Original Article

Asymptomatic Bacteriuria Among Pregnant Women

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Abstract

Objective: To determine the prevalence of asymptomatic bacteriuria (AB) during pregnancy. **Study Design:** Non interventional, cross sectional study. **Place and Duration of Study**: Department of Obst. & Gynae DHQ Hospital Faisalabad from May 2010 to July 2010. **Materials And Methods:** A total of 400 consecutive pregnant women were recruited for this study. All subjects were clinically identified to have no signs and symptoms of UTI. Clean catch midstream urine sample was collected from each patient into sterile container. The urine samples were examined microscopically and by cultural method. **Socioeconomic Status and Education:** Socioeconomic status is defined by key demographic and economic characteristics (reported in Government of Pakistan Economic Survey of Pakistan-2001-2, Islamabad, Ministry of Finance, June (2002).The most important variable describing and classifying SES was annual house hold income (US$<500 = Low, US$500-1000 = Middle). **Result:** A total of 20 (5%) were positive for significant bacteriuria. Significant relationship was found between ASB with ages, parity and socioeconomic status. With regard to age, 5 (25%) women were below 25yrs 11(55%) between 25-35 and 4(20%) were above 35yrs. Regarding parity, 4(20%) were primigravida and 16(80%) were multigravida. As far as socioeconomic status is concerned 12 (60%) belong to low socioeconomic class and 8(40%) from middle. No significant relationship was determined between AB and gestational age and diabetes. **Conclusion:** Asymptomatic bacteriuria is not uncommon among antenatal patients. Routine urine cultural test should be carried out on all antenatal patients in order to identity any unsuspecting infection. **Key Words:** Asymptomatic Bacteriuria, UTI.

INTRODUCTION

Asymptomatic bacteriuria is a condition in which urine culture reveals a significant growth of pathogens that is greater than 10^5 bacteria/milliliters but without the patient showing symptoms of UTI.[1] This is common during pregnancy and associated with risk to both mother and fetus.[2] The apparent reduction in immunity of pregnant woman appears to encourage the growth of both commensal and non-commensal microorganisms. During pregnancy 70% pregnant women develop glycosurea which encourages bacterial growth in the urine.[3,4]

Pregnancy enhances the progression from asymptomatic bacteriuria to symptomatic bacteriuria which could lead to pyelonephiritis and adverse obstetric outcome such as prematurity, low birth weight[2,5] and higher fetal mortality rates.[6] The adverse effects of undiagnosed AB on mother and child have made researchers to suggest routine culture screening for all pregnant women attending antenatal clinic in order to prevent mother and child from any of complication that may arise due to infection. However in many hospitals in developing countries including Pakistan routine urine culture test is not carried out for antenatal patients probably due to cost implication and time factor for culture result (usually 48 hrs period). Therefore many clinicians rather opt for the strip urinalysis method for assessing urine in pregnant women. In developing countries, the attention of clinicians and health care providers is usually on the presence of glucose and protein in urine specimens with less attention on possible asymptomatic infection. Against this background, this work is aimed at determining AB among pregnant woman attending antenatal clinic at DHQ hospital Faisalabad, Pakistan.

PATIENTS AND METHODS

The study was conducted at DHQ Hospital, Faisalabad that peripheries of 3rd biggest city of Pakistan. The study included 400 pregnant women having no sign and symptom of urinary tract infections in period between May-2010 to July 2010. Women having clinical signs and symptoms of urinary tract infection were excluded from study. Clean catch midstream urine specimens were collected and sent to hospital laboratory for microscopy. Culture and sensitivity data was collected regarding age, parity, socioeconomic status, education level and diabetic status. SPSS Version 10 was applied for data analysis, Mean ± S.D. was determined for age, hemoglobin and gestational age. Frequency was determined for AB and suspected risk factors.

RESULTS

Out of total 400 pregnant women 20 were found positive for significant bacteriuria giving a prevalence of 5%. The relationship of maternal age with AB was defined. Mean age of study population was found to be 34 ± 23.17 SD. The mean hemoglobin was 9.89 ± .67 SD & mean gestational age was 28.99 ± 7.57 SD (Table 1). Out of them 5(25%) patients were below 25 years, 11(55%) were between 26 to 35 and 4(20%) were above 35 years (Table 2). Regarding parity 4 (20%) patients were primigravida and 16 (80%) were multigravida (Table 2). Significant relationship was found between socioeconomic status and AB as 12 (60%) women belonged to low class and 8 (40%) to middle class (Table 2). No relationship between education level and AB was found as 6 (30%) women were uneducated, 9 (45%) educated up to matriculation and 5 (25%) were above that (Table 3). Association between ASB and duration of pregnancy was also determined showing that 6(30%) were in 1st trimester, 11(55%) were in 2nd trimester and 3(15%) were in third trimester (Table 3). Relationship with diabetes was also determined, showing 8(40%) of infected women were diabetics and 12(60%) of infected women were non-diabetics.

