# Prevalence of Urinary Tract Infection in Pregnant Ladies Attending Antenatal Care Unit in Primary Health Centers in AL Durah District (2019-2020)

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**Abstract**

**Background:** Urinary tract infections may be more serious during pregnancy because they are more likely to cause complications. They are also Accountable for 10% of all admissions to hospital during pregnancy.

**Objectives:** to measure the prevalence of urinary tract infections in pregnant women in Al-Durah District for Primary healthcare. In addition, to find out the associations between clinico-epidemiological variables and the risk of UTI of the included patients.

**Methods:** This is a cross-sectional study was conducted in ten Primary healthcare centers in Al-Durah district. A Convenient sample of pregnant women attending Antenatal care was included in this study, and send for general urine examination to check for urinary tract infection.

**Results:** The prevalence of UTI among studied women was 38%. Moreover, irregular Antenatal care visit and anemia was found to be significantly associated with getting Urinary tract infection in this study.

**Conclusion:** Based on the findings of this study, UTI are a prevalent problem during pregnancy in AL-Durah district. Irregular Antenatal care visits and anemia may contribute to the high prevalence of Urinary Tract Infections in Pregnant women Attending Antenatal Care Units in Primary Health Centers in AL-Durah District.

Key words; Urinary Tract Infection, Pregnant Ladies, Antenatal Care

## Introduction

Urinary tract infection (UTI) describes microbial colonization or inflammation of the bladder (cystitis), Urethra (urethritis), ureter and renal pelvis and kidneys (pyelonephritis). UTI are Accountable for 10% of all admissions to hospital during pregnancy. The anatomical and physiological changes that occur during pregnancy increase the liability to urinary tract infection. Relaxation of ureteric smooth muscle triggered by progesterone may predispose to upper urinary tract dilation. Bladder displacement superiorly and anteriorly by the growing uterus can also, lead to bladder emptying impairment, thereby stasis of urine as well as the increased condensation of glucose and amino acids found in urine during pregnancy increase's the possibility of urinary tract infection. These changes alongside with an already short urethra (3-4cm in females) increase the frequency of urinary tract infection during pregnancy [(1-7)].

Urinary tract infections (UTIs) are the most prevalent bacterial infections encountered during pregnancy. It includes two groups: asymptomatic (ASB) and symptomatic bacteriuria. Asymptomatic bacteriuria is defined as the persistent presence of bacteriuria within the urinary tract of women who have no symptoms. A Specimen of clean voided urine containing more than 100.000 colonies per milliliter of a single organism is diagnostic. Symptomatic bacteriuria combines lower urinary tract infection (cystitis) with symptoms of local Infection (frequency, dysuria, urgency, suprapubic pain and hematuria), In addition to upper urinary tract infection (pyelonephritis) with systemic symptoms such as chills, Fever, vomiting, malaise and back pain. [(8-10)].

Asymptomatic bacteriuria doubles prevalence in pregnancy to 2% - 15%, and if left untreated, approximately 40% of those infected will develop an acute symptomatic urinary tract infection. Symptomatic lower urinary tract infection occurs in 1.3 % to 3.4% of pregnant women. Pyelonephritis, kidney tissues and pelvis inflammation, occurs in 1% to 2% of pregnant women. Prevalence of bacteriuria during pregnancy rises with parity, lower socioeconomic status, sexual activity, diabetes mellitus, chronic urinary retention and sickle-cell trait and disease. Other risk factors include previous urinary tract infections history, young age, neuromuscular dysfunction bladder, structural disorders of urinary tract, renal stones, and catheterization Consequences of urinary tract infection or neglected asymptomatic bacteriuria can be significant including elevated risk of pyelonephritis, premature labor, fetal death, and pregnancy induced hypertension. Studies reported characteristics of pyelonephritis in pregnancy in 20-40 % of pregnant women with asymptomatic bacteriuria [(1, 8, 10)].

This study was aiming to find out the prevalence of UTI among pregnant women and to find out associations with socio-demographic variables among pregnant ladies attending primary health care centers in Al Durah district.

**Subjects and Method**

This cross-sectional study was conducted in three primary health care centers out of ten centers belonging to AL Durah district health sector from the 1st of June 2019 to 1st of August 2020.

The target population of the study was pregnant women attendance Primary health care center for antenatal care. Convenient sample was taken and data collection was done by checklist questionnaire made by the researcher depending on previous studies. UTI was diagnosed by a midstream morning GUE. Obesity was diagnosed using BMI measurement. Anemia was diagnosed using complete blood count with hemoglobin levels below 11.0 g/dl. Socio-demographic variables were considered as age, education, occupation.

