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RESEARCH ARTICLE
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URINARY TRACT INFECTION AND ITS ASSOCIATED RISK FACTORS AMONG PREGNANT FEMALES OF BALUCHISTAN

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ABSTRACT
During pregnancy, leg cramps are a common problem. The specific sorts and dimensions of the review of literature included a relative low-quality paper. After all, no data are available about urinary tract infections in pregnant women living in Wadi Addawser, so there isn't anything on how to take definite steps on specific management procedures let alone avoid the adverse results from it. The purpose of this study was to evaluate the prevalence of bacteriologically verified urinary tract infection in pregnant women who attended maternity ward , its risk factors and the most common antibacterial which infected pregnant women use. The article reports on an observation of 303 pregnant women from one county hospital clinic and what they recalled about certain aspects of their obstetric history. The sample was then collected using head-to-foot questioning. 53.5 % of the pregnant women in the sample had positive pathogens in their urine, the study results show. In total, E. coli (37%) accounted for the largest proportion and Klebsiella pneumoniae (27%) followed closely behind it. Antimicrobial agents used by infected women: amoxicillin and cefoxitin, respectively (40.1% & 21.6%) are the most commonly used antibiotics, while fusidic acid is used by few pregnant women (5.6%). Women with clinical symptoms including frequent urination, wetting oneself by mistake, lower abdominal pain, the color of urine changes, painful burning micturition and incomplete bladder evacuation accounted for nearly all the infected. Identifying the cause of symptoms is a good way to prevent and quickly respond to problems of urinary tract infection in pregnancy, so pathogens should be screened early on and infected cases treated promptly.

Key Words: An antibacterial agent; Pregnant women; Urinary tract infection

INTRODUCTION
Pregnancy has been linked with structural, physiological and functional alteration in the urinary tract [9], leading to ascending of microorganisms into the bladder causing infection. 1 In the community, The prevalence of UTIs in pregnant women is higher than that of other healthy women. 2

Symptomatic and asymptomatic UTIs are common in pregnant women, and associated with morbidities to the mother as well as to her fetus/newborn. 1,3

Modifications in the urinary tract during pregnancy and augmented immunity predispose women to bacteriuria with significant risk for both mother and fetus. Parity, Older maternal age, Sickle cell anemia, Diabetes and the Urinary tract condition/History of UTI could elevate the risk of urinary tract infection in pregnancy. 4,5

In pregnancy, untreated urinary tract infection may lead to severe consequences : Pre term labor, Low birth weight, Hypertension, pre-eclampsia, anemia in mother; Pyelonephritis, amnionitis, stillbirths, neonatal death s; bacteremia and high septicemia. 6,7 The potential consequences of UTI during pregnancy risk can be minimized through the management for urinary tract infection. It is vital to detect and treat urinary tract infection in pregnant women early in order to prevent complications. 8

The prevalence of UTIs in the Saudi pregnant women was estimated to be,20% (12% symptomatic and 8% asymptomatic). 9 Typically, the UTIs cases are due to bacterial pathogens (predominantly gastro enteric pathogens) which contaminates the urethra meatus by colonizing around the perirectal and ascends along to initially affect bladder. 10

The most common pathogenic agents of urinary tract infection are approximately “Escherichia coli, Staphylococcus spp., Streptococcus spp., Proteus spp., Klebsiella spp.” (Jalava et al. Corynebacterium, Neisseria and Pseudomonas Spp.” The malevolence of the bacteria and susceptibility of the host determine the severity of a UTI. Penicillin, Amoxicillin celtaxidime norfloxacin cefoxitin 11 are the most effective antibiotics against most of the urinary tract pathogens. 9

This study is important because of the factor that urinary tract infection could be a risk for those who are pregnant due to these findings that up to 50% of pregnant women with ABU have been shown to develop pyelonephritis. As a result, women during pregnancy should be evaluated for risk factor and the etiologic agent of UTI as part of routine antenatal care. The urine culture and selection for the appropriate antibiotic therapy should be defined in the interest of maternal and fetal health. The susceptibility to antibiotics and their effects in pregnancy is worth considering. 12

