

The Prevalence of Asymptomatic Bacteriuria in Female Students from Babol Islamic Azad University (2002)

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Abstract: Urinary Tract Infections (UTI) are among the most common bacterial infections in humans. The most frequent form of UTI is asymptomatic bacteriuria. The aim of this study is to determine the prevalence of asymptomatic bacteriuria on female students from Babol Islamic Azad University. This research has been carried out on 207 female students from Babol Islamic Azad University in 2002. The age ranges of the students were between 18-29 years. Mid Stream Urine (MSU) collected by students. Urinalysis and bacteriological identification culture of MSU is done on all of specimens and repeat two times in total. The prevalence of asymptomatic bacteriuria was determined by dividing the total number of cultures with evidence of asymptomatic bacteriuria by the total number of routine scheduled urine cultures performed. Bacteriological tests of MSU revealed that 19/207 (9/2%) were positive for asymptomatic bacteriuria. The microbe most frequently causes asymptomatic bacteriuria was *Staphylococcus saprophyticus* in 7/19 (36/8%) followed by *Escherichia coli* in 6/19 (31/6%) and *Klebsiella* in 3/19 (15/8%) each. asymptomatic bacteriuria are high rate in our study, therefore young women must obey the general rules of hygiene especially about genitourinary system to avoid increasing of asymptomatic bacteriuria rate.

Key words: Asymptomatic Bacteriuria, UTI, Young Women, MSU, urinalysis, genitourinary

INTRODUCTION

Asymptomatic bacteriuria occurs in up to 6% of healthy individuals. It affects 18% of people with diabetes (mostly women) and 20% of elderly individuals (more often women than men). The reasons for the lack of symptoms are not well understood. As urinary tract infection is the most common of bacterial infections, screening for asymptomatic bacteriuria to prevent pyelonephritis and renal scarring is widely recommended (Raz, 2003; Smyth *et al.*, 2006). The clinical significance and management of Asymptomatic Bacteriuria (ASB) differs according to different groups of patients. ASB requires antibiotic treatment in pregnant women, children aged 5-6 years and prior to invasive genitourinary procedures. However, there is a consensus that ASB in the elderly, healthy school girls and young women, diabetic women and patients with indwelling catheters or intermittent catheterization has no clinical significance and antibiotic prescription is not indicated (Zainal, 1994; Valiquette, 2001; Nicolle, 1997). Asymptomatic bacteriuria is a significant number of bacteria in the urine that occurs without any of the usual symptoms (burning during

urination or increased frequency of urination). Asymptomatic bacteriuria may not need treatment, which makes it different from a bacterial urinary tract infection (Lindberg, 1975; Nicolle, 2001). Asymptomatic bacteriuria is a common finding, but is usually benign. Screening and treatment of asymptomatic bacteriuria is only recommended for pregnant women, or for patients prior to selected invasive genitourinary procedures. Healthy women identified with asymptomatic bacteriuria on population screening subsequently experience more frequent episodes of symptomatic infection, but antimicrobial treatment of asymptomatic bacteriuria does not decrease the occurrence of these episodes (Nicolle, 2006; Gebre, 1998). Not all patients with asymptomatic bacteriuria respond to treatment or even need treatment. Pregnant women, kidney transplant recipients, children with vesicoureteral reflux and people with infected kidney stones appear to be more likely to benefit from treatment with antibiotics. In addition, if asymptomatic bacteriuria is found prior to a urological procedure, it should be treated to prevent complications of the procedure. The course of treatment in these cases depends on the person's risk factors (Nicolle, 2006; Chang, *et al.*, 2006; Ar, 2006).

The presence of a significant quantity of bacteria in a urine specimen properly collected from a person without symptoms or signs of a UTI characterizes asymptomatic bacteriuria. Quantitative criteria for identifying significant bacteriuria in an asymptomatic person are: Raz (2003) at least 100,000 Colony-Forming Units (CFUs) per mL of urine in a voided midstream clean-catch specimen and Heffield *et al.* (2005) at least 100 CFUs per mL of urine from a catheterized specimen (Nurullaev, 2004; Chard *et al.*, 2006).

As there are not any studies that showing prevalence of asymptomatic bacteriuria in girls of babol's city we conducted this research.

MATERIALS AND METHODS

This study conducted at the free Islamic university female students, they aged 18-29. Exclusion criteria were include urinary catheterization, renal disease, chronic antibiotic use and pregnancy.

