Libyan International Medical University

Faculty of Basic Medical Science

Year 2 med / PTS)

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ABSTRACT

The purpose of this study was to investigate the prevalence of asymptomatic bacteriuria among Libyan International Medical University (LIMU) students, Urine samples were collected from 12 males and 12 females, The materials were grown on blood agar and MacConkey agar. significant Growth was observed in 8.33 % of the samples while there was no significant growth in 45% of the samples and no growth about 45% , The majority of people with asymptomatic bacteriuria will never develop symptomatic urinary tract infections, and asymptomatic bacteriuria will have no deleterious effects, The most prevalent species identified from individuals with asymptomatic bacteriuria are Escherichia coli and gram-negative bacilli.

Urinary Tract Infection
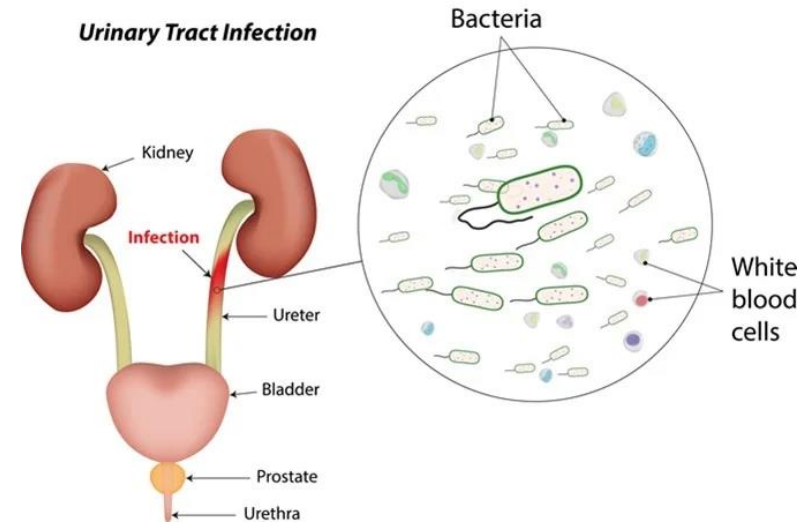
INTRODUCTION

Urinary tract infections are infections of the urethra, bladder, ureters, or the kidneys, which comprise the urinary tract.

E. coli bacteria cause the majority of UTIs, but many other **bacteria**, **fungi,** and **parasites** may also cause UTIs.**Females** have a higher risk for UTIs than most males, probably because of their anatomy; other risk factors for UTIs include any condition that may impede urine flow (**e.g., enlarged prostate, congenital urinary tract abnormalities, and inflammation**). Patients with catheters or those who undergo urinary surgery and men with enlarged prostates are at higher risk for UTIs . Symptoms and signs of UTI vary somewhat depending on sex, age, and the area of the urinary tract that is infected; some unique symptoms develop depending on the infecting agent . UTIs are diagnosed usually by isolating and identifying the urinary pathogen from the patient; there are some home tests available for presumptive diagnosis . There are home remedies for UTI, but most may, at best, help reduce the risk or discomfort of UTIs. They are not considered cures for the disease. There can be many complications of urinary tract infections, including dehydration, sepsis, kidney failure, and death.If treated early and adequately, the prognosis is good for most patients with a UTI . Although there is no vaccine available for UTIs, there are many ways a person may reduce the chance of getting a UTI.
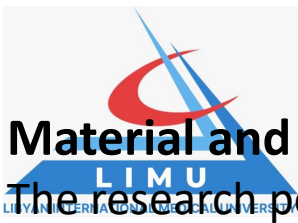
Material and Methods

