

ASYMPTOMATIC BACTERIURIA IN PREGNANCY

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ABSTRACT

Objective: To determine the frequency and risk factors of asymptomatic bacteriuria during pregnancy.

Study Design: Descriptive study

Place and Duration of Study: In obstetric and gynecology outpatient department of Isra university hospital Hyderabad Sindh from 2nd July to 10th December 2007.

Patients and Methods: Total 111 women were included in the study. Inclusion criteria were pregnant women with no clinical features suggestive of UTI. Symptomatic women, women with any medical or renal disease and those who had taken antibiotics in last 6 weeks were excluded from the study. Dipstick test was performed on MSU and urine was cultured incase of positive dipstick. Data was analyzed on SPSS version 11. Frequencies were runned and chi-square test was used as test of significance.

Results: A total of 111 women fulfilling the inclusion criteria were interviewed and tested for bacteriuria. Out of them 10 (9%) had bacteriuria. Out of them 10% were below 20 years and 90% were between 20-30 years ($p=0.17$). Regarding education 10% were literate and 90% were illiterate ($p<0.001$). Prevalence of bacteriuria was 100% in women who had past history of urinary tract infection ($p=0.004$). 80% of women who were sexually active had bacteriuria while 20% had not ($p=0.006$). No association of bacteriuria was found with anemia, age, parity and socioeconomic condition.

Conclusion: Asymptomatic bacteriuria is a common infection during pregnancy, have strong association with education, past history of urinary tract infection and illiteracy.

Keywords: Pregnancy, Asymptomatic bacteriuria, Risk factors.

INTRODUCTION

Urine in bladder is normally sterile [1]. The presence of bacteria in urine is called bacteriuria [2]. Asymptomatic bacteriuria (ASB) is bacteriuria [3] without apparent symptoms of urinary tract infections (UTI). ASB associated with pregnancy has a direct bearing not only on the health of the woman, but also on the pregnancy [4]. Untreated ASB is a well-established risk factor for the development of pyelonephritis, which is associated with an increase in fetal and maternal morbidity [5].

The importance of symptomatic and asymptomatic bacteriuria in pregnancy has been evaluated extensively [5, 7]. The prevalence of ASB in pregnancy varies from 2-11% and is similar to that observed in

nonpregnant women [8].

Female gender itself is a risk factor because of short urethra, its proximity to vagina and anus and inability of women to empty their bladder completely. High incidence is seen in lower socioeconomic group [9]. Sexual activity and certain contraceptive methods are also said to increase the risk. [10] Abnormalities of urinary tract or stones, diabetes mellitus, immunosuppression and Past history of UTI tend to increase the risk [7, 11].

Screening for ASB has little apparent value in adults with exceptions before urologic surgery and during pregnancy [12] high co-relation has been found between a negative urine culture at early pregnancy and no bacteriuria complications later in pregnancy [13]. By identification and appropriate treatment of patients at this stage of ASB, the complications in future can be prevented [14].

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The objective of this study was to find the frequency and associated risk factors of ASB during pregnancy.

PATIENTS AND METHODS

This descriptive study based on sample of convenience was conducted on women who attended outpatient department of obstetric and gynecology of Isra university hospital Hyderabad Sindh Pakistan from 2nd July 2007 to 10th Dec 2007. An inclusion criteria for the study was pregnant ladies having no clinical features suggestive of urinary tract infection. Symptomatic women, women with any medical or renal disease and those who had taken antibiotics in the last six weeks were excluded from the study. Among 123 women approached, 111 fulfilled the criteria and were included in the study. After informed consent they were interviewed through detailed questionnaire, including obstetrical and past medical history. Dipstick test was performed on midstream urine and urine was cultured in case of positive dipstick test. Nutritional status was assessed by Hb estimation. Hb level was determined by Sahli's method and female with Hb levels <11g per deciliter was classified as anemic. According to judgmental basis, women were divided in low, middle and upper social class, if family income was upto Rs.5000 per month,

upto Rs.15000 per month or more respectively. Data was analyzed on SPSS version 11. Frequencies were run and chi-square test was used as test of significance with significance level kept at $p \leq 0.05$.

RESULTS

A total of 111 women were included in the study. Mean age was 27.3 (SD=5.09). Out of these 111 women 10 (9%) had bacteriuria. The effect of maternal age was studied. The result showed that 01(10%) were below 20 years and 09 (90%) were between 21-30 years, insignificant difference was observed in maternal age of bacteriuric and non-bacteriuric women.($p=0.17$).

Nutritional status was assessed indirectly by anemia. No significant difference was seen among bacteriuric and non-bacteriuric women ($p=0.27$, Table-1).

Frequency of bacteriuria, at different periods of gestation, also revealed no statistically significant results ($p=0.14$, Table-1).

Parity and socioeconomic status also revealed no statistically significant results.