MATERIALS AND METHODS

Pregnant women were the subjects of the survey. A *cross-sectional descriptive* design and the criteria for participation in the study were that 303 pregnant women be attending an antenatal clinic at Teaching Hospital Turbat. The inclusion criteria are pregnant women at the second trimester of pregnancy with suspected clinical symptoms of urinary tract infection, as listed above. Exclusion criteria; sickle cell disease (renal damage), anatomic or functional congenital urinary abnormalities, pregnant women under antibiotic regimen within 72 hours to the study data collection are not and be excluded because the antibiotic can make data untrustworthy if pathogens it would have inhibited or destroyed.

We collected the data by face to face interview from October 2022 to end of March 2023 and use structured questionnaire such as this; socio-demographic findings included participants' ages, education levels, jobs, and their family incomes.

Obstetric history--like the number of pregnancies a woman has had in her life and how many times she has given birth (or undergone an abortion) --and 11. Whether a pregnant woman has been treated for this type of infection during her present pregnancy. Other medical history and health habits (such as voiding regularly, drinking enough water, taking vitamin C, or consuming tea and soft drinks in large doses; Medical history other infectious diseases in the genital tract, the existence of hypertension or anemia, kidney stones and diabetes mellitus.) Clinical symptoms experienced by pregnant women. Seen from the original data, the vaginal swab was taken from sample members and analyzed for vaginal infection according to hospital regulations. A tidy midstream urine specimen was obtained from pregnant interviewees after they had received careful instructions on how to collect the sample. On blood agar plates, urine samples were inoculated. Not only that, but the urine plates were incubated in an aerobic environment completely at 37°C for 24 hours. 17 As evidenced from the mature culture on the urine plate after twenty-four hours--when it was already apparent which was

colored where ales still existed and what shape everything took underneath--bacteria could then be identified (see Table 5).

The isolated bacteria were identified by using Gram stain and biochemical test and through microscopic examination. Antimicrobial susceptibility of the isolated bacteria was studied to determine which antibiotics are appropriate for their use. Biochemical reagent strip testing (dip stix test) was used to detect the presence of leukocyte peroxide in urine and nitrite. Microwave was used to examine for the presence of red blood corpuscles(RBCs) and pus cells in the urine. 11

The original data were coded and entered on to SPSS system files (SPSS package version 19, Chicago, USA). These data were then analyzed and interpreted. Smirnov test was employed in the examination of this material to determine its distribution. Results of quantitative variables were analyzed using univariate analyses (Mann Whitney test and t-test). Results of qualitative variables were analyzed by the use of Monte Carlo test, Chi-Square test and Fisher's Exact test.

RESULTS

We found that UTI pathogens infected some pregnant women 162 (53.5 percent) from a total number of 303 pregnant women tested positive for urinary tract pathogens. In pregnancy women, E. coli were the most often isolated organism (37%) from positive urine cultures, with Klebsiella pneumonia (27%) next worst. Staphylococcus saprophytic (3.7%) was least likely to grow when the medium changed temperature from 37 degrees C to 25 degrees Celcius in a refrigerator The study showed that when it comes to treating UTIs in infected pregnant women, amoxicillin and cefoxitin were the most commonly used antibiotics (40.1% &21.6% respectively), while fusidic acid was used the least (5.6%). Correction of erroneous sentence: In Table (1) it is shown that there are significant differences between negative and positive culture women in respect of age, occupation, family income, previous treatment for UTI during the pregnancy P≤0.05. No difference exists between the number of pregnancies, babies born, abortions and children living. Table (2) Is shown that some of the findings in urine culture were statistically significant in relation to regular bladder voiding, diabetes mellitus, previous history of urinary tract infection and as for clinical manifestation for pregnant women

