coital voiding and appropriate hygiene when toileting.

There was higher rate of infection in the non working women (66.666%) compared to working women (33.333%) .

There was higher rate of infection in the uneducated (52.38%) compared to degree(19.047 %) and Inter and tenth (14.285 %).

Urinary tract infections are common complications of pregnancy. Therefore, proper screening and treatment of urinary tract infections during pregnancy is necessary to prevent complications. All pregnant women should therefore be screened for the presence of bacteriuria, which if detected should be treated with an antimicrobial agent believed to be safe for use in pregnancy.

CONCLUSION

This study has shown that the prevalence of urinary tract infection during pregnancy is 12.88% in the region of Warangal. The physiological changes of pregnancy predisposed women to UTI were studied with other factors such as age, sexual activity, and previous history of UTI. Health education about personal hygiene should be emphasized by the antenatal care physician to all pregnant women. This study suggests that since, UTI is the most common bacterial infection during pregnancy, screening of bacteriuria in pregnancy should be a must. Proper safe antibiotic therapy should be considered since, Urinary tract infections are associated with risk to both mother and the fetus.

AKNOWLEDGEMENT

The authors are sincerely thankful to superintendent of Wise-Hospital and Warangal hospital for providing facilities and moral support to carryout this research work.

BIBILOGRAPHY

1. Emilie KJ. Urinary Tract Infections in Pregnancy. Medscape. [Online] 2014 [Cited 2014Nov 1]Available from:URL: http://emedicine.medscape.com/article/452604-overview
2. Elizabeth AC, RA Prince.Urinary Tract Infections and Prostatitis. . In: Dipiro JT, Talbert Rl, Yee GC, Matzke GR, Wells GB, Posey LM, editor. Pharmacotherapy: A Pathophysiologic Approach. 7th ed. US: Appleton and Lange; 1900. p. 1899-1913
3. Patterson TF, Andriole VT. Bacteriuria in pregnancy. Infect Dis Clin North Am. 1987;1:807-22.
4. Schnarr, J. &Smaill, F. Asymptomatic bacteriuria and symptomatic urinary tract infections in pregnancy. Eur J Clin Invest 2008 ; 38(Suppl 2): 50-57.
5. Versi E, Chia P, Griffiths D, Harlow B. Bacteriuria in pregnancy: A comparison of Bangladeshi and Caucasian women. IntUrogynecol J Pelvic Floor Dysfunct. 1997;8:8 – 12
6. Hollowell JG. Outcome of pregnancy in women with a history of vesico-ureteric reflux. BJU Int. Sep 2008;102(7):780-4.
7. Millar LK, Cox SM. Urinary tract infections complicating pregnancy. Infect Dis Clin North Am. 1997; 11:13-26.
8. Hodgman DE. Management of urinary tract infection in pregnancy. Perinat Neonatal Nurs. 1994;8:1-11.
9. RoschiaH. Experimental pyelonephritis ill influence of localised injury in different parts of kidney. Yale J Bio Med 1958; 30:341.
10. Turner G. Bacteriuria in pregnancy. Lancet. 1961;2:1062.
11. Chat R. Adherence of cervical, vaginal and distal urethral normal microflora to human uro epithelial cells. Urol.1984;131:596.

*Corresponding Author:
bethikavitha@yahoo.com