Inclusion criteria were all pregnant ladies willing to participate in the study. Exclusion criteria were any history of antibiotics use in previous two weeks and a known congenital anomaly of urinary tract.

Agreement of related health authorities regarding the research proposal was fully discussed and approved by ethical and scientific committee in AL-Kindy college of medicine. The agreement of health authority at Al-Durah health care sector was taken before starting data collection. A verbal consent was approved from each included patient after full explanation of aim of the study and ensuring confidentiality of collected data.

The collected data where introduced into Microsoft Excel word sheet 2016 and loaded into SPSSV26 statistical program. Chi square test was used to find out significance of association between related variable, p value < 0.05 was considered as cutoff point for significance.

**Results**

Results show that 372 pregnant women were included, 79.8% of study sample fall within the age group 20-35 years. 52.2% were housewife and 51.9% of Study sample with primary level of education or less (table 1).

**Table 1: Distribution of 372 pregnant women according to age, occupation and education variables included in the study in ten healthcare centers in AL Durah district health sector in 2019-2020.**

| | | N (372) | 100% |
|---|---|---|---|
| Age | <20 yr. | 37 | 9.9% |
| | 20-35 yr. | 297 | 79.8% |
| | >35 yr. | 38 | 10.2% |
| Occupation | House wife | 194 | 52.2% |
| | Employee | 105 | 28.2% |
| | Other | 73 | 19.6% |
| Education | Primary | 193 | 51.9% |
| | Intermediate | 102 | 27.4% |
| | Secondary | 77 | 20.7% |

Table 2 Shows that 15.1% of studied subject were primigravida, 73.4% got parity, less than 5 times, 97% got no abortion, 14.2% more than 2 years was the spacing period between pregnancies, irregular ANC visit was occurred by 62.9%, 61.6% got normal vaginal delivery before current pregnancy.

**Table 2: distribution of 372 pregnant women included in the study in ten healthcare centers in AL Durah district health sector in 2019-2020 according to obstetric and gynecological history;**

| | | N (372) | % |
|---|---|---|---|
| Gravidity | Primigravida | 56 | 15.1% |
| | Multigravida | 316 | 84.9% |
| Parity | Primigravida | 56 | 15.1% |
| | <5 | 273 | 73.4% |
| | =>5 | 43 | 11.6% |
| Abortion | Yes | 11 | 3.0% |
| | No | 361 | 97.0% |
| Spacing | Primigravida | 56 | 15.1% |
| | <2 year | 53 | 14.2% |
| | =>2 year | 263 | 70.7% |
| ANC | Regular | 138 | 37.1% |
| | Irregular | 234 | 62.9% |
| Previous delivery | Primigravida | 56 | 15.1% |
| | NVD | 229 | 61.6% |
| | CS | 87 | 23.4% |

Table 3 Shows that (5.9%) of study sample got Pregnancy Induce Hypertension, (6.2%) got Gestational Diabetes, (7.8%) got Essential Hypertension, (5.9%) got type two Diabetes, (35.8%) got Obesity depending on BMI measurement, (28%) got Anemia.

**Table 3: distribution of 372 pregnant women included in the study in ten healthcare centers in AL Durah district health sector in 2019-2020 according to history of chronic and associated diseases;**

| | N (372) | % |
|---|---|---|
| Pregnancy induced hypertension | 22 | 5.9% |
| Gestational DM | 23 | 6.2% |
| Hypertension | 29 | 7.8% |
| DM | 22 | 5.9% |
| Obesity | 133 | 35.8% |
| Anemia | 104 | 28.0% |

Figure 1 Shows that 141 (38%) of a total of 372 pregnant women included in the study in ten healthcare centers in AL Durah district health sector in 2019-2020, patients got UTI

