Association between the Hygiene Practices for Genital Organs and Sexual Activity on Urinary Tract infection in Pregnant Women at women's Health Center, at Assiut University Hospital

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Abstract: Urinary tract infections (UTI) are very common in pregnancy. The aim of this study was to determine the association of Hygiene Practices for Genital Organs and Sexual Activity with Urinary Tract infection in Pregnant Women at women's Health Center, At Assiut University Hospital .This was descriptive analytical observational study with cross- sectional. The study sample consisted of (150) women from outpatient department in Women's Health Center with urinary tract infection for one year start from December 2009 to December 2010.The result of study showed that the mean age of women were 28.4±6.0 years, the majority of women (82%) multi Para, Three quarter of women (75.3%) do sexual intercourse more than 3+ /week during last month, All the sample (100%) 0f women don't wash genitalia before intercourse. The majority of women (94.6%) don't wash genital organ in correct direction , (81.3%) drunk only one liter of fluid/ day .Later found more than half of women (58%) had recurrent urinary tract infection it was found that there are statistical significant *p* value (<0.001*) between recurrent (UTI) & micturate after intercourse, wash genitalia after micturation, dry genitalia after micturation, Frequency of bathing/week , frequency of changing underwear /day and amount of fluids drunk/day (liter). Also there are statistical significant difference (*p* <0.0046*) between wash in correct direction & recurrent infection. In conclusion there is association between Hygiene Practices for Genital Organs and Sexual Activity on Urinary Tract infection. It is recommended Simple &correct hygiene measures may be appropriate to prevent UTI.

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1. Introduction

Significant changes in both structure and function take place in the urinary tract during normal pregnancy. Urinary tract dilatation is one of the most significant anatomical alterations induced by pregnancy.

An important consequence of dilatation and obstruction is potentially serious upper urinary infections. Urinary tract infection (UTI) is a bacterial infection commonly occurring during pregnancy (1) .The most common bacterial infections encountered during pregnancy, asymptomatic bacteriuria is usual, symptomatic infection may involve the lower tract to cause cystitis, or it may involve the renal calyces, pelvis, and parenchyma to cause pyelonephritis. (2)

Organisms that cause urinary infections are those from the normal perineal flora. There is now evidence that some strains of *Escherichia coli* have pill that enhance their virulence(3) .Although pregnancy itself does not seem to enhance these virulence factors, urinary stasis apparently does, and along with vesicoureteral reflux in some women, it predisposes to symptomatic upper urinary infections.

The incidence during pregnancy varies from 2 to 7 percent, and depends on parity, race, and socioeconomic status. The highest incidence has been reported in African-American multiparas with sickle-cell trait, and the lowest incidence has been found in affluent white women of low parity.

Bacteriuria is typically present at the time of the first prenatal visit, and after an initial negative urine culture, 1 percent or less of women develop urinary infection.

Although smaller numbers of bacteria may represent contamination, lower colony counts may sometimes represent active infection, especially in the presence of symptoms.

If asymptomatic bacteriuria is not treated, about 25 percent of infected women subsequently develop acute symptomatic infection during that pregnancy. Typically, cystitis is characterized by dysuria, urgency, and frequency. There are few associated systemic findings. Usually there is pyuria as well as bacteriuria. Microscopic hematuria is common, and occasionally there is gross hematuria from hemorrhagic cystitis.

Although asymptomatic infection is associated with renal bacteriuria in half of cases, more than 90 percent of the cases of cystitis are limited to the bladder.(2,3).

Aim of the study:

To determine the Effect Association between the Hygiene Practices for Genital Organs and Sexual Activity on Urinary Tract infection in Pregnant Women at women's Health Center, At Assiut University Hospital

Research hypothesis

1. Nursing management increase the women knowledge about urinary tract infections and its relations of sexual activity.
2. Prevent many problems of urinary tract infections among pregnant women

3. Subject and Methods

Research design

The present study was a descriptive analytical observational study with cross- sectional approach was used in caring out this study.

Subjects:

Setting

The study was carried out in outpatient department, Women's Health center, Assiut University Hospitals.

Sample:

The sample consisted of all women(150) attended for out patient department in Women's Health Center with urinary tract infection for six month start from December 2009 to end of May 2010.

