Original Article

Frequency of Asymptomatic Bacteriuria in Patients with Preterm Labor

Samana Aleem, Hazooran Lakhan, Shahida Karamat, Asifa Abdul Jabbar, Saima Farook, Farheen Shaikh

ABSTRACT

OBJECTIVE: To determine the frequency of asymptomatic bacteriuria in patients presenting in preterm labor in a tertiary care hospital

METHODOLOGY: This Cross-sectional study was conducted at Department of Obstetrics & Gynecology, Peer Syed Abdul Qadir Shah Jeelani Institute of Medical Sciences, Gambat from July to December 2018. A total of 115 women with preterm labour were included in this study through Non probability consecutive sampling technique. Clean voided mid-stream urine specimen of patients was collected. Subjects were adequately educated to prevent contamination of specimen. The specimen was collected into sterilized wide, necked, leak proof, plastic containers. The patients were followed for outcome of preterm labour. SPSS v. 20 was used to enter and analyses the data.

RESULTS: The average age of patients was 31.94±5.26 years. The mean gestational age at delivery was 32±3.61 weeks. Frequency of asymptomatic bacteriuria was 27.83%.

CONCLUSION: It has been concluded that a rate of asymptomatic bacteriuria can be observed among pregnant females admitted with preterm labour. The hazardous consequences related to asymptomatic bacteriuria can be minimized by prescribing a course of antimicrobials in early pregnancy.

KEY WORDS: Urinary tract infection, asymptomatic bacteriuria, Preterm labor.

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INTRODUCTION

Urinary tract infection (UTI), a serious health problems affecting millions of people each year accounting for about 8.3 million visits to the hospital each year[1,2]. The spectrum ranges from asymptomatic bacteria to severe pyelonephritis[1]. It is the second most common type of infections in the body. The common cause of detected usually in uncomplicated UTI are E. coli (75 – 90%), staphylococcus saprophyticus (5 – 15 %), Enterococcus and other gram negative rods other than E. coli have also been implicated in some cases[2]. Studies have also found increased infections with E.coli and Staphyloccus in patients with UTI[3].

Asymptomatic bacteriuria may proceed to symptomatic UTI and is responsible for over 6 million outpatient visits each year with a prevalence of 4-7% in pregnancy[4]. As it is evident from previous studies that asymptomatic bacteriuria developed in the pregnancy considerably increases the chances of low birth weight as well as significant number of preterm deliveries[5]. The prevalence of asymptomatic bacteriuria is higher (25.68%) in third trimester than first trimester (15.79%)[6].

Thus early identification of asymptomatic bacteriuria is of utmost importance as it has potential for saving pregnant women, in whom bacteriuria is an established risk factor for serious complication including the endometritis, chorioamnionitis, reduced fetal growth, preterm labour & birth, raised still-birth or perinatal mortality, mental retardation and slow growth[2,7]. A large population-based study in Israeli women revealed 2.5% rate of asymptomatic bacteriuria and 2.3% rate of symptomatic bacteriuria. Mazor et al., states that findings are indicators for the strength of the prenatal care instead of the precise causal effects of the UTI[8].

Similarly, few surveys related to the different races established that the variations among the females belong to the Native America and observed the highest prevalence of such urinary infections was 24.2% among Native American females than females in Asia (10.3%), England (16.6%), Spain (18.3%), and African countries (20.3%)[9,10]. Therefore, the aim of our study is to determine the frequency of asymptomatic bacteriuria in patients with preterm labor if results of study show high prevalence of asymptomatic bacteriuria in preterm labour so that efforts should be made for its earlier control to reduce prenatal morbidity and mortality.

METHODOLOGY

This cross-sectional study was done at Department of Obstetrics & Gynecology at Peer Syed Abdul Qadir Shah Jeelani Institute of Medical Sciences, Gambat from July to December 2018. By taking the frequency of asymptomatic bacteriuria among women having preterm labour is 25.68% confidence level 95% from

the margin of error 8% and at least sample of 115 were included through Non probability consecutive sampling technique. Pregnant females aged 20 – 45 years presented in preterm labor (labor and delivery between 24-36 weeks of pregnancy) were included. Females who were already diagnosed with UTI and taking antibiotics, multiple gestation, polyhydramnios, had cervical surgery or uterine anomaly were excluded from the study. Written informed consent was obtained from pregnant women who fulfill inclusion criteria. Clean voided mid-stream urine specimen of patients was collected. Subjects were adequately educated to prevent contamination of specimen. The specimen was collected into sterilized wide, necked, leak proof, plastic containers. The patients were followed for outcome of preterm labour. Asymptomatic bacteriuria was labelled if there was a significant bacterial count > 10^5 CFU/ml present in the urine of a person without symptoms. After collection of data, the analysis was done using SPSS software version 20. Frequency was calculated for asymptomatic bacteriuria. Stratification with respect to age and parity was done. Post stratification, Chi-square test was applied with p-value ≤0.05 as significant.

RESULTS

The average age of the patients was 31.94±5.26 years similarly mean gestational age was 32±3.61 weeks. Out of 115 women, 41(35.56%) were primiparous and 71(64.35%) were multiparous. Table I.

Frequency of the asymptomatic bacteriuria among patients presenting in preterm labor was 32 (27.83%). Figure I.

Rate of asymptomatic bacteriuria among patients presenting in preterm labor was insignificant among different age groups (p = 0.32) as well as in parity strata (p > 0.05). Table II.

