INCIDENCE RATE OF ASYMPTOMATIC BACTERIURIA AMONG LIMU STUDENT

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Abstract

The aim of this research was to increase awareness of asymptomatic bacteriuria among LIMU students due to the lack of awareness present in our community, the aim was so that students would understand the relation of gender and Cohort study, and to understand that there anatomical structural difference which is male urethra is longer (20cm) while females have a shorter urethra (3-4cm)as well as closer proximity to the anus causing Escherichia coli which is present in the colon and feces to enter the urethra and lead to infection making them more prone to urinary tract infection .

Introduction

Asymptomatic bacteriuria is the presence of bacteria in Urinary Tract Infection with no symptoms, asymptomatic bacteria is very common infection which increase with age as well is common occurrence in both non pregnant and pregnant women. The isolated organism found in asymptomatic bacteriuria is Escherichia coli which is a gram-negative rod as well lactose fermenting it is the most common cause due to its presence in the colon and feces.
Normally urinary tract is sterile due to its host defenses against bacterial colonization the only part of the tract which is not sterile is the distal urethra.
The infection can affect different parts of urinary tract for example kidneys (acute pyelonephritis), bladder (cystitis) and urethra (urethritis).
Factors increasing the risk of Asymptomatic bacteria are Gender its is more common in females due to their shorter urethra and its closer to the rectum causing it to enter the urethra which will result in infection of urinary tract, poor hygiene for example females who wipe back to front rather the front to back enables the bacteria from the bowel to enter the urethral opening, pregnancy ,sexual activity this is why its suggested to urinate after sexual activites and finally if patient had previous UTI it will increase there risks.
The microbial agents which cause asymptomatic bacteriuria E.coli You may ask how can one prevent getting such infection, first drinking lots of water this will cause you to urinate more frequently ensuring the bacteria will be flushed out before causing an infection, it is also advised to avoid tight clothes and women should wear cotton underwear and should also avoid irritating feminie products.

Materials and method

First things first we need to collect a urine sample this should be done in the morning either by s Sterile urine bag, Urethral catheterization (CATH),Suprapubic aspiration (SPA),and finally Midstream clean-catch.

cultures be done within 1 hour after collection or stored in a refrigerator at 4°C for no more than 18 hours.

Steps to performing culture :
1-flame a calibrated wire loop.

2-Mix the urine

3-insert the loop vertically into the urine to allow the urine adhere to the loop.

4-spread the urine over the surface of the agar plate.

5- without flaming insert the loop vertically into the urine again to transfer of loopful to a second plate.
6- incubate for 24hr at 37 C in air

Colonies are counted on each plate.

The number of CFUs is multiplied by 1000(if a 0.001 ml loop used) or by 100 (if a 0.01 ml loop was used) to determine the number of microorganisms per ml in the original specimen.

If there is no or little growth on the agar after 24 to 48 hours of incubation, the urine culture is considered negative

The choice of media used in urine culture:

5% sheep blood agar plate, CLED and macCkonkey agar plate allows detection of most gram negative bacilli, staphylococci, streptococci and enterococci.

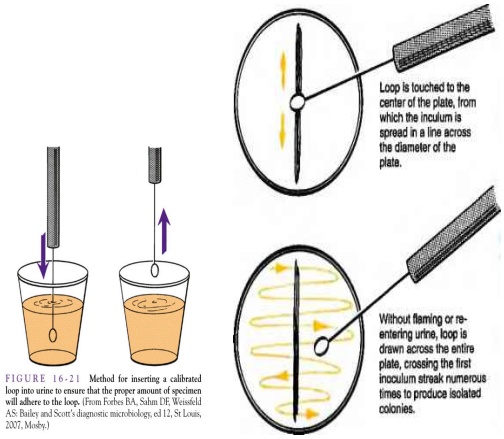
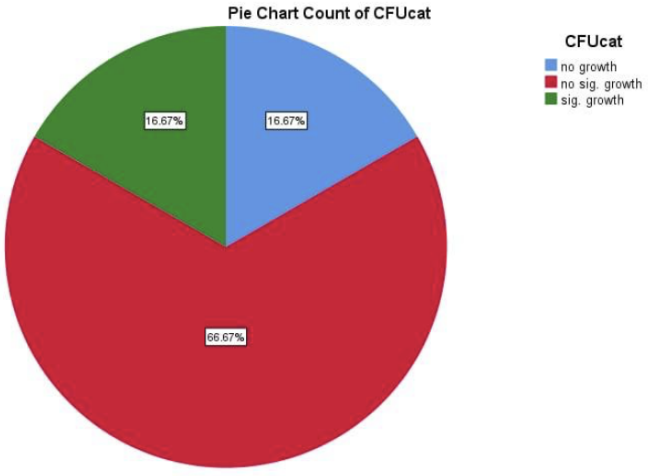
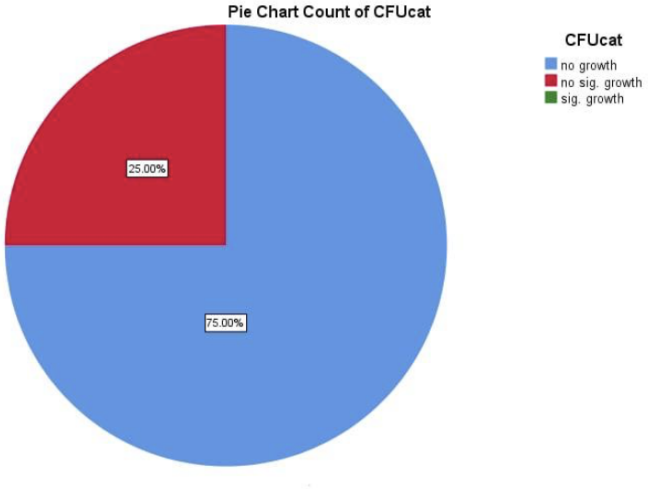