Figure 1: Bacteria isolated from the urine culture

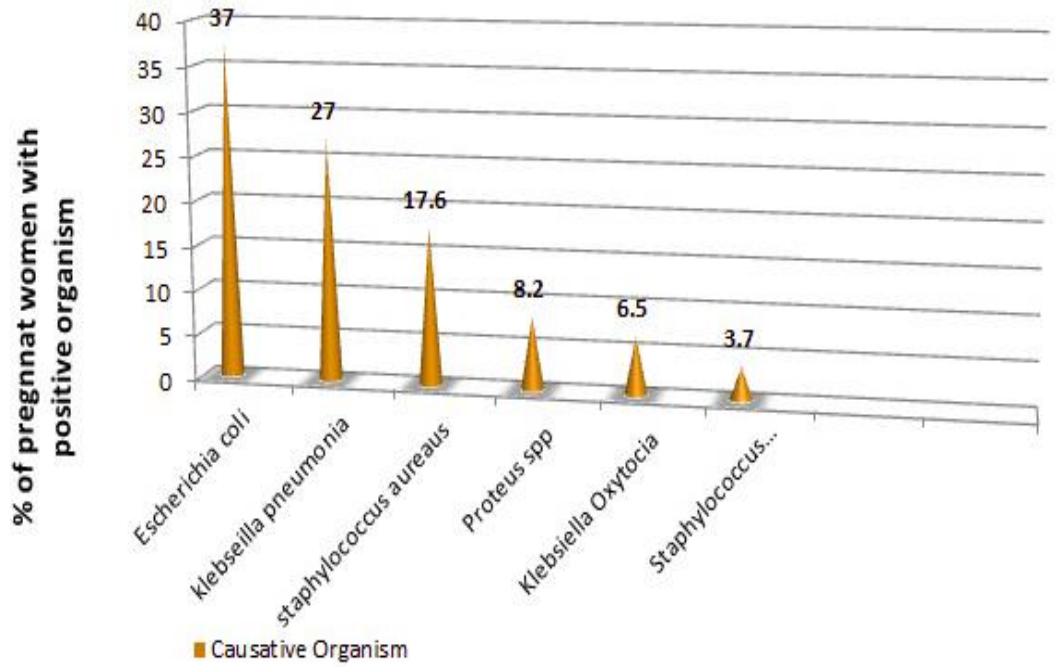

Figure 2: Antibiotics used by infected pregnant females (n=162)

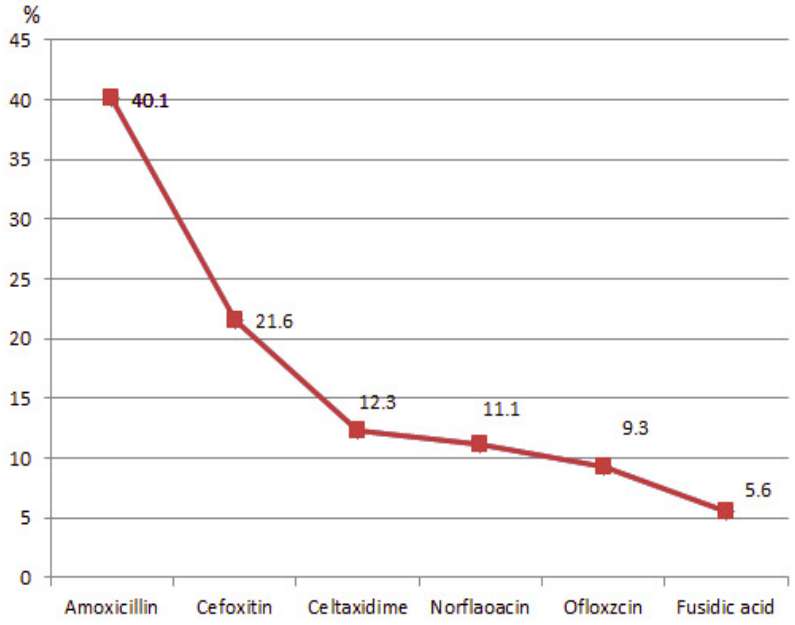

Table 1: The Socio-demographic characteristics and the obstetric history of the studied pregnant females (n=303)