TABLE I:
BASELINE CHARACTERISTICS OF PATIENTS

n	115
Age (Years)	31.94±5.26
Gestational Age (Weeks)	32±3.61
Primiparous	41 (35.7%)
Multiparous	74 (64.4%)

DISCUSSION

Asymptomatic bacteriuria can be present in 2-10% pregnancies.[11] In several observational studies, conducted in developing countries, the rate of symptomatic bacteriuria among pregnant women can be from 4% to 10% [5,12-14]. This disparity among different studies may be due to numerous factors e.g., geographical deviation, socioeconomic status, ethnicity, level of healthcare center (primary care, community based or hospital), and screening tests distinction (urinary dipstick, microscopy or culture). There is a significant disparity in rates of bacteriuria in different races, besides there is also difference in rates in same race due to different geographical living regions or socioeconomic status. Symptomatic bacteriuria does not cause much problems as it is easy to diagnose and treat because of its obvious symptoms. However asymptomatic bacteriuria is problematic to diagnose and it is more prevalent during pregnancy[15].

It is specifically important during pregnancy as 30-40% untreated cases of asymptomatic bacteriuria can develop acute pyelonephritis in later trimesters of pregnancy[16-18]. Fetomaternal complications of

FIGURE I:
FREQUENCY OF ASYMPTOMATIC BACTERIURIA IN PATIENTS WITH PRETERM LABOR

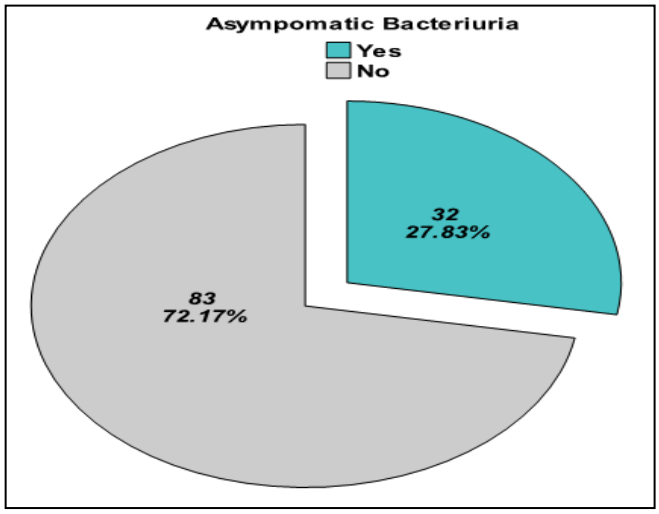

TABLE II:
COMPARISON OF ASYMPTOMATIC BACTERIURIA IN DIFFERENT AGE AND PARITY GROUPS

	Asymptomatic Bacteriuria		p-value
	Yes	No	
Age (years)			
21-25	2 (6.25%)	13 (15.66%)	0.32
26-30	9 (28.13%)	18 (21.69%)	
31-35	11 (34.38%)	35 (42.17%)	
> 35	10 (31.25%)	17 (20.48%)	
Parity			
Primiparous	11 (34.38%)	30 (36.14%)	0.85
Multiparous	21 (65.63%)	53 (63.86%)	

asymptomatic bacteriuria are suggestive urinary tract infections, pyelonephritis, toxemia related to preeclampsia, anemia, low birthweight, intrauterine growth retardation, premature rupture of membrane, preterm labour or endometritis[19-21].

Though, in developed countries, the evaluation and management of asymptomatic bacteriuria during first trimester of pregnancy is standard-of-care and role of precise antibacterial treatment during pregnancy is well known[22]. Our study reported that the out of 115 women with preterm labour, frequency of asymptomatic bacteriuria was 27.83%. The stated frequency of asymptomatic bacteriuria in pregnancy was were 30% in Yemen[23], 4.8% in United Arab Emirates[24], 9.9% in Qatar[25] & 3.3 - 6.1% in Iran[26]. Now-a-days, the association of asymptomatic bacteriuria with obstetrical-related complication particularly preterm delivery is a recognized fact[27,28].

But the physiology of association between asymptomatic bacteriuria and preterm labour is not well-established yet, but a hypothetical dispute is made for contributory role for secretion of phospholipase A2 by pathogens, which can then cause an early initiation of labor by stimulation of prostaglandin[29]. Many researchers have detected the high rate of pyelonephritis among pregnant females having bacteriuria[30].

It is conclusive that the impact of bacteriuria on preterm labor might be indirectly facilitated by pregnancy induced hypertension. It is also probable that bacteriuria can directly affect preterm labor, by amnionitis development. It was heretofore proposed that bacterial infection in amniotic fluid can be a risk factor of preterm delivery[24,31].

CONCLUSION

It has been concluded that there is a high prevalence of asymptomatic bacteriuria among pregnant females presented in labour during preterm weeks of gestation. The adverse outcomes caused by asymptomatic bacteriuria during pregnancy can be decreased by using antibiotic therapy earlier in the pregnancy. Thus, evaluation and cure of asymptomatic bacteriuria is required to be integrated in routine antenatal care for cohesive approach to safe the mother and neonate without compromising their health and life.

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AUTHOR CONTRIBUTIONS

Aleem S: Data collection
Lakhan H: Data collection
Karamat S: Data analysis
Jabbar AA: Result formulation
Farook S: Result formulation
Shaikh F: Paper formulation

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