Urinary Tract Infection among Pregnant Women in North Jordan

Mohammed al-issa

Correspondence:
Mohammed al-issa, MD
Obstetrician and Gynecologist
Moad Ben Jabal Hospital
Jordan

Abstract

Objective: The main purpose for conducting this survey is to examine the most common factors contributing to urinary tract infections (UTI) during pregnancy, among women in North Jordan.

Methods: Data collection was performed during the period between January and October 2008. From 6786 visits to gynecological clinics in North Jordan, 181 pregnant women with presence of bacteria in urine cultures were chosen to participate in this survey, after full explanation and agreement. A questionnaire containing 23 items, including demographic and potential factors that lead to UTI, was filled in by participants.

Results: The most common urinary tract infection was in women between 20 - 29 years (58%), educated until secondary school 49, (7%). Gestation age from third to eighth month shows percentage of 13, (8%) decreased to 11, 6%.

Conclusion: Increasing awareness of girls about signs and symptoms of urinary tract infection in general and especially during pregnancy, in addition to prevention, precautions and treatment, during secondary school and maybe earlier, may be a satisfactory background to prevent UTI in potential mothers.
Introduction

Introduction

Urinary tract infections are the most common bacterial infections during pregnancy. They are characterized by presence of significant bacteria anywhere along the urinary tract. Escherichia coli is the most common pathogen isolated from pregnant women. UTIs are relatively more common in women compared with men, primarily because of the anatomical differences of the shorter urethra, and it's proximity to the vagina and the rectum. They are associated with risk to the fetus and the mother.

Pathophysiology: Remarkable changes occur in the structure and function of the urinary tract during pregnancy. Blood-volume expansion is accompanied by increases in the glomerular filtration rate (GFR) and urinary output. The ureters undergo tonic relaxation because of the mass production of hormones, particularly progesterone. This loss in tone, along with the increased urinary tract volume, results in urinary stasis. Urinary stasis and the presence of vesico-ureteral reflux predispose some women to upper UTIs and acute pyelonephritis. Progesteron and estrogens may lead to a decreased ability of the lower urinary tract to resist invading bacteria. Up to 70 % of pregnant women develop glycosuria, which encourages bacterial growth in the urine. Asymptomatic bacteriuria is a risk factor for an upper UTI; treatment of this condition reduces the risk of a symptomatic infection.

A urinary tract infection may be caused by one or more of the following conditions:

A new sex partner or multiple partners
More frequent intercourse
A history of diabetes,
Sickle-cell anemia, stroke,
Kidney stones or any problem that causes the bladder not to empty completely,
Pregnancy increases risk for developing a UTI (but does not predispose women to UTIs).
Use of products such as harsh skin cleansers,
Use of contraceptives such as diaphragms and spermicides.
A history of UTI's, especially if the infections were less than six months apart.
Waiting too long to urinate.

Symptoms: If a patient has a urinary tract infection, you may experience one or more of the following symptoms:

Pain or burning (discomfort) when urinating
The need to urinate more often than usual
A feeling of urgency when urinating
Blood or mucus in the urine
Cramps or pain in the lower abdomen
Pain during sexual intercourse
Chills, fever, sweats, leaking of urine (incontinence)
Waking up from sleep to urinate
Change in the amount of urine, either more or less
Urine that looks cloudy, smells foul or unusually strong
Pain, pressure, or tenderness in the area of the bladder
If bacteria spread to the kidneys a patient may experience: back pain, chills, fever, nausea, and vomiting.

Lab Studies: In all pregnant patients, a urine specimen should be carefully collected for urinalysis, and potentially, for culturing. These tests help to identify patients with asymptomatic bacteriuria, as well as those with other specific complaints.

Bacteriuria generally results in more than 100,000 colonies per millilitre. Counts of less than 100,000 organisms per millilitre per specimen, with 2 or more organisms, usually indicate a contamination rather than an infection. For urine collection, a midstream clean catch is adequate, provided the patient is given careful instructions.

Catheterization is indicated if the patient is unable to void, too ill, extremely obese, or bedridden.

The leukocyte esterase test of the urine can be used as a screening examination for pyuria, although this test may be unreliable in patients with low-level pyuria (5-20 WBCs per high-power field).

Patients with pyelonephritis often have WBC casts.

Urine culturing should be performed in cases of suspected acute pyelonephritis, patients requiring hospitalization, and patients with a history of recent instrumentation or repeated infections.

CBC, electrolyte, blood urea nitrogen (BUN), and creatinine tests should be ordered at the physician's discretion, although the results do not aid diagnosis or change treatment unless they are markedly abnormal.
Imaging Studies: Unless anatomic abnormalities or renal disease is suspected, routine imaging studies are not necessary.