Inclusion criteria:

Included pregnant women of 1st, 2nd, & 3rd trimester of pregnancy attending antenatal clinic primparous or multiparous women

Exclusion criteria

Women with history of urinary tract infections, urinary tract stone, urinary tract abnormality or chronic disease as diabetes and anemia.

Tools

Interviewing questionnaire sheet as research instrument completed by researcher for collecting this data :

1. Data related to Socidemographic variables such as age ,education, occupation & residence
2. Data related to the medical history: present complain
3. Obstetrics history which includes, Number of gravidity ,parity Gestational age,
4. Hygiene practices for genital organ. e.g. whether they usually urinated before & after intercourse washing of genitals pre and postcoiuts , direction of watching ,drying, frequency of change of under wear, Sexual activity and frequency number of sexual intercourse per weeks.
5. Urological symptoms.

Methods:

Before implementation of the study, an official permission was obtained from Women's Health Assiut University Hospitals after full explanation of the aim of the study. The pilot study was carried out before implementation of the study to test the validity and reliability of the questionnaire. The necessary modifications were done based on the results of pilot study .The data were collected for six months start from December 2009 to the end May2010, in the out patient department, Women's Health center, Assiut University Hospitals. Take the Consent from Women. The researcher gave questionnaire to the women to be filled if mother educated & filled by investigator if women illiterate, about Socidemographic characteristics, medical history, Obstetrics history, Hygiene practices for genital organ, Urological symptoms. Each woman was interviewed individually by the researcher at outpatient. The average time taken for filling each questionnaire was around 10-15 minutes depending on the women response .Each women was reassured that the information obtained will be confidential and used only for the purpose of the study.

Statistical analysis:

Statistical analysis was done by using SPSS version 16 statistical software package. Data were presented using descriptive statistics in the form of frequencies and percentages for categorical variables and means and standard deviation for quantitative variables.

Ethical considerations:

There were no risks can affect the students during the application of the study.

Informed consent was obtained from the students before their participation on the study.

3. Result

The socio-demographic characteristic of women in the study sample (n=150) was found in Table (1) the mean age of women were 28.4±6.0 years .As regard residence found (68%) of them live in urban area, while (70.7%) of them have basic education & more than of them (62.0%) house wife.

Table (2): Describe the obstetric & menstrual history it was found that the majority of women (82%) multi para , more than half of them (60 .7%)have previous abortion and less than half (48%) in the 2nd trimester of pregnancy

Table (3) show the sexual history &hygienic practice of women it was found that the majority of women (75.3%) do sexual intercourse more than 3+ /week during last month .About practice it was found that nearly three quarter of women (76.7%) don't micturate before intercourse , the majority of sample (95%) don't micturate after intercourse. All the sample (100%) 0f women don't wash genitalia before intercourse. The majority of women (94.6%) don't wash genital organ in correct direction, while found only (23.3%) of women dry genital after micturate & (14.3%) dry with paper tissue .Also found more than half (66%) of women change under wear one time/day also found (81.3%) drunk only one liter of fluid/day. Later found more than half of women (58%) had recurrent urinary tract infection.

Urinary tract problems among women show in table (4) it was found that (35.3%) of women had dysuria &pain ,while less than quarter (23.3%) had fever & only (12.0%) had rigors. Also found more than

half (58%) of women had recurrent UTI (50.6%) had fungal causes.

Table 1. Socio-demographic characteristics of women in the study sample (n=150)

	Frequency	Percent
Age (years):		
<25	33	22.0
25-	50	33.3
30+	67	44.7
Range	17.0-42.0	
Mean±SD	28.4±6.0	
Residence:		
Rural	48	32.0
Urban	102	68.0
Education:		
Illiterate	19	12.7
Basic/Intermediate	106	70.7
High	25	16.7
Job status:		
Housewife	93	62.0
Working	57	38.0

Table(2). Obstetric and menstrual history of women in the study sample (n=150

	Frequency	Percent
Parity:		
Primi	27	18.0
Multi	123	82.0
Previous abortions:		
No	59	39.3
Yes	91	60.7
Menstruation days:		
2	7	4.7
3	37	24.7
4	81	54.0
>4	25	16.7
Trimester:		
1	33	22.0
2	72	48.0
3	45	30.0
No. of pads changed/day:		
1-2	58	38.7
3+	92	61.3

