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**The significant growth of asymptomatic bacteriuria
between male and female**

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Abstract:

Asymptomatic bacteriuria (ASB) is the existence of bacteria in significant quantity in the absence of signs and symptoms of urinary tract infection (UTI).

Methods: a cohort study was conducted among 24 students at LIMU university to determine the growth of ASB .12 were females and equal number of males.

Result: from 12 females, 10 had ASB growth, among males only 3 had ASB growth. The P value was (0.004) which emphasize the significant different between males and females.

Conclusion: Asymptomatic bacteriuria is common among the elderly. Select physiologic aging changes and associated diseases, both of which occur more often in these groups are the major contributing causes. There are few short or long-term adverse consequences associated with this high frequency and incidence of asymptomatic bacteriuria, and no evidence of a survival impact.

Key world: asymptomatic bacteriuria, urinary tract infection, youth age.

Introduction

Asymptomatic bacteriuria, also known as bacteriuria or asymptomatic urinary infection, is defined as the presence of bacteria in typically sterile urine from the bladder or kidneys, as well as the absence of clinical signs or symptoms associated with a urinary tract infection. Urinary tract infection, on the other hand, requires the appearance of suggestive symptoms or indications in a patient with bacteriuria and no other known cause of infection. The same organism must be found in two consecutive voided urine specimens for females and one voided urine specimen for males to isolate asymptomatic bacteriuria. Asymptomatic bacteriuria or a urinary tract infection is not determined by the bacterial species isolated from the urine. In the absence of signs or symptoms of urinary infection, asymptomatic bacteriuria is defined as at least 10⁵ CFU/ml of a uropathogen isolated from voided urine specimens. Asymptomatic bacteriuria is frequent in hospitalized patients, catheterized patients, and institutionalized older individuals.¹ Bacteriuria can be temporary or chronic, lasting from around days to years and involving the same or different species. Bacteriuria may resolve spontaneously or as a result of antimicrobial therapy administered for any reason. Furthermore, in certain groups, asymptomatic bacteriuria appears to inhibit the development of symptomatic urinary tract infection. Bacteriuria-related morbidity is mainly recognized in pregnant women and those who have had invasive urologic procedures with mucosal injuries.² The Infectious Diseases Society of America (IDSA) guidelines, which have been adopted by the US Preventive Services Task Force, state unequivocally that the main evidence supports only screening for and treating Asymptomatic bacteriuria in pregnant women and patients having invasive urologic operations. Other patient groups should not be screened for Asymptomatic bacteriuria or treated for it since there is clear evidence that neither screening nor therapy improves clinical outcomes. Majority of the previous studies have reported the prevalence to be higher in females than in males.³

Aim: The aim of the present study was to estimate the prevalence of ASB in urine samples among LIMU students, to determine the significant growth between male and female Also, to identify the common organism leading to ASB.

Material and Method

Types of participants:

Random sample was collected from 3rd year medical student at LIMU university, to detect ABU. A urine sample was collected from 24 healthy male and female students to test the presence of ABU, there is three test to identify the presence and type of microorganism.

Statistical analysis

The statistical analysis was done by SPSS version 26.

Culturing

Fill the urine container with the urine sample, dip a 1µl or 10µl calibrated loop in vertical position in the urine container. The collected urine is spread on the Culture media "cled media" in a zigzag spreading (without flaming the loop) .Closing the agar with its lid, Incubation for 24 hours is important to grow and maintain microbiological cultures. We use this equation " 1×10^5 CFU/ml" to calculate the number of bacterial colonies observed on culture plates after incubation of the plate.

Wet mount test

A sample of the urine is placed on a glass slide by using the plastic pipette, then covered with cover slip, slides are held in place on the microscope's stage by slide clips which is used to achieve precise, remote movement of the slide upon the microscope's stage to detect any presence of parasite such as ameba.

Gram staining

Fix the slide by heat. A drop of urine is placed on the slide and let it dry "without using heat, Start staining using pipette, stain the slide smear with one drop of crystal violet for 1 minute, wash the violet stain and stain the smear with one drop of Iodine solution for 1 minute, wash off the smear and put a drop of alcohol for 30 seconds, use 1 drop of safranin 1 minute, Wash the smear again, use the immersion oil to

decreases the light refraction and finally see it under microscope to detect any bacterial infection.

Results and discussion

A total of 24 students were included in the present study. Of these 12 were male and equal number of females. A total of 11 students (45.8%) showing no growth of ABU, 2 were female (16.7%) while 9 were males (75.0%). A total of 13 students (54.2%) showing growth of ABU, 10 were female (83.3%) while 3 were males (25.0%). Among male students, 81.8% of CFUmlCAT showing no growth while 23.1% of CFUmlCAT showing growth. Among female students 18.2% of CFUmlCAT showing no growth while 76.9% of CFUmlCAT showing growth (Table 1, Figure 1)

Table 1 show gender * CFUmlCAT Crosstabulation

gender * CFUmlCAT Crosstabulation					
			CFUmlCAT		Total
			no growth	growth	
gender	male	Count	9	3	12
		Expected Count	5.5	6.5	12.0
		% within gender	75.0%	25.0%	100.0%
		% within CFUmlCAT	81.8%	23.1%	50.0%
	female	Count	2	10	12
		Expected Count	5.5	6.5	12.0
		% within gender	16.7%	83.3%	100.0%
		% within CFUmlCAT	18.2%	76.9%	50.0%
Total		Count	11	13	24
		Expected Count	11.0	13.0	24.0
		% within gender	45.8%	54.2%	100.0%
		% within CFUmlCAT	100.0%	100.0%	100.0%