Socio-demographic characteristics	Women with a negative culture (n=141)		Females with a positive culture (n=162)		Significance
	No.	%	No.	%	
Age (years)					
Less than 25	30	21.3	33	20.4	
25-<35	81	57.4	63	38.9	
35-≤45	30	21.3	66	40.7	
Min-Max	18.0-42.0		20.0-45.0		t = 2.082
Mean±SD	29.3±5.9		32.0±6.7		P= 0.040*
Level of education					
Illiterate	9	6.4	15	9.3	
Read and write	18	12.8	30	18.5	*X = 5.145
Secondary school	54	38.3	39	24.1	MCP = 0280.
University	48	34.0	45	27.8	
Postgraduate studies	12	8.5	33	20.3	
Occupation					
Work	42	29.8	93	57.4	2X = 7.760
House wife	99	70.2	68	42.6	P = 0.005*
Family income					
Insufficient	21	14.9	30	55.6	2X = 18.314
Moderate	111	78.7	63	38.8	MCP = 0.005*
Enough			9	5.6	
No. of pregnancies					
1-2	51	36.2	51	31.5	
3-4	48	34.0	48	44.4	
5 or more	42	29.8	39	24.1	
Min-Max	1-9		1-12		Z = 0.618
Median (Q1-Q3)	3 (2-5)		4 (2-4)		P = 0.537

Abortions					
None	87	61.7	123	75.9	
1-2	48	34	30	18.5	
3-4	6	4.3	9	5.6	
Min-Max	0-3		0-4		Z = 1.462
Median (Q1-Q3)	0(0-1)		0(0-0.5)		P = 0.144
Number of deliveries					
None	39	27.7	24	14.8	
1-2	66	48.6	75	46.3	
3-4	24	17.0	39	24.1	
5 or more	12	8.5	24	14.8	
Min-Max	0-8		0-8		Z = 1.431
Median (Q1-Q3)	2 (0-3)		2 (1-3)		P = 0.152
Previous treatment for UTI during current pregnancy					
Yes	39	27.7	108	66.7	$^2X = 15.310$
No	102	72.3	54	33.3	P = <0.0001*

Q1-Q3: Interquartile range, Z: Mann Whitney test, X2: Chi-Square test, *significant at P≤0.05, t: Student t-test, MCP: Monte Carlo corrected, P-value, *significant at P≤0.05

Table 2: Predisposing factors and clinical manifestations of the studied pregnant women (n =303)

Predisposing factors	**Females with NEGATIVE culture (n=141)**		**Females with POSITIVE culture (n=162)**		**Significance**
	No.	**%**	**No.**	**%**	
Health-related Habits during pregnancy					
Vitamin C intake	84	59.6	75	46.3	X^2=1.777 P=0.183
Regular bladder voiding	123	87.2	99	61.1	X^2=8.755 P=0.003*
Frequent soft drinks consumption	69	48.9	99	61.1	X^2=1.508 P=0.219
Frequent tea consumption	57	40.4	93	57.4	X^2=2.899 P=0.089
Frequent coffee consumption	57	40.4	93	57.4	X^2=2.899 P=0.089
Drinking enough water	111	78.7	102	63.0	X^2=2.989 P=0.084
Medical history					
Genital tract infection	45	31.9	54	33.3	X^2=0.023 P=0.880
Hypertension	36	25.5	57	35.2	X^2=1.101 P=0.294
Kidney stones	15	10.6	24	14.8	X^2=0.391 P=0.532
Diabetes mellitus	12	8.5	57	35.2	X^2=10.147 P=0.001*
Previous urinary tract infection	33	23.4	108	66.7	X^2=18.904 P<0.0001*
Anemia	66	46.8	57	35.2	X^2=1.408 P=0.235
Clinical manifestation					
Painful burning sensation	54	38.3	117	72.2	X^2=11.763 P=0.001*
Incomplete bladder voiding	39	27.7	105	64.8	X^2=13.910 P<0.0001*
Frequency of urination	66	46.8	147	90.7	X^2=23.227 P<0.0001*
Fever	27	19.1	66	40.7	X^2=5.507 P=0.019*
Strangury	30	21.3	90	55.6	X^2=12.345 P<0.0001*
Dysuria	33	23.4	129	79.6	X^2=31.292 P<0.0001*
Shaking chill	21	14.9	57	35.2	X^2=5.413 P=0.02*
Flank pain	48	34.0	96	59.3	X^2=6.407 P=0.011*
Change urine color	36	25.5	120	74.1	X^2=23.706 P<0.0001*