Table(3) Sexual history& hygienic practice of women in the study sample (n= 150)

	No.	%
Sexual intercourse/week during last month:		
1-2	37	24.7
3+	113	75.3
Micturate before intercourse:		
No	115	76.7
Yes	35	23.3
Micturate after intercourse:		
No	143	95
Yes	7	5
Wash genitalia before intercourse:		
No	150	100
Yes	-	-
Wash genitalia after intercourse:		
No	36	24
Yes	114	76
Wash in correct direction:		
No	142	94.6
Yes	8	5.4
Wash genitalia after micturation		
No	26	17.3
Yes	124	82.7
Dry genitalia after micturation:		
No	115	76.7
Yes	35	23.3
Dry with:		
Towel	30	85.7
Paper tissue	5	14.3
Frequency of bathing/week:		
1-2	24	16
3+	126	84
Frequency of changing underwear/day:		
1	99	66
2+	51	34
Amount of fluids drunk/day (liter):		
1	122	18.7
2+	18	81.3
Frequency of micturation/day:		
1-4	26	81.3
5+	124	18.7
Recurrent urinary tract infection (UTI):		
No	63	42
Yes	87	58

Table 4. Urinary tract problems among women in the study sample (n=150)

	Frequency	Percent
Amount of fluids drunk/day (liter):		
1	28	18.7
2+	122	81.3
Frequency of micturation/day:		
1-4	26	17.3
5+	124	82.7
Urinary symptoms:		
Dysuria	53	35.3
Pain	53	35.3
Suprapubic pain	51	34.0
Change in urine color	22	14.7
Fever	35	23.3
Rigors	18	12.0
History of recurrent urinary tract infection (UTI):		
No	63	42.0
Yes	87	58.0
Type (n= 87):		
Fungal	44	50.6
Bacterial	43	49.4

The (5) show the relation between the history of recurrent urinary tract infection among women& their personal & obstetrics characteristic it was found statistical significant *p* value <0.001* between rural & urban, & job description as house wife & working women & recurrent infection . Also found statistical significant (0.04*) between level of education& recurrent urinary tract infection. Found statistical significant *p* value (<0.001*) for No of pads change/day & recurrent infection.

Table 6. describe the relation between the history of recurrent UTI among women & their sexual hygienic practice, it was found that they are statistical significant *p* value (<0.001*) between recurrent (UTI) & micturate after intercourse, wash genitalia after micturation, dry genitalia after micturation Frequency of bathing/week, frequency of changing underwear /day, bathing/week, Amount of fluids drunk/day (liter). Also found they are statistical significant *p* value (0.0046*) between wash in correct direction & recurrent infection

Table 5. Relations between the history of recurrent urinary tract infections among women and their personal and obstetric characteristics

	Recurrent urinary tract infection				X^2 Test	*p*-value
	Yes n=87		No n=63			
	No.	%	No.	%		
Age (years):						
<25	15	18.4	17	27.0		
25-	26	29.9	24	38.1	4.28	0.12
30+	45	51.7	22	34.9		
Residence:						
Rural	70	80.5	31	49.2		
Urban	17	19.5	32	50,8	14.78	<0.001*
Education:						
Illiterate	6	6.9	13	20.6		
Basic/Intermediate	65	74.7	41	63.1	6.29	0.04*
High	16	18.4	9	14.3		
Job status:						
Housewife	75	86.3	50	79.4		
Working	12	13.7	13	20.6	13.90	<0.001*
Parity:						
Primi	14	16.1	13	20.6		
Multi	73	83.9	50	79.4	0.51	0.47
Previous abortions:						
No	32	36.8	27	42,9		
Yes	55	63.2	36	57.1	0.57	0.45
Trimester:						
1	20	23.0	13	20.6		
2	40	46.0	32	50.8	0.34	0.84
3	27	31.0	18	28.6		
No of pads change day						
1-2	45	51.7	13	20.6	14.89	<0.001*
3+	42	48.3	50	79.4		

(*) Statistically significant at p<0.05

Table 6. Relations between the history of recurrent urinary tract infections among women and their sexual hygienic practice