Education was found to be a highly significant variable as 01(10%) women were educated and 09(90%) were illiterate ($p<0.001$, Table-2).

Table 1: Distribution of study subjects for study variables found to have no association with asymptomatic bacteriuria.

Variable	Bacteriuria		P-value
	Yes (N = 10)	No (N =101)	
Age in year:			0.17
Less than 20	1(10.0%)	12(11.9%)	
21 to 30	9(90.0%)	64(63.4%)	
More than 30	0	25(24.8%)	
Parity:			0.09
Multi Para	8(80.0%)	53(52.5%)	
Primi Para	2(20.0%)	48(47.5%)	
Socioeconomics status			0.12
Low class	0	27(26.7%)	
Middle class	4(40.0%)	39(38.6%)	
Upper class	6(60.0%)	35(34.7%)	
Hemoglobin status:			0.27
< 11	9(90.0%)	75(74.3%)	
> 11	1(10.0%)	26(25.7%)	
Gestational age in weeks:			0.14
Up to 14 weeks	3(30.0%)	50(49.5%)	
15 to 28 weeks	4(40.0%)	41(40.6%)	
More than 28 weeks	3(30.0%)	10(9.9%)	

Assessing the risk of recurrence, past history of urinary tract infection was important risk factor as all 10 women (100%) had past history of urinary tract infection ($P=0.049$). Sexual activity as a risk factor of asymptomatic bacteriuria was also statistically significant in my study ($p=0.006$) as 08(80%) women were sexually active and

not become evident probably due to small sample size.

Anemia was not found to be a risk factor in this study. Same was observed in another local study, conducted by Qureshi et al, at Aga Khan university hospital, Karachi [21].

It was suspected that age and number of fertility could be related to the occurrence of

Table 2: Distribution of study subjects for study variables found to have no association with asymptomatic bacteriuria.

Variable	Bacteriuria		P-value
	Yes (N = 10)	No(N =101)	
Education:			
Yes	1(10.0%)	79(78.2%)	< 0.001*
No	9(90.0%)	22(21.8%)	
Past history of UTI:			
Present	10(100.0%)	72(71.3%)	0.049
Absent	0	29(28.7%)	
Sexual Activity			
Yes	8(80.0%)	36(35.6%)	0.006
No	2(20.0%)	65(64.4%)	

* *P value* is highly significant

02(20%) were not (Table-2).

DISCUSSION

Asymptomatic bacteriuria is common during pregnancy. [15]. It gives a clear predisposition to the development of symptomatic UTI, which in turn pose risk to mother and fetus [16]. Complications which occur as a result of ASB are acute pyelonephritis, hypertension, anemia, pre term labour (PTL) and intra utrine growth retardation (IUGR) [17]. Thus screening and treating all pregnant women with ASB, to avoid complications, is considered an intervention of proven benefit [18].

The relationship between the incidence of asymptomatic bacteriuria and pregnancy has always been a subject of intrest. The frequency of ASB in my study was 9%. This figure falls within 2-10% range of prevalence in the population quoted in epidemiological studies [19, 20].

Maternal age was not found to be a significant risk factor in this study. In literature, only a significant increasing risk of 1-2% is reported per decade of age, which did

ASB, but we found no significance. Similar findings have been reported by Attiulah et al [22].

The prevalence of bacteriuria was found to be 2.3% among well status women but we, like little [23], did not find difference in bacteriuria according to socioeconomic status of subjects.

The prevalence rate of bacteriuria in pregnant and non-pregnant women is essentially the same. It is only the physiological changes of pregnancy, which make them more susceptible to fetal and maternal morbidity [20]. The fact was observed by a similar frequency at different periods of gestational amenorrhea in our study. It shows that bacteriuria is invariably present either before or in early pregnancy and only 1-2% acquire late during pregnancy [19].

In this study education came out to be a strongest risk factor. Education improves the attitude and beliefs of women and has a protective role against most of the morbidities [19, 24]. The facts been evident by a very low frequency of UTI in educated women.

In this study past history of UTI was the significant risk factor. Most of the studies acknowledge the significance of past history of UTI in causing ASB in pregnancy. [24] Pastore and colleagues found that two strongest predictors of bacteriuria at prenatal care were an antepartum UTI prior to prenatal care and a pre-pregnancy history of UTI [25]. In this study sexual activity was also significant risk factor. Similarly, study conducted by Patterson showed that prevalence of ASB increases in women who are sexually active [11].

CONCLUSIONS

This study showed that the frequency of ASB has strong association with illiteracy, past history of UTI and sexual activity. It highlights the need on the part of health care providers to realize the importance of screening pregnant women for ASB. Although most of the important variables were studied in this study, further well-planned transcultural and cross-cultural studies are required to see the association with other risk factors like contraceptive methods etc.

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