DISCUSSION

Asymptomatic bacteriuria (AB) is one of the most common infections occurring in pregnancy. It occurs more often in women due to the short nature of urethra aggravated by activities as sexual intercourse. During pregnancy there is apparent reduction in immunity and this encourages the growth of commensal and non-commensal micro-organisms.[4] Complications due to ASB can be acute pyelonephritis , hypertension, anemia, preterm labour and intra-uterine growth retardation.[7] It can also result in still birth.[8] It is estimated that 30 – 50% of women with a diagnosis of AB in pregnancy will progress to symptomatic infection. Appropriate screening and treatment of AB will reduce the infection rate to 3%.[9] So it is very important to adopt the way to reduce infection rate. The frequency of AB in our study population is 5% which is comparable to 4.8%[6] and 2-5%.[10] Its prevalence is quoted highest in Benin City Nigeria i.e. 86.6%[9] and it is comparable to 78% reported in Abakaliki, Nigeria.[11]

Effect of age on AB was studied and found that age group 26-30 yrs had the highest percentage of infection i.e 55% and is followed by age group 25 yrs i.e 25 % and then is closely followed by age group 35 yrs with 20% infected population. The same results were observed in previous study by Paul and colleagues[12] but this is not consistent with another study by Turpin CA & colleagues in Ghana, in which highest prevalence (13%) was recorded in the age group 35-39 yrs and lowest rate (zero %) between 15-19 yrs of age.[13]

It has been acknowledged in literature that risk of increase in ASB is only 1-2 %per decade increase in age which did not become evident probably due to small sample size. Multiparity was found to be an important risk factor, as 5% multiparas compared to 2.5% primigravida were having ASB consistent with other studies by Naheed Fatima & Turpin CA.[6, 13] Changes in urinary tract occur with each pregnancy makes the women prone to ASB. Lower socio-economic status was also considered a risk factor showing that 60 % of women belonged to lower socio-economic status as compared to 40% of infected women belonging to middle class. The same results were observed in a study conducted at Satellite Town and Beharia colony, Bahawalpur.[6] This difference could be due to poor hygienic practices and in lower socio- economic group. As education helps to change the myths and beliefs and ultimately changing the attitudes towards health and hygiene. So it can play an important role to decease the prevalence of ASB. This

fact was not observed in our study showing that 25% of females were educated above matriculation, 45 % up to matriculation and 30% were uneducated. The present study showed that ASB was present in 40% of patients with pre-existing diabetes. This percentage is higher than previous studies i.e. 21% in Karachi,[14] 20% in Nigeria and 19% in Bahrain.[15,16]

Based on gestational age, highest prevalence of ASB was observed in 2nd trimester (55%), followed by 1st trimester (30%) and 3rd trimester (15%). This is not in accordance with findings of Lindsay that states ASB increases with increasing gestational period[17] and Mclsaac that states single urine culture before 20 weeks gestation missed more than half of ASB cases.[18] Based on the findings of this study there is need for routine screening of urine of pregnant women for ASB as a part of antenatal health care, to prevent its maternal and fetal implications.

CONCLUSION

Asymptomatic bacteriuria is common among antenatal patients based on this study. It is important to carry out urine culture of pregnant women, as this simple measure will go a long way in reducing maternal and obstetric complications associated with pregnancy.

Table-1

Descriptive Statistics

	Total	Minimum	Maximum	Mean	S.D.
Age (Years)	400	19	34	23.17	3.04
Hemoglobin (Gram %)	400	9.1	11.8	9.89	0.67
Gestational Age (Weeks)	400	10	40	28.99	7.57

Table 2

Distribution Of Study Subjects For Variables Found To Have Association With AB.

Age group years	Frequency Infected	% Infected	Frequency Non-Infected	% Non-Infected
< 25	05	25	209	43.5
26-35	11	55	176	36.6
>35	04	20	95	19.7
Total	**20**	**100**	**480**	**100**
Parity				
Primigravida	4	20	153	31.8
Multigravida	16	80	327	68.2
Total	**20**	**100**	**480**	**100**
Socioeconomic Status				
Low Class	12	60	324	67.5
Middle Class	8	40	156	32.5
Total	**20**	**100**	**480**	**100**

Table-3

Distribution Of Study Subjects For Variables Found To Have No Association With ASB

Education level (Years)	Frequency Infected	% Infected	Frequency Non-Infected	% Non-Infected
Un-educated	6	30	163	34
Up to matriculation	9	45	227	47.3
Above matriculation	5	25	90	18.7
Total	**20**	**100**	**480**	**100**
Duration of pregnancy				
1st Trimester	6	30	214	44.6
2nd Trimester	11	55	159	33.1
3rd Trimester	3	15	107	22.3
Total	**20**	**100**	**480**	**100**
Relation with Diabetes	**Frequency Infected**	**% Infected**	**Frequency Non-Infected**	**% Non-infected**
Diabetics	8	40	24	5
Non-Diabetics	12	60	456	95
Total	**20**	**100**	**480**	**100**

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