In cases of persistent symptoms and/or infection or in cases of suspected urolithiasis, renal ultrasonography may be helpful.

Treatment: Antibiotic therapy should be initiated after all necessary culture results are obtained. If significant nausea or pain is present, appropriate medication may be indicated. Treatment of all symptomatic and asymptomatic patients with bacteriuria is important.

The antibiotic should be safe for the mother and fetus.

Drug Category: Antibiotics
Empiric antimicrobial therapy must be comprehensive and should cover all likely pathogens in the context of the clinical setting. Empiric coverage for E coli and Klebsiella, Proteus, and Enterobacter species should be provided.

Methods

Data collection was performed from 1.1.2008 until 1.10.2008.

From 6786 visits to gynecological clinics in North Jordan (from records), 181 pregnant women with presence of bacteria in urine culture were chosen to participate in this survey, after full explanation, and agreement. A questionairre containing 23 items, including demographic, and potential factors that lead to UTI, was filled in by participants, except written laboratory results, which were done by doctors.

All factors were compared with urine analysis.

Follow up for mother and baby condition was performed

Results

As seen in frequency Table 1 and 2, urinary tract infection was more common in women between 20 - 29 years (58%), educated until secondary school (49.7%). Gestation age from third to eighth month shows a percentage of 13.8 % decreased to 11.6%. Before and after this period (from 1st - 3rd and from 8th - delivery) was 3.3% - 7.7%.

Mainly UTI occurs in pregnant women in the following order, the first, second, and third time (26,5%; 24,3%; 17,1%). 56, 4 % of women have normal vaginal delivery, and 18, 8 % cesarean section, but no correlation was seen between these factors and UTI. Complications for the baby were premature labour, and congenital abnormalities of kidney (14,9%; 1,1%) and for the mother were pyelonephritis, cystitis, vaginitis and anemia during pregnancy. 80,7% of the included women have signs and symptoms of urinary tract infection, as follows:

91.7% had burning during urination.
80.7% had vaginal itching.
87.8% of participants had frequency 6 to 10 times per 12 hours.
Urine retention at 76.8 %,
90. % complained of lower abdomen pain.
53% had flank pain.
34.8% had hematuria.
86 women (47.5%) practice intercourse even during UTI, and 64.1% of them complained of severe vaginal and lower abdomen pain during intercourse.

Excessive vaginal discharge was present at 78.5 % of participants.

Urine analysis shows that 98.9% of women have increased WBC (numerous), and 80.1% increased RBC.

Escherichia coli was found at 69.1% of all included women, while other bacteria was Klebsiella, and Proteus species. Hemoglobin results were:

8 mg/dl at 0.6%
9 mg/dl at 5.5%
10.5 mg/dl at 25.4%
11 mg/dl at 15.5%
11.5 mg/dl at 14.9%
12.5 mg/dl at 1.1%
13 mg/dl at 0.6%

Food habits: Fluid intake less than 2 L / 24 hours was used by 95.6% of women, while only 4.4% used to drink 2 L and more / 24 hours (even during UTI). 70.2% of women used to eat fatty food, 87.3% high protein food, sweets 89.5%, spicy food 72.9%, drink juices with soda 68.5%, coffee 81.2%. Vegetables and fruits are included in food at 91.2% ; 85.6% respectively. 86.6% of participants are smokers.

Clothes: 68.5% use cotton underwear, nylon 27.6%, polyester 1.1% while 55, and 2% use tight underwear.
Cleaning method: 42.5% of women use pipe, 21% use a fixed shower, 36.5% use other equipment.

Discussion

The results in Table 1 and 5 show that occurrence of urinary tract infections during pregnancy decreases with age and with increased number of pregnancies. Education is a very important factor. Secondary school may not be a sufficient source of information about urinary tract infection during pregnancy, for girls. Ante partum urinary tract infection was associated with birth of small gestational age infants. Multivariable adjustment for potential confounding variables, suggests that UTI affects low birth weight through premature delivery more than growth retardation. A high percentage of women visited the doctor and used medication, which shows increasing health awareness. Although most of the investigated women had clear signs and symptoms of UTI, as seen from incongruence in presence of RBC in urine at 80.1 % of examined women, while haematuria, indicated by answers, was present in 34.8 % of women, asymptomatic bacteriuria was still present, which may be a cause for the development of complications, such as cystitis and pyelonephritis. In addition, this incongruence may indicate either a low degree of awareness or sincerity of examined women, but increases the importance of early screening by laboratory test. Sexual intercourse is a risk factor for both urinary tract infection, and vaginal infection, since genital tract infection may also be associated with adverse reproductive outcome. Lower abdominal pain during intercourse in 64% of included women shows that awareness about precautions during UTI in pregnancy was not enough.

