

Frequency of Bactriurea in Pregnant Women Having Lower Urinary Track Symptoms

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ABSTRACT

Objective: To detect the frequency of bactriurea in pregnant women having lower urinary tract symptoms attending antenatal clinic of Obs & Gynae out patient department B.V. Hospital Bahawalpur
Design: Cross sectional study.

Place and duration of study: This study was carried out at Gynae Out Patient Department, B.V. Hospital Bahawalpur from July 2011 to November 2011.

Subjects and methods: 500 pregnant ladies, 18 to 35 years of age, primi and multigravida having lower urinary tract symptoms irrespective of socio-economic class and period of gestation but not having any medical disorder or multiple pregnancies and not having any antibiotic during last six weeks were studied after informed consent. The ladies were asked to collect their mid stream urine in a sterilized glass tube after washing vulva with plain water and samples sent for urine complete examination and culture & sensitivity test. If pus cells were >10/HPF the sensitivity of the specimen was checked by disc diffusion method.

Results: 500 pregnant ladies fulfilling the inclusion criteria were included in the study; out of them 260 expectant ladies (52%) were having the lower urinary tract symptoms.

Total number of 62(23.85%) positive cases out of 260 had a significant WBC count on microscopy 44 patients (70.9%) had a WBC count 10-15/ HPF while 8 ladies (12.90%) were found to be having 15 to 20 WBC/HPF and in the rest 10 pregnant ladies (16.13%) the WBC count was >20/HPF.

Urine culture and sensitivity examination was performed in cases having at least 10WBC/ HPF. Out of 66 patients bacterial growth was demonstrated in 44 women. Escherechia colli was detected in 34(77.27%) cases while in 10(22.73%) other organisms were seen.

Conclusion: Urinary tract infections are the most common bacterial infections encountered during pregnancy, several physiological changes occur during pregnancy that causes otherwise healthy women to be more susceptible to serious sequelae from UTI. Routine antenatal care should included inquiry regarding lower urinary tract symptoms in ordered to pick up the relevant cases for further management to prevent ascending urinary tract infection and its grave complications.

Key words: Lower urinary tract, pregnancy, cystitis, UTI, bactriurea

INTRODUCTION

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^{1,2} increased urine excretion, decreased bladder capacity and raised intervesical pressure are the reasons for lower urinary tract symptoms and recently abnormal detrusor activity during pregnancy has been established by urodynamic studies. Infection of the lower urinary tract (cystitis and urethritis) is extremely symptomatic and all the symptoms are caused by irritability of the detrusor muscles^{3,4}.

The loss in tone, along with the increased urinary tract volume, results in urinary stasis; Vesicoureteric reflux along with urinary stasis predisposes some women to upper UTIs and acute pylongephritis⁵. Urinary tract infections (UTI) are frequently encountered in the family physician's office and these infections are a result of interactions between a uropathogen and the host. Increased bacterial virulence appears to be necessary to overcome strong host resistance, and conversely, bacteria with minimal virulence characteristics are able to infect patients who are significantly immunocompromised.

The ascent is greatly increased if bacteria have especial adhesions or by any process that interfere with the normal ureteral peristaltic function. Gram negative bacteria and there endotoxins as well as pregnancy and ureteral obstruction have a marked anti peristaltic effect.

E. colli is the most common cause of urinary tract infection accounting for 85% of community acquired

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and 50% of hospital acquired infections^{6,7}. Other gram-negative enterobacteria including proteous, klebsiella and staphtococcus were found reminder in the cases.

MATERIALS AND METHODS

This cross sectional study was carried out at Gynae out patient Department B.V. Hospital Bahawalpur from July 2011 to November 2011.

Five hundred pregnant ladies fulfilling the inclusion criteria and not having any associated medical disorder or multiple pregnancies were picked-up. They were interviewed after informed consent, history was taken and complete obstetrical examination carried out. Symptoms pertaining to lower urinary tract were inquired and recorded in four major (Groups A). Frequency, Dysuria Urgency, pain in lower abdomen. Group B Stress incontinence, Urge Incontinence, True incontinence. (Group C) incomplete bladder emptying, poor stream, and difficulty in passing urine. (Group D) miscellaneous urinary problems. The ladies were asked to collect mid stream urine in a sterilized glass tube after washing vulva with plain water and samples sent for urine complete examination and then culture & sensitivity test, if pus cells were > 10/HPF. The sensitivity of the specimen was checked by Disc diffusion method.