The research population included 24 Libyan International Medical University (LIMU) students from Benghazi, Libya. We studied urine samples from each participant and discovered and isolated three bacteria implicated in UTIs, namely (E.coli, citrobacter, and Enterobacter) saprophytic, which were then submitted to antibiotic susceptibility testing to determine the isolates' sensitivity and resistance profile. Participants were questioned about their health condition and given permission to participate. Following sample collection, each item was analyzed to detect color, curd, and foaming. Urine culture is then used to detect bacteria or other microorganisms in a urine sample. The specimen is well mixed first, then a drop from the specimen is looped onto a sheep agar plate and allowed to dry, numerous lines are made in a zigzag pattern inside the agar, and it is finally placed in the incubator for 24 hours. The next stage is to count the colonies; each colony is multiplied by 1000 (10^4), and considerable growth is proven if there are more than 50000 (10^5) colonies. The gram stain is then applied to the sample by delicately dipping the bacterium colony to avoid the dissemination of too many germs. Allowing it to dry before passing it three times into the flame, one second between each pass. After adding a few drops of crystal violet stain, let the slide to dry for 1 minute before dipping it three times in water. Following that, we add several drops of iodine, followed by alcohol washing and, finally, safranin addition, after repeating the methods employed earlier with crystal violet. Allow the sample to dry before studying it under a microscope.

Antimicrobial susceptibility test

was performed using antibiotic discs comprising (trimethoprim)-(sulfamethoxazole), (ciprofloxacin), and (levofloxacin), (nitrofurantoin), (Imipenem). A loopful of each isolate's standardized overnight culture was deposited on Mueller-Hinton agar prepared according to the manufacturer's instructions. The agar was incubated inverted at 37°C for 24 hours. The diameter of the zone of inhibition was measured in millimeters using a well-calibrated measuring ruler..
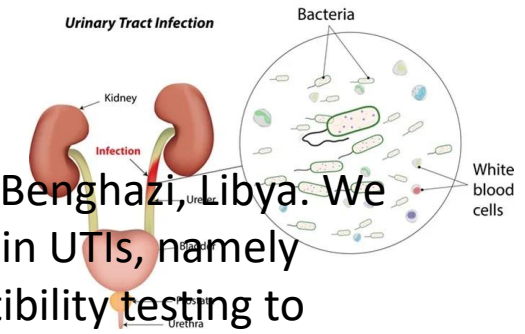
Result

We discovered in own lab report no growth in the most blood agar after 24 hours and about (9) colony cultures on MacConkey's and (2) colony Significant growth modest growth in female clutter (Table 1), Colony CFUs are multiplied by 100 or 1000 depending on what loop you used to measure the number of germs per ml in the initial material. , The total number of organisms (colonies) is determined, and the amount of live bacteria in the urine sample is expressed in colony forming units per liter (CFU/L). , UTI is usually defined as a bacteria count $>10^8$ CFU/L from a midstream urine sample but in Asymptomatic bacteriuria. Count s about $(10^5$ CFU/L)

So a cultures on blood agar show no growth, and a urine culture with MacConkey's less growth About (2) culture and pink colonies lactose fragmental maybe (E.coli, citrobacter. Enterobacter) calculate the CFU/ L = $9 \times 100 = 900$ CFU/L is declared negative. & own result growth maybe Normal Flora because sparse, staphylococci, corynebacteria, enterics normal flora on anterior urethra.