Presence of vaginal discharge in 78.5 % of women is too high a percentage, which may indicate some vaginal infection, but in survey conditions, screening for genital infections was not performed. Decreased knowledge regarding proper amount of fluids, and appropriate type of food and clothes, were noted. Awareness about signs and symptoms of urinary tract infection during pregnancy, precautions, treatment etc, during early visits to the clinic, may prevent serious complications to mother and baby.
Limitations: One of the limitations was that Jordan is an extensive area which is a barrier for women to reach the centers or hospitals for treatment. Regarding culture and habits some women answered insincerely, which was an obstacle to achieving a proper statistical analysis.

Recommendation
According to results of this study, it is recommended to start increasing awareness of girls about signs and symptoms of urinary tract infections in general and especially during pregnancy, in addition to prevention, precautions and treatment, during secondary school, and maybe earlier, which may be a satisfactory background to prevent UTI in potential mothers. Gradual changes in cultural factors related to more open answering regarding most genital diseases, is an important responsibility of all members of society, starting from home, school, medical centers, religious institutions and universities.

Early screening by laboratory investigation is recommended, to prevent serious complications of asymptomatic urinary tract infection, and discover even symptomatic UTI in women who are trying to hide signs and symptoms.

Performing a survey about male awareness regarding UTIs in pregnant women is a good way to provide male involvement in treatment, and prevention of complications of UTI, as a holistic

Correlations

Correlation 1

		العمر	QQQQ
العمر	Pearson Correlation	1	.116
	Sig. (2-tailed)	.	.121
	N	181	181
QQQQ	Pearson Correlation	.116	1
	Sig. (2-tailed)	.121	.
	N	181	181

Correlation 2 2

		QQQQ	مستوى التعليم
QQQQ	Pearson Correlation	1	-.058
	Sig. (2-tailed)	.	.442
	N	181	180
مستوى التعليم	Pearson Correlation	-.058	1
	Sig. (2-tailed)	.442	.
	N	180	180

Correlation 3

		QQQQ	دخل الشهري
QQQQ	Pearson Correlation	1	.094
	Sig. (2-tailed)	.	.213
	N	181	177
الدخل الشهري	Pearson Correlation	.094	1
	Sig. (2-tailed)	.213	.
	N	177	177

Correlation 4

		QQQQ	الحساب الحسابك أثناء الحمل
QQQQ	Pearson Correlation	1	-.323**
	Sig. (2-tailed)	.	.000
	N	181	181
الحساب الحسابك أثناء الحمل	Pearson Correlation	-.323**	1
	Sig. (2-tailed)	.000	.
	N	181	181

Correlation 5

		QQQQ	مضاعفات الالتهاب
QQQQ	Pearson Correlation	1	.089
	Sig. (2-tailed)	.	.232
	N	181	181
مضاعفات الالتهـ	Pearson Correlation	.089	1
	Sig. (2-tailed)	.232	.
	N	181	181

Correlation 6

		QQQQ	كثرة البول
QQQQ	Pearson Correlation	1	-.010
	Sig. (2-tailed)	.	.898
	N	181	181
كثرة البـ	Pearson Correlation	-.010	1
	Sig. (2-tailed)	.898	.
	N	181	181

Correlation 7

		QQQQ	دوالي وبواسير
QQQQ	Pearson Correlation	1	-.130
	Sig. (2-tailed)	.	.081
	N	181	181
دوالي وبواسـ	Pearson Correlation	-.130	1
	Sig. (2-tailed)	.081	.
	N	181	181

Correlation 8

		QQQQ	طبيعة الملابس الداخلية	طبيعة الملابس الخارجية
QQQQ	Pearson Correlation	1	.061	-.137
	Sig. (2-tailed)	.	.417	.065
	N	181	181	181
طبيعة الملابس الدا	Pearson Correlation	.061	1	-.073
	Sig. (2-tailed)	.417	.	.326
	N	181	181	181
طبيعة الملابس الخ	Pearson Correlation	-.137	-.073	1
	Sig. (2-tailed)	.065	.326	.
	N	181	181	181

Correlation 9

		QQQQ	طريقة الحذف
QQQQ	Pearson Correlation	1	-.038
	Sig. (2-tailed)	.	.616
	N	181	181
طريقة الحذف	Pearson Correlation	-.038	1
	Sig. (2-tailed)	.616	.
	N	181	181

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