	Recurrent urinary tract infection				X^2 Test	*p*-value
	Yes n=87		No n=63			
	No.	%	No.	%		
Sexual intercourse/week during last month:						
1-2	18	20.7	19	30.2		
3+	69	79.3	44	69.8	1.76	0.18
Micturate before intercourse:						
No	48	55.2	29	46.0		
Yes	39	44.8	34	53.0	1.22	0.27
Micturate after intercourse:						
No	19	21.8	34	54.0		
Yes	68	78.2	29	46.0	16.51	<0.001*
Wash genitalia before intercourse:						
No	69	79.3	49	77.8		
Yes	18	2o.7	14	22.2	0.05	0.82
Wash genitalia after intercourse:						
No	10	11.5	26	41.3		
Yes	77	88.5	37	58.7	17.76	<0.001*
Wash in correct direction:						
No	71	81.6	61	96.8		
Yes	16	18.4	2	3.2	8.01	0.0046*
Wash genitalia after micturation						
No	21	24.1	5	7.9		
Yes	66	75.9	58	92.1	6.69	0.01*
Dry genitalia after micturation:						
No	72	82.8	39	62.9	33.11	<0.001*
Yes	15	17.2	24	38.1		
Dry with:						
Towel	55	76.4	34	87.2		
Paper tissue	17	23.6	5	12.8	1.85	0.17
Frequency of bathing/week:						
1-2	23	26.4	1	1.6	16.79	<0.001*
3+	64	73.6	62	98.4		
Frequency of changing underwear/day:						
1	47	54.0	52	82.5		
2+	40	46.0	11	17.5	13.24	<0.001*
Amount of fluids drunk/day (liter):						
1	72	82.7	60	95.2		
2+	15	17.3	2	4.8	20.87	<0.001*
Frequency of micturation/day:						
1-4	20	23.0	6	9.5		
5+	67	77.0	57	90.5	4.62	0.03*

(*) Statistically significant at p<0.05

4. Discussion

Urinary tract infections (UTI) are a serious health issue that affects millions of women each year. For this reason, women with a UTI should understand the causes and treatments for urinary tract infections.

Pregnancy causes numerous changes in the woman's body. Hormonal and mechanical changes increase the risk of urinary stasis and vesicourteral 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 one of the most common bacterial infections during pregnancy.(4)

In general, pregnant patients are considered immunocompromised UTI hosts because of the physiologic changes associated with pregnancy .These changes increase the risk of serious infectious complications from symptomatic and asymptomatic urinary infections even in healthy pregnant women. (5)

The cause of most urinary tract infections is bacteria. Any part of your urinary tract can become infected which includes the kidneys, ureters, bladder and urethra. Bladder and urethra infections are the most common among women. (6)

The aim of the present study was to determine Association between the Hygiene Practices for Genital Organs and Sexual Activity on Urinary Tract infection in Pregnant Women

The main finding of this study were in table (1) that mean age of women were 28.4±6.0 more than half (68% & 62.0%) live in Urbana & a house wife respectively this result not similar with Nicolle (7) who mentioned that in healthy women, the prevalence of bacteriuria increases with advancing age, from 1% among school girls to >20% among healthy community- dwelling women older than 80 years.

Table (2) found less than half (48.0%) in the 2nd trimester this result accordance with Dalzell & Lefevre (8) who clarified that perhaps the susceptibility of UTI during this period (2nd TM) is due to uretheral dilatation which started as early as 6 weeks & reaching the maximum during 22-24 weeks, Also the result opposite with Tugral *et al.* (9)who reported that recently it has been reported that UTI developed in third Trimester .

According to sexual activity during last month in (Table 3) showed that more than three quarter (75.3%) of Women had sexual intercourse more than 3 times per week this a accordance with result of Schles et al. (10) Stamm & Norrby (11) Stamm & Norrby (11) Nguyen & Weir (12) Dalzell & Lefevre (8).Who mentioned that According Sexual intercourse ≥ 3 times per week was associated with greater frequency of UTI. This association has been reported for sporadic and recurrent cystitis

The result also agree with Gupta et al. (13) Hooton(14) who mentioned that The mechanical action of sexual intercourse may facilitate entry of E. coli strains into the urethra and bladder, because sexual intercourse alters the normal lactobacillusdominant vaginal flora and facilitate Ecoli colonization of the vagina . Also the result similar to Hu et al (14) & Shortlife & McCue (15) who reported that risk factors for UTI in women include sexual activity.