On Mueller-Hinton agar in Antimicrobial susceptibility testing The result showing bacteria highly resistance, not sensitive except one antibiotic (Imipenem) have less sensitive but acceptable
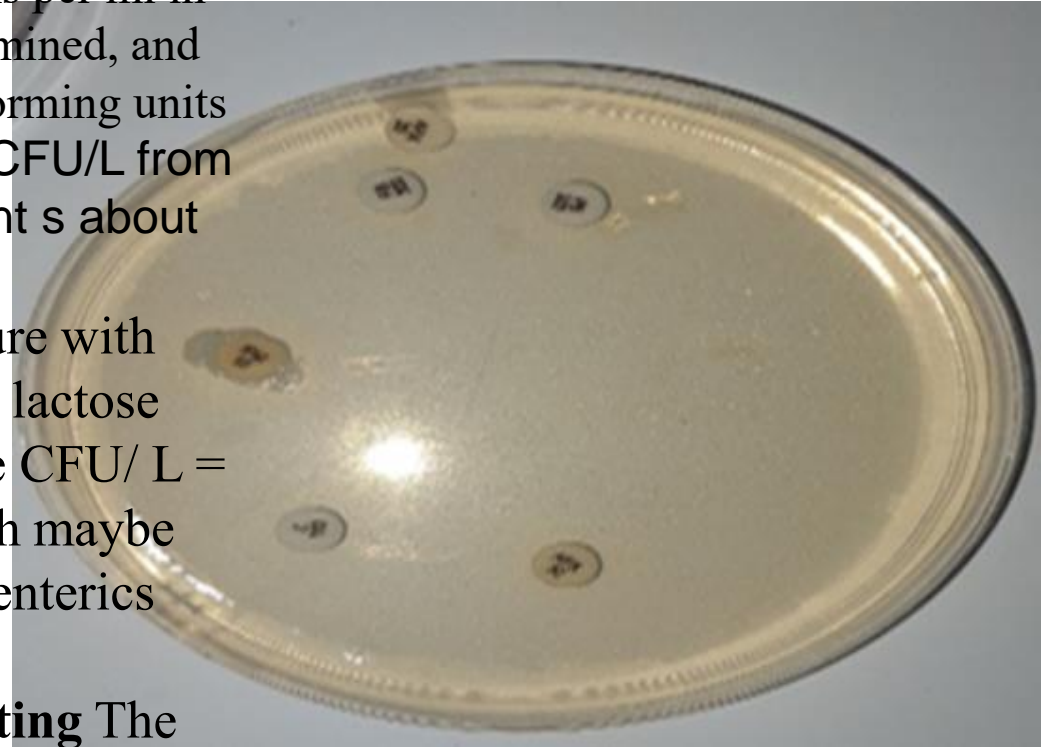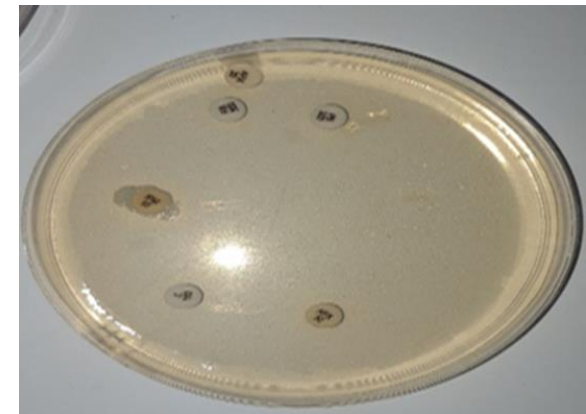
1: The impact of gender variations on the incidence and occurrence of asymptomatic bacteriuria
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	No growth	Overall no significant growth	Significant growth
Males	9	3	0
Females	2	8	2

The statistical study showing
Table 2 shows the relationship between bacterial growth and gender

			Gender		Total
			Male	Female	
Growth	no growth	Count	9	2	11
		% within Gender	75.0%	16.7%	45.8%
	unsignificant growth	Count	3	8	11
		% within Gender	25.0%	66.7%	45.8%
	significant growth	Count	0	2	2
		% within Gender	0.0%	16.7%	8.3%
Total		Count	12	12	24
		% within Gender	100.0%	100.0%	100.0%

Table 3: Chi - Square Test (p - value is represented by Asymp. Sig. (2 - sided))

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Monte Carlo Sig. (2-sided)			Monte Carlo Sig. (1-sided)		
					99% Confidence Interval			99% Confidence Interval	
				Significance	Lower Bound	Upper Bound	Significance	Lower Bound	Upper Bound
Pearson Chi-Square	8.727[a]	2	.013	.018[b]	.014	.021			
Likelihood Ratio	9.949	2	.007	.012[b]	.009	.015			
Fisher's Exact Test	8.180			.018[b]	.014	.021			
Linear-by-Linear Association	8.065[c]	1	.005	.006[b]	.004	.008	.002[b]	.001	.003
N of Valid Cases	24								