FIGURE 16-21 Method for inserting a calibrated loop into urine to ensure that the proper amount of specimen will adhere to the loop. (From Forbes BA, Sahm DF, Weissfeld AS: Bailey and Scott's diagnostic microbiology, ed 12, St Louis, 2007, Mosby.)

Result





16.7% of females had significant growth while males no significant growth was present
16.7% female had no growth at all while 75% of males had no growth
66.67% showed no significant growth while 25% male had no significant growth
So the Pie chart is proving females have a higher rate of asymptomatic bacteriuria then males due to several factors such anatomical structures

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	8.727[a]	2	.013
Likelihood Ratio	9.949	2	.007
Linear-by-Linear Association	8.065	1	.005
N of Valid Cases	24		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 1.00.

CFUcat * Gender Crosstabulation					
			Gender		Total
			Female	Male	
CFUcat	No growth	Count	2	9	11
		Expected Count	5.5	5.5	11.0
		% within Gender	16.7%	75.0%	45.8%
	Overall no significant growth	Count	8	3	11
		Expected Count	5.5	5.5	11.0
		% within Gender	66.7%	25.0%	45.8%
	Significant growth	Count	2	0	2
		Expected Count	1.0	1.0	2.0
		% within Gender	16.7%	0.0%	8.3%
Total		Count	12	12	24
		Expected Count	12.0	12.0	24.0
		% within Gender	100.0%	100.0%	100.0%

Case Processing Summary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
CFUcat * Gender	24	64.9%	13	35.1%	37	100.0%

P value was 0.13 which is less than 0.5 so we fail to reject the null hypothesis which is that males are equal to females but as you can see in our results females are more likely to develop asymptomatic bacteriuria.

Discussion

The term asymptomatic *bacteriuria* is appropriately used when a person has no signs or symptoms of a UTI, yet bacteria are identified in an uncontaminated urine sample.

As you saw in the findings which supported the hypothesis of the relation between gender and asymptotic bacteriuria that the males 75% of them had no growth compared to 16.7% no growth in females.

Risk factors of asymptotic bacteriuria include pregnancy, diabetes , immunosuppressive disorder such as HIV or AIDS , presence of urinary catheter , receiving kidney transplant and finally taking medication that suppress the immunity.

It is proven that non pregnant women are less likely to have serious problems compared to those who are pregnant , due to its leading to low birth weight and preterm labor which could lead to death in newborns.

According to WHO up to 45% of pregnant women that are untreated for asymptotic bacteriuria Will develop pyelonephritis which is infection of the kidneys.

Antibiotic treatment is suggested for pregnant females as well as those undergoing procedure involving the urinary tract or prostate.

Antibiotics such ampicillin, amoxicillin, cephalexin and nitrofurantoin are given to pregnant females with UTI , while ciprofloxacin is not given to pregnant for fetal safety but instead is given to non pregnant females .

The prevalence of asymptomatic bacteriuria varies based on age, it has been found that just 1 % of school age girls have asymptomatic bacteriuria while 20% of healthy women older then 80 have it . It's also related to sexual activity women who are sexually active are more likely to get it then those who are not sexually active.

Finally younger men asymptomatic bacteriuria is uncommon, as one ages the risk increases

Conclusion

This study proved the hypothesis between gender and asymptomatic bacteriuria, showing that female are more prone to asymptomatic bacteriuria then male as we discussed earlier due to there anatomical difference which is females have shorter urethra and it is in close proximity of the anus, so things such as swiping back to front instead front to back causes the bacteria present in feces and anus which is Escherichia coli to enter through the short urethra and lead to urinary tract infections.

Reference

Levinson, Warren. Review of medical microbiology and immunology. 13rd ed. The McGraw-Hill Companies, 2014.

Bailey&scotts, diagnostic microbiology,12th ed.

(Asymptomatic Bacteriuria in Pregnancy: Causes, Treatment and More, 2022)