On other hand uropathogenic E. coli strains may in some cases be acquired by sexual transmission (17)

These exposures, by facilitating entry of E. coli into the bladder, may initiate events leading to UTIs A history of UTI, any and recent, has been a consistently reported risk factor for subsequent cystitis in both young adult and postmenopausal women (18-21): Our study confirmed that a previous UTI may predispose to subsequent UTI through behavioral, microbiological or genetic factors. These findings are consistent with other studies Hootn et al.(3), Scoles et al. (22), Sobczak et al.(23)

our study revealed that in table (4) more than three quarter of women (82.7%) Low intake of fluids only one liter /day this agrees with other studies Morgan (24)&. Amiri *et al.* (25) who mentioned that low intake of fluids and voluntary urinary retention were associated with UTI.

About genitals hygiene practices it was found the present study revealed to more than quarter of women (76.7%) no micturate before intercourse also the majority of women (95%) not micturate after intercourse while all the women(100%) not wash genitalia before intercourse but (76%) of them wash genitalia after intercourse while (94.6%) wash but not in correct direction, (76.7%) not dry genital organ after micturat ,the majority of women (85,7%) dray with towel , more than half (66%) change e under wear once daily ,and (81.3%) of women drunk only 1 (liter) /day. This result agree with Tchoudomirova et al.,(26) & Foxman & Chi (27Who mentioned that hygiene practices such as frequency of coitus, urinating after coitus, washing genitals precoitus, husband washing genitals precoitus, washing genitals postcoitus, taking baths, frequent replacing of underwear and washing genitals from front to back were associated with a reduced frequency of UTIs . Morre et al. (28) & Amiri et al. (25) mentioned that sexual Hygiene & sexual activity all of them which are risk factors for ABU both in premenopousal &post menopausal women. Also the result Are in agreement with Harris et al. (29).who reported perineal hygiene is important in women who should encouraged to shown after sexual intercourse to reduce colonization by fecal & perinal organisms.

Our study revealed to more than three quarter (76.7%) of women don't micturate after intercourse this to contrasts with Beisel et al. (30) who reported that In other studies the Women who usually urinated within 15 minutes of intercourse had a lower likelihood of developing a UTI than women who did not urinate afterwards. & mentioned that better evidence that postcoital voiding is an effective means of prevention of UTI.

In our study table (4) found more than half of women (58%) had recurrent of UTI this result agree with Hamdan et al. (31) Masinde et al. (32) Masinde et al. (32) who mentioned that a history of previous UTI is an important risk factor for asymptomatic UTI.

About sexual of intercourse found more than three quarter (79.3%) of women had sexual intercourse more than 3+ time \ week had recurrent UTI this agree with Farastita *et al.* (33)& Dimetry *et al.* (34) who mentioned that sexual activity of women with their partiners constituted a general risk factor for the occurrence of (ABU) Asymptomatic bacteruria.

According to the present study about recurrent UTI table (5) it was found statistical significant difference p(<0.001,0.04&<0.001)for residence of

women in rural & urban also between the level of education& the job status respectively.

On the other hand table (6) found there are statistically significant difference *p*=(0.001) between hygienic practice as micturate after intercourse wash genitalia before & after intercourse. wash in correct direction wash genitalia after micturate, dry genitalia after micturate ,general hygiene frequency of bathing /week change under wear\ day & amount of fluid drunk\ day.& recurrent of UTI. Also found statistical significant difference pv=(0.0046) for wash perineal in correct direct & recurrent UTI.

This result agree with Amiri et al.(25) who revealed to that hygiene habits and sexual behavior may play a role in UTI in pregnant women.

Conclusion

There are associations between Hygiene Practices for Genital Organs and Sexual Activity on Urinary Tract infection

Recommendation

1. Drink plenty of water every day.
2. Urinate when you feel the need; don't resist the urge to urinate
3. Wipe from front to back to prevent bacteria around the anus from entering the vagina or urethra
4. Take showers instead of tub baths.
5. Cleanse the genital area before sexual intercourse.
6. Avoid the use of feminine hygiene douches, which may irritate the urethra
7. Simple &correct hygiene measures may be appropriate to prevent UTI

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