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Assessment Of The Knowledge Of The Risk Factors For Urinary Tract Infection By Different Age Groups In A Female Secondary School In Enugu, South East Nigeria

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ABSTRACT: Aim; To assess the knowledge of risk factors for urinary tract infection by different age groups in a female secondary school in Enugu. **Method**; A total of 340 students of Holy Rosary College Enugu were used for this observational/cross sectional study which took place between June and November 2018. A questionnaire which elicited information on their ages and knowledge of the risk factors for urinary tract infection was used for data collection. **Results**; The greatest percentage (59.7) of respondents fell within the age group 14-16years, while the least number (1.2%) fell within the age group above 16years. The rest were below 14years of age. The class with the greatest number of students was junior secondary 2 which accounted for 34.1% of the study population while senior secondary classes 1&2 accounted for 32.9% each. After assessing their knowledge of the risk factors for UTI we found that the only risk factor with significant difference in p value (0.042) based on the different age groups was blockage in the urinary tract. There was no significant difference on the knowledge of the students for the following risk factors- poor toilet hygiene, short urethra, suppressed immune system, sexual activity and prolonged use of catheter. Conclusion; Most of the students fell within the age group 14 to 16years which is the age at which a lot of them start getting exposed to some of the risk factors for urinary tract infection but fortunately there were no significant difference in knowledge among the different age groups. This is a very good finding because the students will not have the need for further health education intervention on this particular issue.
Keywords: Risk factors, Urinary tract infection, Age groups, Female secondary school.

INTRODUCTION

Urinary tract infection (UTI) is a term applied to a variety of clinical conditions ranging in severity from asymptomatic which is carrier status in the urine to symptomatic acute infection of the kidney with resultant sepsis[1]. UTI is defined also as the growth of a known bacterial pathogen of more than 10^3cfu/ml in association with a positive dipstick or urinalysis[2]. It is usually classified by the infection site: an infection of the lower urinary tract, urethra (urethritis) and urinary bladder (cystitis); an infection of the upper urinary tract, ureter and kidneys (pyelonephritis); and an infection of the renal pelvis (pyelitis)[3]. Urinary tract infections are also divided into complicated and uncomplicated infections. UTIs that occur in a normal genitourinary tract with no prior instrumentation are considered as uncomplicated. A patient is diagnosed with uncomplicated cystitis if his or her midstream urine specimen has between 10^3 to 10^5 colony forming units (cfu)/mL. The clinical symptoms of UTI usually include frequency, dysuria, pyuria, suprapubic tenderness, back pain, fever and urgency[5]. Complicated UTIs are diagnosed in genitourinary tracts that have structural or functional abnormalities, such as indwelling urethral catheters, and are frequently asymptomatic[5,6]. Recurrent infection by pathogens with increased resistance is a troubling

consequence of complicated UTIs [7]. However, other conditions such as old age (over 65 years), the presence of human immunodeficiency virus-infection and diabetes mellitus (DM) also predispose to an enhanced susceptibility for the development of a UTI with a complicated course that is more difficult to treat and often re-occur[8]. Recurrent infection is a common problem and can affect women of all ages, particularly the elderly and pregnant women [9]. The source of UTI pathogens is generally considered to be the patient's own flora. Infection is preceded by colonization of the vagina and peri-urethral area by uropathogens from the GI tract[10]. The susceptibility of women to UTIs is due, in part, to the female anatomy in that a much shorter urethra allows pathogens' easier access to the bladder. The structure of the female's urethra and vagina makes it susceptible to trauma during sexual intercourse and hence making it easier for bacteria to be forced in to the bladder during intercourse and thereby resulting in an increased bacterial count in the bladder[11]. Bacteria present in fecal matter inoculate the peri-urethral area, and then the bladder, causing symptoms clinically termed cystitis and in more than 95% of cases it is mono-microbial[7,12,13]. Left untreated, bacteria ascend the ureters to the kidney and establish a secondary infection, acute pyelonephritis. At this juncture, there is risk of permanent renal scarring, and bacteria can get access to the bloodstream[14]. Urinary tract abnormalities affecting the flow of urine and non-emptying of the bladder increases the risk of UTI[15]. Urine voiding disorders such as those associated with prolapse, multiple sclerosis, bladder cancer, or bladder stones increase the risk [17]. Women with any urinary tract abnormality are more prone to pyelonephritis refractory to oral therapy or complicated by bacteremia. This is due, in part, to the female anatomy in that a much shorter urethra allows pathogens easier access to the bladder [16]

MATERIALS AND METHODS

A total of 340 students of an all-female secondary school in Enugu were used for this study. The students were selected randomly from the junior secondary 2 and senior secondary 1&2. The new comers in Junior secondary 1 were deliberately left out because most of they would not understand the questions being asked. Also excluded were students from junior secondary 3 and senior secondary 3 because they were preparing for their examinations and would not have time to take part in the survey. After obtaining permission from the appropriate authorities, a semi-structured questionnaire was administered to the participants. The questionnaire collected information on their knowledge of the following risk factors for urinary tract infection - Age, sexual activities, Use of Contraceptives esp. vaginal spermicides, urinary tract abnormalities, suppressed immune systems, Pregnancy, Urethral catheterisation, poor hygienic practices, Urinary tract obstruction, short urethra, Menopause.