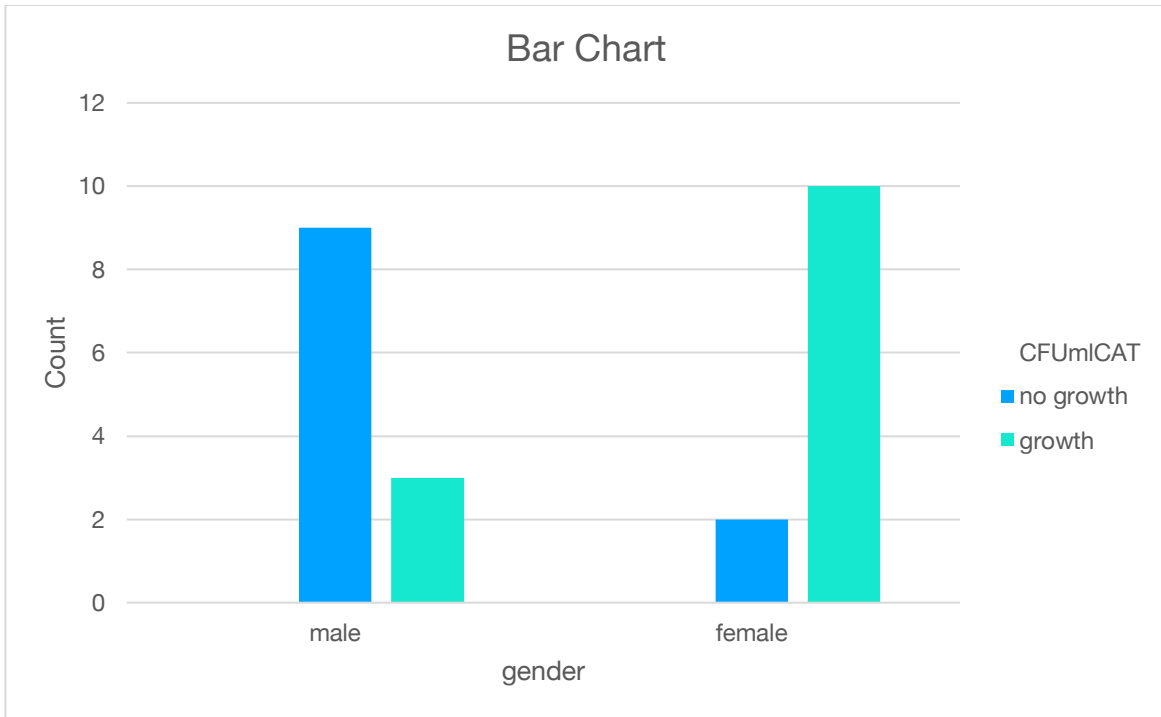


Figure 1 show the number of males and females who have growth

0 cells (.0%) have expected count less than 5 so the assumption is met. The minimum expected count is 5.50. 8.224^a is the value of chi square, the p-value (0.004) appears in the same row in the “Asymptomatic significance (2 sided)” column. Degree of freedom is 1 (Table 2).

Table 2 Chi-Square Tests

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	8.224 ^a	1	.004		
Continuity Correction ^b	6.042	1	.014		
Likelihood Ratio	8.795	1	.003		
Fisher's Exact Test				.012	.006
Linear-by-Linear Association	7.881	1	.005		
N of Valid Cases	24				

The goal of this study was to determine the significant growth between male and female, the result reveal that females have more susceptibility to have ABU (Table 1) 83.3% of females had growth while males who had growth are only 25.0%. Although UTI affects people of all ages, it is more common in pregnant women and those who are immunocompromised. Women, on average, have a higher risk of UTI than men due to their anatomical position and shorter urethra. Females are more vulnerable to ABU.⁴ *Escherichia coli*, *Klebsiella pneumoniae*, *Streptococcus agalactiae*, *Enterococcus faecalis*, *coagulase-negative Staphylococcus*, and *Streptococcus pyogenes* are among the most frequently identified uropathogens in diverse investigations. Although *E.coli* is the most common uropathogen, in patients of ASB, other bacteria are becoming more prevalent. Lactose fermenters produce colonies that appear as yellow, where as non-lactose fermenters appear as blue on cled agar.⁵ *E.coli* forms colonies, which appear as yellowish, the colonies used to identify if there is significant growth or not by using this equations “ 1×10^5 CFU/ml. As in table 2 The chi-square is used because there are 2 qualitative variables, the assumption is met which indicate that chi square is the appropriate test. The p-value is less than 0.05 which emphasize the significant difference ABU growth between the two genders “Females are more vulnerable to ABU”. Antibiotic therapy is related to an increase in the incidence of antibiotic-resistant microorganisms. underlining the fact that improper antibiotic treatment in AB patients can be harmful and have long-term impacts.⁶

Conclusion

The presence of bacteria in appropriately collected urine of a patient who has no signs or symptoms of a urinary tract infection is known as asymptomatic bacteriuria. In clinical practice, asymptomatic bacteriuria is particularly common. Although asymptomatic bacteriuria is uncommon in newborns and toddlers, it becomes more common as they become older. In women and men aged 65 to 80 years, the incidence can be as high as 15% or more, and it can be as high as 40% to 50% beyond that. Most people with asymptomatic bacteriuria could never acquire symptomatic urinary tract infections, and asymptomatic bacteriuria will have no

negative repercussions.⁷ A wide variety of studies related to asymptomatic bacteriuria have been addressed in recent publications. Further investigations assessing bacteriuria prevalence, infecting organisms, and risk factors are needed, according to observations indicating the frequency of asymptomatic bacteriuria in various developing countries. Nontreatment of asymptomatic bacteriuria in young women, renal transplant patients, mild urologic operations, and orthopedic surgery is supported by several research. More research is needed to improve our knowledge of how to treat pregnant women with asymptomatic bacteriuria.⁸

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