Lower abdominal pain	69	48.9	120	74.1	X^2=6.766 P=0.009*
Laboratory results					
Hematuria	3	2.1	48	29.6	X^2=13.577 P<0.0001*
Pyuria	18	12.8	123	75.9	X^2=40.291 P<0.0001*

X^2: Chi-Square test, *significant at P≤0.05

DISCUSSION

The present study showed that urinary tract infection is prevalent among pregnant women in Saudi Arabia and is developing its own bacteriological pattern.49

Two-thirds of the 15 cases here reported mood. Any tendency to see a psychiatrist needs to be done in the maternity hospital. With social prevalence and greater economic success of woman comes an increased tendency for depression of mood during or soon after pregnancy. On the contrary, if parturient asks follow-up judge, he should not 'accidentally' find the wrong answer to her question.50

This is a normal process. The gradual decline in depression of mood of women after delivery has long been recognized by Chinese doctors. This will resolve easily provided it is left to resolve by itself.51

Quantitatively this phase is similar to the phase of decay in depression of mood after labor. I expect that it may be viewed in this light.52

What causes the persistence of Uttarayan-jwara is night blindness that results from prolonged illness without sufficient rest on one's face to sleep off. Treated nocturnal fever was observed in 19 patients with a 10 day or longer history of malaria, 6 to 7 at 3 months, and 2 more than 2 years.53

By contrast, in the 3 A-B subtype the number of cases is much increasing. Hemoglobin levels are above 100 g/l in a flocculation test, the drug is not allowed to be used in a ratio closer to 1:1 and is higher in some cases.54

It is also worth remembering that in the past the widespread poverty and sub-health among pregnant women may have aggravated mood-induced depression. Post-partum depression of mood is a reaction which results from socio-economic conditions. This symptom comes from exhaustion after 2-4 weeks of crying or complaining, or without any crying at all once let alone once every three days if she is affected by both: irritation and a lack confidence.55

There are statistically significant differences in age, occupation, family income and previous treatment for UTI during pregnancy in currently positive culture women compared to those with negative cultures at P <0.05. In this context, Eriksson, 201123 and Rahiman et al., 201516, report Urinary tract infection (UTI) is a common in women of all ages and higher age greater incidence like decreased prevalence. Kolawole et al., 2009 14 point out that socioeconomic rank is a predictor for the presence of pathogens in urine but it may come from poor housing and living sanitation conditions, poor environment and personal hygiene. From the researcher's point of view, it can also be because of the combination of low socio-economic status with malnutrition and low resistance to infection especially during pregnancy. This study's findings agree with Tamalli et al., 2013 17 results that 9 % of healthy women have bacteriuria while 21% 21 % for cases where they were poor and pregnant. Kearney found that while pregnant, there is a for the mother's body to make immunological concessions in order to accept implantation and development of this egg in itself came fertilized in some fashion Other words, during this time hate. So the response of the defense immune system is redirected toward a humoral response from cell intermediated ones (Figure 2) FAR less responsive beats for pathogens to present on cell surfaces or to compete with their actual pathogenicity. This allows bacteria to invade and proliferate within the urinary system