Statistical Analysis; Data from the questionnaire was analyzed using the statistical package for social sciences (SPSS) software version 11.0. Information was presented in the form of tables, pie charts and bar charts. Chi-squared was used to analyse the data and the p-values were obtained. Decisions were then taken based on the result.

RESULTS

4.1.1. Socio-Demographic Factors (Section A)

TABLE 4.1. Classification of study respondents based on age and Class

Age	Frequency	Percentage
Below 10yrs	7	2.1
11 - 13yrs	126	37.1
14 - 16yrs	203	59.7
Above 16yrs	4	1.2
Total	340	100.0
Class		
JSS2	116	34.1
SS1	112	32.9
SS2	112	32.9
Total	340	100.0

4.1.1.1 Age

The commonest age group from our study was those aged between 14-16years with a percentage of 59.7%, closely followed by 11-13 years with 37.1%, below 10 years 2.1%, and finally above 16 years was the least with just 1.2%

4.1.1.2 Class

The JSS2 class slightly edged out other classes in number of respondents with 34.1%. This is closely followed by SS1 and SS2 students both with 32.9%.

Table 4.3: Knowledge of risk factors for urinary tract infection based on age groups of Students.

Poor toilet hygiene				
	Yes	No	Total	P-value
Below 10yrs	6(85.7)	1(14.3)	7(100.0)	
11 - 13yrs	89(70.6)	37(29.4)	126(100.0)	
14 - 16yrs	160(79.2)	42(20.8)	202(100.0)	
Above 16yrs	4(100.0)	0(0.0)	4(100.0)	0.189
Short urethra				
Below 10yrs	2(28.6)	5(71.4)	7(100.0)	
11 - 13yrs	18(14.3)	108(85.7)	126(100.0)	
14 - 16yrs	33(16.3)	170(83.7)	203(100.0)	
Above 16yrs	1(25.0)	3(75.0)	4(100.0)	0.716
Suppressed immune system				
Below 10yrs	1(14.3)	6(85.7)	7(100.0)	
11 - 13yrs	29(23.0)	97(77.0)	126(100.0)	
14 - 16yrs	49(24.1)	154(75.9)	203(100.0)	
Above 16yrs	1(25.0)	3(75.0)	4(100.0)	0.941
Blockage in the urinary tract				
Below 10yrs	0(0.0)	7(100.0)	7(100.0)	
11 - 13yrs	61(48.4)	65(51.6)	126(100.0)	
14 - 16yrs	104(51.2)	99(48.8)	203(100.0)	
Above 16yrs	3(75.0)	1(25.0)	4(100.0)	0.042
Sexual activity				
	Yes	No	Total	P-value
Below 10yrs	1(14.3)	6(85.7)	7(100.0)	
11 - 13yrs	23(18.3)	103(81.7)	126(100.0)	
14 - 16yrs	47(23.2)	156(76.8)	203(100.0)	
Above 16yrs	1(25.0)	3(75.0)	4(100.0)	0.716
Prolonged use of catheter				
Below 10yrs	0(0.0)	7(100.0)	7(100.0)	
11 - 13yrs	19(15.1)	107(84.9)	126(100.0)	
14 - 16yrs	40(19.7)	163(80.3)	203(100.0)	0.422
Above 16yrs	1(25.0)	3(75.0)	4(100.0)	
Urinary tract abnormalities				
Below 10yrs	0(0.0)	7(100.0)	7(100.0)	
11 - 13yrs	65(51.6)	61(48.4)	126(100.0)	
14 - 16yrs	108(53.2)	95(46.8)	203(100.0)	
Above 16yrs	2(50.0)	2(50.0)	4(100.0)	0.053

From the table above, the only risk factor with significant difference in p value (0.042) based on the different age groups was blockage in the urinary tract .There was no significant difference in p values on the knowledge of the students for the following risk factors- poor toilet hygiene, short urethra, suppressed immune system, sexual activity and prolonged use of catheter.

DISCUSSION

Most of the respondents were female teenagers within the age group 11 to 16years living together and exposed to the same environmental and social conditions. This is considered as an endangered group that faces the maximum risk of exposure to UTI because of their ignorant experimentation to unprotected sex and the fact that they live together sharing most of their personal belongings including toilet facilities. However this study revealed a good knowledge of the risk factors as there is no significant difference among the different age groups used in the study. This is in agreement with the studies done on (a) "poor toilet hygiene" by Nicolle, Yamamoto, and Warren[7,12,13] (b) "Short Urethra" by Kolawale[11] (c) Suppressed Immune System by Johnson[9] (d) "Urinary tract abnormalities" by Kaye[64] (e) "Prolonged use of catheter" by Gonzalez, Stamm[5,6] (f) "Sexual activities" by Kolawale[11] There was a significant difference in their knowledge for the risk factor –"blockage of the urinary tract". This is however expected due to the fact that at their age there is little or no possibility that they may come across a case of urinary tract obstruction.

CONCLUSION

Urinary tract infection is considered a major problem in female secondary schools where the students live together and share toilet facilities and even personal belongings like underwears. This study was able to provide background information on the knowledge of risk factors for UTI. The outcome of the study shows that the students would not benefit from a health education program on this topic thus creating room for efforts and resources to be channeled to other health programs for the school.

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