RESULTS

Five hundred pregnant ladies fulfilling the criteria were included in the study and frequency of lower urinary tract symptoms was found to be 52%. Out of 260 expectant mothers having the complaint 12(4.6%) were less than 20 years of age while 248 (95.4%) belonged to age group of equal or more than 20years. Among the subjects having no problem regarding lower urinary tract symptom 10(4.175) ladies were less then 20 years while other 230(95.38%) were of more than 20 years of age. The statistical analysis showed significant result as P value >0.5. 64(24.62%) primigravida and 196(75.38%) multiparous ladies reported the symptoms. While 94(39.17%) primary gravida and 146(60.83%) multigravida ladies did not complain any urinary tract problem, significant result seen statistically.

Our study showed that considerable proportion of pregnant women had complaint during both halves of the pregnancy, but in most cases abnormal voiding pattern worsens as the pregnancy advances.

The results of this study revealed that 248(95.38%) ladies with complaint and 214(89.17%) without complaints were from poor families. In the

lower middle class 12(4.62%) pregnant women complained one or more urinary tract problems while 26(10.83%) did not, analysis showed significant results indicating more problem of urinary tract symptoms in expectant ladies belonging to poor socioeconomic class.

Table 1: Physiological changes (mean values) in renal function during pregnancy

Renal Function	Non Pregnant	Early Pregnancy	Late Pregnancy
Renal Plasma Flow (ml/min)	480	841	771
Plasma urea (mmol/l)	4.3	3.0	2.8
Plasma uric acid Umol/l)	246	189	269
Plasma osmolality (mosmol/kg)	288	278	280
Plasma creatinine (umol/l)	77	60	64
24-u creatinine clearance (ml/min)	94	136	114

Adopted from Dunlop and Division¹⁴.

Table 2: Urinary examination of patients having significant bactriurea

WBC/HPF	=n	%age
10-15	44	70.97
15-20	8	12.90
>20	10	16.13
Total	62	100

Table 3: Urinary culture report of patient having significant bacterium

Bacteria	=n	%age
E.coli	17	77.27
Others	05	22.73
Total	22	100

DISCUSSION

The lower urinary tract symptoms are seen very commonly during pregnancy. Among pregnant population these symptoms may be due to pregnancy-induced changes in the urinary bladder and urethra or may be due to manifestations of cystitis or urethritis⁸.

Our study included 500 expectant mothers while 260 (52%) on direct questioning complained single or multiple problems related to lower urinary tract. According to Najmi R S, Shabbir I and Rehan N in 1999, the corresponding figures were 47%¹. In another study 100% participant on direct questioning gave the history of at least on complaint⁹.

To determine the role of all 130 participant having the history of lower urinary tract symptoms was screened for pus cells and the samples detected having significant pyuria were subjected to culture and sensitivity examination. 62(23.85%) cases had significant pyuria (10 or more pus cells per high power field). Typically cystitis is characterized by dysuria, urgency and frequency and usually there is pyuria and erythrocytes are commonly found in the sediment¹⁰.

Our patients having significant pyruia exhibited the same symptom profile. Of the 31 cases with >10 WBC/HBF, bacterial growth was obtained in 44(70.96%) women and Escherechia Coli was detected in 34(77.27%) of these cases, our results are comparable with other stueis^{1,11}. It has been found that some strains of E. Coli have appendages called adhesions, which allow bacterial attachment of glycoprotien receptors present on ureopithelial cell membranes and enhance their virulence¹¹.

The overall picture suggests that lower urinary tract symptoms are very common in our obstetrical population and the incidence is even higher in multiparous women. On the whole results of the study are comparable with national and international studies but with a slight difference. However our results might have been affected due to duration of pregnancy at which population were examined, hot climate of the area under study, improper and poor hygiene due to poverty, lack of health care facilities especially for family planning, racial factors and different definitions employed^{12,13}.

CONCLUSION

Urinary tract infections are the most common bacterial infections encountered during pregnancy, several physiological changes occur during pregnancy that causes otherwise healthy women to be more susceptible serious sequelae from UTI. Routine antenatal care should included inquiry regarding lower urinary tract symptoms in order to

pick up the relevant cases for further investigation and management to prevent ascending urinary tract infection and its grave consequences

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