a. cells (33.3%) have expected count less 5. The minimum count is 1.00.
b. Based on 1000 sampled tables with starting seed 2000000.
c. the standardized statistic is 2.840
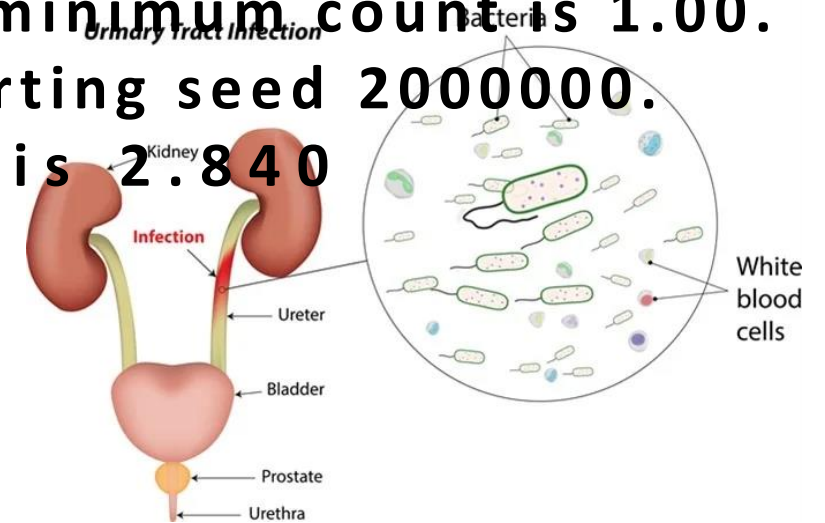
P-value	Significant growth	Overall, no significant growth	No growth	Characteristic
	2	11	11	
P-value=				Gender [n (%)]
0.018	0(0.0%)	3(27.3%)	9(81.8%)	Male
	2(100.0%)	8(72.7%)	2 (18.2%)	Female

1.A p-value less than 0.05 (typically ≤ 0.05) is statistically significant. ...
2.A p-value higher than 0.05 (> 0.05) is not statistically significant and indicates strong evidence for the null hypothesis.
The result 0.018 so Under typical conditions, a p-value of less than 0.01 indicates that there is considerable evidence against the null hypothesis. So we reject the reject the null hypothesis and we accept the alternative hypothesis.
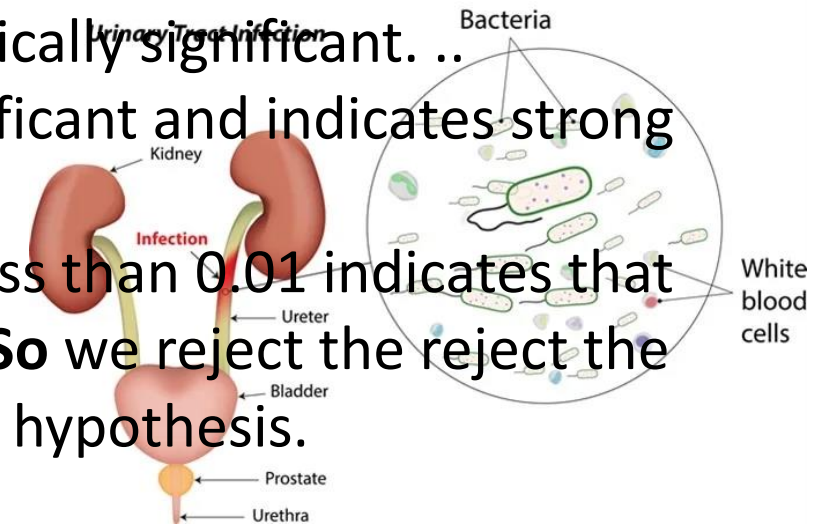
Discussion

Bacteriuria has been reported to be preceded by colonization by the particular type of bacteria that causes Urinary Tract infection. Bacteria in such asymptomatic bacteriuria are known to significantly enhance the spread of multi-drug resistant pathogens. Various microorganisms are known to infect and cause bacteriuria. The incidence of asymptomatic bacteriuria in the research.

