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FREQUENCY OF URINARY TRACT INFECTIONS IN PATIENTS PRESENTING WITH PRETERM LABOR

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Abstract

Objective: *To determine the frequency of urinary tract infections (UTIs) in women with preterm labor.*

Methods: *A total of 170 patients with a diagnosis of preterm labor were recruited in this cross-sectional study from 01 June 2024 to 01 December 2025. Women of any parity, with a gestational age of 22 to 37 weeks, and aged 18 to 40 were included. Urine samples were collected from each female patient using sterilized containers and sent to the hospital laboratory for a comprehensive urinalysis.*

Results: *The average age was 27.5±5.4 years. Regarding residence, 45 participants (26.5%) were from urban areas, while the majority, 125 participants (73.5%), reside in rural settings. In terms of parity, 58 participants (34.1%) were primipara, while 112 participants (65.9%) were multipara. 36 participants (21.2%) reported having a history of UTIs.*

Conclusion: *In women experiencing preterm labor, the occurrence of urinary tract infections (UTIs) was recorded at a notable 27.65%. To address this issue, we strongly advocate for the establishment of regular UTI screening protocols for all pregnant women.*

INTRODUCTION

Preterm labor is a common complication encountered during pregnancy, affecting a significant percentage of expectant mothers worldwide, with rates estimated to range between 5% and 28% across different populations with highest prevalence in Asia.[1] This condition is a major contributor to perinatal mortality and morbidity, posing profound risks to both mothers and newborns. It is estimated that preterm birth leads to the tragic loss of approximately one million newborns each year on a global scale. Additionally, preterm birth is linked to various long-term neurologic and developmental disabilities in surviving infants.[2, 3]

The impact of preterm birth (PTB) goes far beyond just immediate neonatal health, often leading to a range of long-term health issues. These can include, but are not limited to, neurodevelopmental disorders, respiratory issues like distress syndrome, cerebral palsy, and various

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chronic health conditions.[4] Preterm birth is influenced by a combination of factors that include genetic predispositions, environmental influences, and sociodemographic elements. Research has increasingly highlighted several key risk factors associated with PTB, particularly infections—especially those affecting the amniotic fluid and the lower genital tract—as well as inflammation occurring during pregnancy.[5, 6]

Urinary tract infections (UTIs) are the most common bacterial infections encountered during pregnancy. The physiological changes that occur during this time make the urinary tract more susceptible to infections. Notable alterations include the expansion of the urinary system, potential mechanical blockage caused by the enlarging uterus, and changes in ureteral and bladder function leading to conditions such as hypotonia, congestion, and varying degrees of vesicoureteric reflux (VUR).[7] Due to these factors, UTIs in pregnant individuals are classified as complicated infections, requiring a specialized approach to both diagnosis and treatment.[8] Asymptomatic bacteriuria, which refers to the presence of bacteria in the urine without accompanying symptoms, is reported to affect between 2% and 10% of women during pregnancy. In contrast, symptomatic urinary tract infections (UTIs), such as cystitis and pyelonephritis, are known to complicate approximately 4% of all pregnancies. It is crucial to note that untreated asymptomatic cases can lead to complications, with studies indicating that around 25% to 40% of these women may eventually experience symptoms.[9] The aim of the present study is to determine the frequency of UTI in women with preterm labor.

METHODS:

A total of 170 patients with a diagnosis of pre-term labor were recruited in this cross-sectional study from 01 June 2024 to 01 December 2025. The study was conducted in the Bolan Medical Complex Hospital in Quetta. Women of any parity, gestational age 22 to 37 weeks, and age 18 to 40 years were included. Patients with multiple gestations, structural uterine abnormalities, a history of Rh immunization, and having pregnancy-related medical disorders such as pre-eclampsia or gestational diabetes were excluded. Informed consent was obtained from each patient. Urine samples were collected from each female patient using sterilized containers and sent to the hospital laboratory for a comprehensive urinalysis. The diagnosis of a urinary tract infection (UTI) was established. Clean-catch midstream urine samples were obtained from all patients in sterile containers. A culture result showing ≥1000 CFU/mL was classified as indicative of a UTI.

RESULTS:

The baseline study variables highlight an average age of 27.5±5.4 years. In terms of age distribution, 5 participants (2.9%) were under 20 years old, 104 participants (61.2%) were aged 20-29, 53 participants (31.2%) fall within the 30-39 age range, and 8 participants (4.7%) were 40 years or older. Regarding residence, 45 participants (26.5%) lived in urban areas, while the majority, 125 participants (73.5%), reside in rural settings. When considering education levels, 23 participants (13.5%) had no formal education, 29 participants (17.1%) completed primary education, 97 participants (57.0%) had secondary education, and 21 participants (12.4%) had higher secondary education. In terms of parity, 58 participants (34.1%) were primipara, indicating it is their first pregnancy, while 112 participants (65.9%) were multipara, having experienced multiple pregnancies. Additionally, concerning previous urinary tract infection (UTI) history, 36 participants (21.2%) reported having a history of UTIs, while 134 participants (78.8%) did not (Table 1).

Among 170 women, UTI was diagnosed in 47 (27.65%) patients (Figure 1).

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Table 1. Baseline Study Variables.