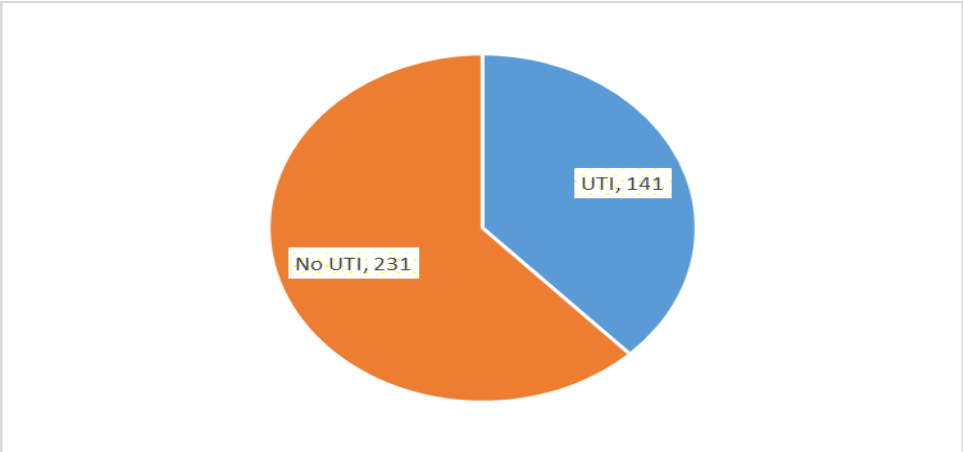


**Figure 1 Shows that UTI is present in 141 (38%) of a total of 372 pregnant women included in the study in ten healthcare centers in AL Durah district health sector in 2019-2020.**

Table 4 Shows the Prevalence of symptoms among 141 women diagnosed with UTI, (27.2%) had burning micturition, (26.9%) had urgency, (27.2%) had frequency, (27.2%) had incontinence, Fever (7%), (9.7%) gave history of previous urethral catheterization.

**Table 4: Prevalence of signs and symptoms among studied 372 pregnant women included in the study.**

| | N 372 | % |
|---|---|---|
| Burning micturition | 101 | 27.2% |
| Urgency | 100 | 26.9% |
| Frequency | 101 | 27.2% |
| Incontinence | 101 | 27.2% |
| Fever | 26 | 7.0% |
| Urethral catheterization | 36 | 9.7% |

Table 5 Shows No significant association between age and getting UTI (P. value 0.920), no significant association was found between occupation and education with getting UTI (P-value= 0.338 and 0.183) respectively.

**Table 5: Association between sociodemographic variables and occurrence of UTI in a total of 372pregnant women included in the study.**

| | | UTI (141) | | No UTI (231) | | P value |
|---|---|---|---|---|---|---|
| | | Count | Row N % | Count | Row N % | |
| Age | <20 yr | 13 | 35.1% | 24 | 64.9% | 0.920 |
| | 20-35 yr | 114 | 38.4% | 183 | 61.6% | |
| | >35 yr | 14 | 36.8% | 24 | 63.2% | |
| Occupation | House wife | 69 | 35.6% | 125 | 64.4% | 0.338 |
| | Employee | 46 | 43.8% | 59 | 56.2% | |
| | Other | 26 | 35.6% | 47 | 64.4% | |
| Education | Primary | 78 | 40.4% | 115 | 59.6% | 0.183 |
| | Intermediate | 31 | 30.4% | 71 | 69.6% | |
| | Secondary | 32 | 41.6% | 45 | 58.4% | |

There was no significant association of UTI with gravidity (P-value= 0.946), parity (P-value 0.664), abortion (P-value= 0.915), spacing (P-value= 0.939) and type of previous delivery (P-value= 0.588). There was significant association of UTI with irregular antenatal care visits (P- value= 0.001) (Table 6).

**Table 6: Association between obstetrical variables and occurrence of UTI in 372 pregnant women included in the study in ten healthcare centers in AL Durah district health sector in 2019-2020.**

| | | UTI (141) | | No UTI (241) | | P value |
|---|---|---|---|---|---|---|
| | | N | % | N | % | |
| Gravidity | Primigravida | 21 | 37.5% | 35 | 62.5% | 0.946 |
| | Multigravida | 120 | 38.0% | 196 | 62.0% | |
| Parity | Primigravida | 21 | 37.5% | 35 | 62.5% | 0.664 |
| | <5 | 101 | 37.0% | 172 | 63.0% | |
| | =>5 | 19 | 44.2% | 24 | 55.8% | |
| Abortion | Yes | 4 | 36.4% | 7 | 63.6% | 0.915 |
| | No | 137 | 38.0% | 224 | 62.0% | |
| Spacing | Primigravida | 21 | 37.5% | 35 | 62.5% | 0.939 |
| | <2 year | 19 | 35.8% | 34 | 64.2% | |
| | =>2 year | 101 | 38.4% | 162 | 61.6% | |
| Previous delivery | Primigravida | 21 | 37.5% | 35 | 62.5% | 0.588 |
| | NVD | 83 | 36.2% | 146 | 63.8% | |
| | CS | 37 | 42.5% | 50 | 57.5% | |
| ANC | Regular | 1 | 0.7% | 137 | 99.3% | 0.001 |
| | Irregular | 140 | 59.8% | 94 | 40.2% | |

Table 7 shows significant association between anemia and getting UTI P. value 0.001, while Obesity, DM, HT, GESTATIONAL DM, and pregnancy induce HT show no significant association with UTI.