Asymptomatic bacteriuria does not cause symptomatic urinary tract infections in the majority of individuals and has no negative repercussions. Antibiotic therapy for asymptomatic bacteriuria does not help children, diabetic patients, the elderly, patients with spinal cord injuries, or patients with indwelling urinary catheters. Treatment does not increase survival or reduce the prevalence of symptomatic urinary tract infections in these individuals. However, it raises the risk of antibiotic-related side effects and the development of antibiotic-resistant microorganisms, the microorganisms in this study (E.coli, citrobacter. Enterobacter) are highly resistant to the most antibiotic expert (Imipenem) less sensitive. And in this study, the difference in the incidence of asymptomatic bacteriuria between males and females has a significant P-value since it is less than one (0.05). As a result, females experience much more asymptomatic bacteriuria than males. The null hypothesis is rejected since the P-value is less than (0.05). Females are also more susceptible to urinary tract infections and asymptomatic bacteriuria due to the anatomical structure of their reproductive system.
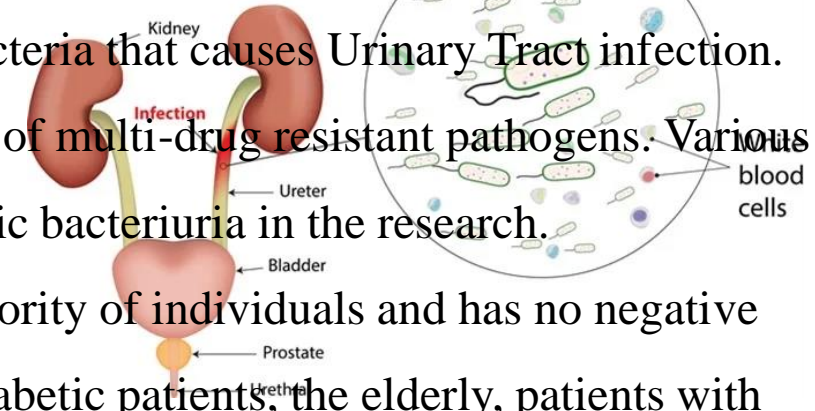
Conclusion:

The outcomes of this study have underlined the need of include testing of asymptomatic bacteriuria as part of the

medical checkup for students. More research on the incidence of bacteriuria, infecting organisms, and risk factors is

required. Urine culture is used to diagnose asymptomatic bacteriuria. A clean-catch specimen obtained appropriately or a

catheterized specimen are both acceptable. The Infectious Diseases Society of America (IDSA) has developed diagnostic

criteria for asymptomatic bacteriuria. And *E.* coli is the most prevalent causal agent since it is part of the natural flora of

the colon. More study is needed to determine whether there is a link between bacteriuria and age. Imipenem best

antibacterial activity against the study isolates. The high level of resistance of isolates to antibiotics was found among

commonly used oral antibiotics, Females have a much greater frequency of asymptomatic bacteriuria than males.
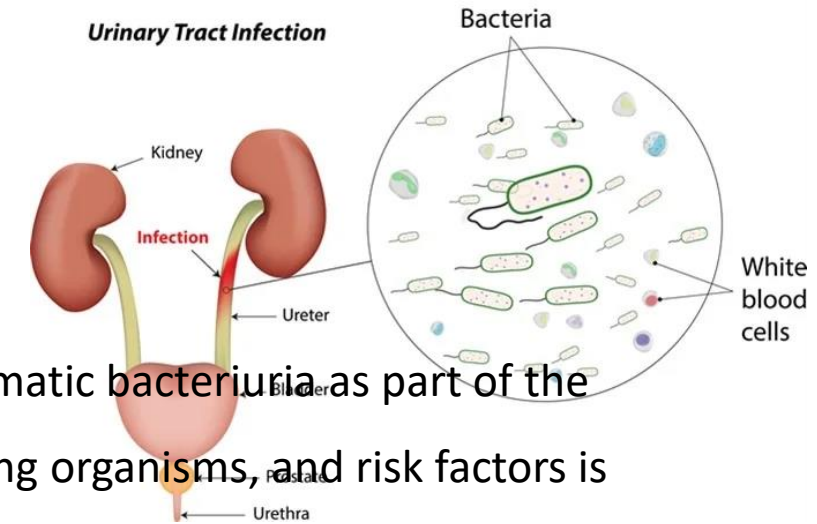
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