Base on the conclusion of the current study, the chi-square test results on bacteria in urine cultures and routine bladder voiding, diabetes mellitus and previous urinary tract infection were found to be statistically significant. Rahiman et al., 2015 16 also found that it was the bladder's strongest defense against urinary tract infection. Complete voiding of the bladder during urinating and heeding urge to urinate is one good way for women to avoid such infections in most cases, whatsoever. In addition, women with gestational diabetes and history of UTI were more prone to UTI, yet without statistical significance. Probably this is due to increase glycosuria and lower host resistance to infections during pregnancy when the immune system not in a good state of affairs. During pregnancy rising blood glucose levels cause a depletion of neutrophils such that calcium inside cells raises and actin is held

back, with a decrease in diapedesis also phagocytosis. The Sclerae and vaginal hemophilia too contribute to repeat infections. Also, pregnant women's existing urine outlets undergo a physiological and anatomical transformation. The suppression of urine in pregnancy is due to the Livertide out of the liver into blood. There are changes in size of her urethra with increased resistance when this process occurs the ureters have yet to be explore 26 Furthermore, Emiru et al.., 2013 27 also confirmed the dangers of developing urinary tract infection and diabetes another time. Pregnant women may therefore suffer a greater frequency or severity of UTI than other groups of patients since both diseases make them vulnerable to such developments.

This study found a statistically significant difference between urine culture results and clinical symptoms which persistently affect urination. Such clinical symptoms, frequency urgency of urination these clinical symptoms A long ~ such as is frequency of micturition, dysuria, dull lower-abdominal pain, change in urine color, painful burning feeling when passing urine and incomplete voidance The Almushait et al., 2013 study also showed this result nearly. These results are similar to those in our study because there' s little difference between 0.05 and 0.01! There was a statistically significant difference between the presence of pathogens in urine and findings at the laboratory such as pyuria, hematuria ($P \leq 0.05$) in the present results. 17 This outcome is consistent with Michelim et al. 2016 29, who reported that Pyuria is likewise detected in most cases of pyelonephritis suffered by women.

CONCLUSION

The results show that among 303 pregnant women who were in hospital confinement, 162 were found to have their urinary tracts infected pathogens. E. coli made up the majority of organisms isolated from the urine of a pregnant woman with positive urine culture results, followed by Klebsiella pneumonia as second highest count while the least common member was staphylococcus saprophytic. For treatment of UTI infected women commonly use Amoxicillin and cefoxitin as antibiotics with no use loftier than fusidic acid. There is a significant difference between the patterns of pathogen presence in urine culture and regular bladder voiding, the diagnosis of diabetes mellitus, history of urinary tract infection (Table IV), clinical manifestations during pregnancy, etc. Repeated symptoms of urinary tract infection are an effective indicator that a woman has contracted this ailment during pregnancy, so it is necessary to report spore flora early and to treat the infected area.

LIMITATIONS OF STUDY

The main limitation of this study was its small sample size. Additional studies with larger sample sizes are highly recommended to assess the further causing factors and prevention strategies for control in Pakistan.

ETHICAL APPROVAL:

Ethical approval was taken from the Review Broad of the Mekran Medical College, turbat.

PATIENT'S CONSENT:

Informed written consent was taken from each patients for participating in the study, and publication of study results.

CONFLICT OF INTEREST:

The study has no conflict of interest to declare by any author.

AUTHOR'S CONTRIBUTION:

1. Literature search, conduct of study and editing.
2. Literature search, ethical approval and manuscript writing.
3. Sampling and results writing.
4. Statistics writing.
5. Literature review and discussion editing.

6. Review and editing.

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