Age (Years)	27.5±5.4
<20	05 (2.9%)
20-29	104 (61.2%)
30-39	53 (31.2%)
≥ 40	08 (4.7%)
Residence	
Urban	45 (26.5%)
Rural	125 (73.5%)
Education	
No education	23 (13.5%)
Primary	29 (17.1%)
Secondary	97 (57.0%)
Higher Secondary	21 (12.4%)
Parity	
Primipara	58 (34.1%)
Multipara	112 (65.9%)
Previous UTI History	
Yes	36 (21.2%)
No	134 (78.8%)

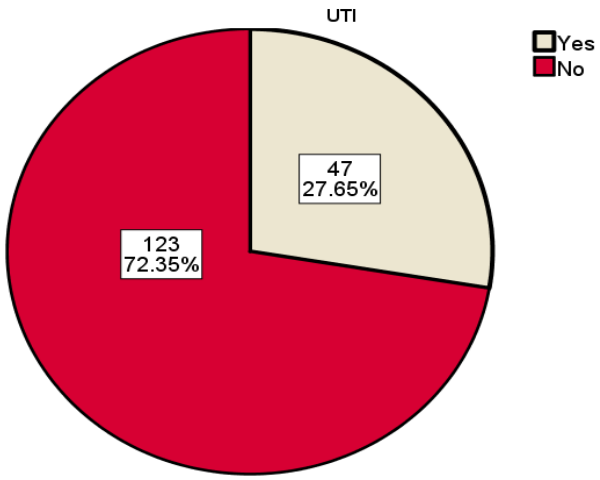

Figure 1. Frequency of UTI.

DISCUSSION:

In our study, the reported frequency of UTI in patients with preterm labor was 27.65%. This prevalence was notably lower than the 46.3% documented in research conducted in Saudi Arabia. This discrepancy may be significantly linked to the prevalence of diabetes and recurrent infections noted in the Saudi population. The elevated rates reported in Saudi Arabia could potentially stem from the presence of various underlying comorbidities, coupled with a lack of precise diagnostic methods available for identifying related health issues.[10]

In the Damt District of Yemen, research highlighted a notably elevated rate of urinary tract infections (UTIs) among pregnant women, reaching 60%. This alarming statistic may be linked to several contributing factors, including low socioeconomic conditions, unsatisfactory hygiene practices, and insufficient antenatal care

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services.[11] Such deficiencies tend to amplify the risks of exposure to various infections, culminating in a higher occurrence of UTIs than our current study's findings.

A recent investigation at Ahmadu Bello University Teaching Hospital in Nigeria found that a significant 64% of the pregnant women surveyed were affected by urinary tract infections (UTIs). This concerning figure underscores the impact of various factors, particularly poor hygiene practices among the participants. Common habits such as improper wiping techniques—from back to front after using the toilet—alongside limited access to clean water and insufficient healthcare services, were identified as contributing to the increased risk of developing UTIs.[12]

In various research, a significantly lower prevalence was observed; for instance, a study conducted in Hyderabad, Pakistan reported a rate of only 16%. This particular investigation involved a sample size of just 150 women, encompassing all pregnant individuals regardless of their stage of pregnancy. Notably, a considerable portion of the participants, 64%, hailed from urban settings, which typically enjoy enhanced access to healthcare services. This demographic characteristic may influence the findings, as urban populations often benefit from better medical facilities and resources compared to rural their counterparts, potentially affecting healthcare outcomes during pregnancy.[13]

A comprehensive systematic review and meta-analysis conducted in Ethiopia found that the rate of urinary tract infections (UTIs) among pregnant women stood at 15.37%. This relatively low prevalence identified in the meta-analysis may be attributed to the presence of comprehensive antenatal care coupled with effective practices for infection prevention. The review synthesized data from 14 different studies across Ethiopia, each utilizing varied methodologies and encompassing diverse populations from various regions. This diversity among the studies likely introduced a degree of heterogeneity, which, in turn, may have influenced the observed lower prevalence when compared to our own cross-sectional study approach.[14]

A research study conducted in Dambam, located in Bauchi State, Nigeria, found that the prevalence of urinary tract infections (UTIs) among pregnant women accessing antenatal care clinics was 17.24%. The relatively low prevalence rate reported in this investigation might be attributed to the successful implementation of public health initiatives and the widespread adoption of preventive health measures. Notably, the study focused on a sample of only 290 pregnant women and included both preterm and term pregnancies in its analysis. It is important to recognize that the smaller sample size, along with the inclusion of term pregnancies, which generally face a lower risk of developing UTIs when compared to preterm pregnancies, may have led to the reduced prevalence rate as seen in their findings when juxtaposed with our study results.[15] The occurrence of UTIs in our study falls within the global range reported.[12, 16] Our findings emphasize the need for routine screening and effective management of UTIs in pregnant women to prevent adverse maternal and fetal outcomes.

Numerous nations experiencing elevated levels of preterm births and neonatal deaths also report higher incidences of urinary tract infections (UTIs) during pregnancy compared to their more developed counterparts. A worldwide examination of the causes of UTIs has identified both well-known pathogens and new concerns. UTI screening and treatment enhancements have positively influenced birth outcomes in several developed nations and could potentially boost maternal and infant health globally.

CONCLUSION:

In women experiencing preterm labor, the occurrence of urinary tract infections (UTIs) was recorded at a notable 27.65%. To address this issue, we strongly advocate for the establishment of regular UTI screening protocols for all pregnant women. Additionally, launching public health campaigns aimed at raising awareness about the risk factors associated with UTIs and strategies for prevention is crucial, especially in communities with low income and illiterate populations.

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