**Table 7: Association between history of chronic diseases and occurrence of UTI in 372 pregnant women included in the study in ten healthcare centers in AL Durah district health sector in 2019-2020**

| | | UTI (141) | | No UTI (241) | | P value |
|---|---|---|---|---|---|---|
| | | N | % | N | % | |
| Pregnancy induced hypertension | Yes | 8 | 36.4% | 14 | 63.6% | 0.878 |
| | No | 133 | 38.0% | 217 | 62.0% | |
| Gestational DM | Yes | 9 | 39.1% | 14 | 60.9% | 0.900 |
| | No | 132 | 37.8% | 217 | 62.2% | |
| Hypertension | Yes | 12 | 41.4% | 17 | 58.6% | 0.688 |
| | No | 129 | 37.6% | 214 | 62.4% | |
| DM | Yes | 11 | 50.0% | 11 | 50.0% | 0.228 |
| | No | 130 | 37.1% | 220 | 62.9% | |
| Obesity | Yes | 47 | 35.3% | 86 | 64.7% | 0.447 |
| | No | 94 | 39.3% | 145 | 60.7% | |
| Anemia | Yes | 101 | 97.1% | 3 | 2.9% | 0.001 |
| | No | 40 | 14.9% | 228 | 85.1% | |

## Discussion

Findings from the present study revealed that, 38% of the pregnant women who attending the selected antenatal clinics at primary health care centers in AL Durah district had urinary tract infection. This result agrees with studies in Egypt [9-15].

In line with these results a study in Egypt reported that two fifth of pregnant women with urinary tract infection had no symptoms of urinary tract infection. This high percentage can lead to delay in diagnosis and treatment, and developing of complication [9]. While other studies reported lower rates of asymptomatic bacteriuria during pregnancy as in Emirates, India, and Nigeria (4.8%, 8.8%, and 14.6% respectively) [16,17,18]. From the researcher's point of view, this variation can be attributed to many factors such as geographical differences, ethnicity and setting of study (primary care, community based or hospital) and the differences in screening test (urine dipstick, microscopy, culture) [16].

Regarding symptoms of urinary tract infection, this study revealed that the most frequent symptoms were frequency of urination followed by, burning urination, incontinence urgency and fever similar results were [18] who found that frequency of urination followed by, burning urination, then supra-pubic pain were the most common symptoms of urinary tract infection among infected women.

Considering obstetric risk factors as, gravidity; parity; previous abortions number of living children; and gestational age were not associated with urinary tract infection in this study. In the line with these findings, Masinde et al [18] from Tanzania as well as Hamadan et al [19] from Sudan also reported that Parity and gestational age were not associated with urinary tract infection. In Egypt, Mohammad [14] showed that the

majority of pregnant women with urinary tract infection were prim gravidas with non-significant difference between infected and non-infected women. On the other hand, Sharma et al. [20] in the observation regarding the risk of urinary incontinence and other urinary problem which according to them increases with parity of > 3 as compared to null parity.

The current study revealed that, there was no significant association between Child spacing duration and urinary tract infection during pregnancy. Less than half of infected women had child spacing duration of < 2 years. This may be due to profound physiologic changes in urinary tract during pregnancy which is more likely to occur in women who have pregnancies in rapid succession. AL-Jawadi, [21] also reported short child spacing (<2 years) was seen among less than half of the pregnant women with urinary tract infection anemia. This study results revealed that there was significantly association with urinary tract infection during pregnancy. Similar results were reported by Thakre et al [22] and Emiru et al [23] From the researcher's point of view, these results may be attributed to anemic women are immunosuppressed they are vulnerable to infections such as urinary tract infections.

We conclude that UTI is a prevalent problem during pregnancy in AL-Durah district. The prevalence rate of UTI during pregnancy is very high (38%). Moreover, Irregular antenatal care visit and anemia was found to be significantly associated with UTI incidence.

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