Two hundred and Seven students that were 5% of all students of the free Islamic university female students participate in this study. Data were collected via interview and clinical visit, each day 10 students coming for U/A U/C. If they had at least 100,000 Colony-Forming Units (CFUs) per mL of urine in a voided midstream clean-catch specimen with no signs of bacteriuria diagnosed as asymptomatic bacteriuria. We conducted U/C via nutrient agar, EMB agar and other ways and repeat test two times to confident from the results.

After 24 h incubation we continued procurers disseminated diagnosis look like coagulaz, manitol agar, neobiosin and IMVIC test (simoon sitrat, urea, andol, MR, SIM, ISI). We assessed the statistical analysis to determine prevalence in 3 categories ages group of students. Data were analysed via spss software.

RESULTS

A total of 207 students which represent 5 percent of total number of free Islamic university students of babol agreed to participate in this study, which selected randomly and respectively. From 207 students 118 (90/8%) had negative U/A. Only 19 students (9/2%) had positive results. Of 19 students that had asymptomatic bacteriuria 16 students (84/2%) were single and 3 (15/8%) were married. 6 students were from medical courses and 13 non medical courses. The incidence of asymptomatic bacteriuria was found to be 9/2%. From the total bacterial isolates positive staphylococci in 36/8% *E. coli* were isolated in 31/6.

Klebsiella species in 15/8% and *Pseudomonas* 10/5% of cases and *Enterobacter* 5/3%.

Table 1: Age of students

Present	Frequency	Age (year)
73/7	14	18-21
21	4	22-25
5/3	1	26-29

Table 2. Type of organism isolated in urine culture

Present	Frequency	Microorganism
36/8	7	Staphylococci Saprophytic
31/6	6	<i>E. coli</i>
15/8	3	<i>Klebsiella</i>
10/5	2	<i>Pseudomonas</i>
5/3	1	<i>Enterobacter</i>

This Table 1 showing that most of students were 18-21 years.

This Table 2 showing that most of the organisms isolated in urine culture was *Staphylococci Saprophytic* and *Enterobacter* the lowest.

There was no significant association between age and asymptomatic bacteriuria prevalence rate.

DISCUSSION

This study has demonstrated that prevalence of asymptomatic bacteriuria was 9/2%, most common organism isolated in urine culture was *Staphylococci Saprophytic* and *Enterobacter* the lowest and most of students were 18-21 years. One study in title Asymptomatic bacteriuria in school children in a rural area of Egypt, had similar results with this results. Forty hundred and fifty urine samples collected from school children in a rural area of Egypt were screened for the presence of significant bacteriuria. The incidence of asymptomatic bacteriuria was found to be 7% with Predominance in females (11%) than in males (3.6%). From the total bacterial isolates positive staphylococci in 30% *E. coli* were isolated in 18% of cases, *Klebsiella* species in 9% and enterococci in 21% of cases (Icolle, 1994). The short-term prognosis of 116 school girls with Asymptomatic Bacteriuria (ABU) left untreated is reported. All the girls left untreated had normal renal concentrating capacity on detection and this remained unchanged during the year of follow-up. One of 28 untreated girls attracted a symptomatic pyelonephritis caused by a strain different from that at detection of ABU. Of 81 girls cured from the bacteriuria 24 recurred, 5 with a symptomatic pyelonephritis and 3 with cystitis. It is concluded that strains isolated from girls with ABU do not commonly cause symptomatic pyelonephritis (Bjerklund *et al.*, 2006). Other studies finding showed that *E. coli* were the most common microorganism isolated (Bjerklund *et al.*, 2006; Stein and Funfstuck, 2000; Thomas *et al.*, 2006; Oner *et al.*, 2004).

Other study Asymptomatic bacteriuria assess on pregnancy in Ibadan, Nigeria, 300 pregnant women were screened for significant asymptomatic bacteriuria. The

mean age of the patients in the study was 26.8 years (SD: 5.8 years, range: 16-40 years). Using 10^3 organisms mL^{-1} as a significant level of bacteriuria, the prevalence was found to be 21.0%. *Staphylococcus aureus* was the most frequent pathogen (41.3%), followed by *Klebsiella* species (33.3%) and *Escherichia coli* (11.1%) (Ogbolu *et al.*, 2006).

In Malaysia one study was screened among 44,816 healthy school children from three different districts in Kelantan. There were 23,132 boys and 21,684 girls. The prevalence of bacteriuria was 12% after second screening (Zainal, 1994). This study has similar results with our results too.

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