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FREQUENCY OF URINARY TRACT INFECTIONS CAUSING ORGANISMS IN PATIENTS

Dr Najeeb Ahmed
Medical Officer, RHC Kotsamaba
ahmednajeeb666@gmail.com

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Abstract:
Objectives: *To assess the frequency of UTI causing organisms and to determine the frequency in both the genders.*
Materials and Methods: *The design of this study was a cross sectional study which was carried out at Kulsoom International Hospital, Islamabad and the duration of this study was from July 2019 to June 2020. The patients presented at the urology department with complaints of urinary tract infection aging 21-70 years were enrolled with simple purposive sampling in the study. The majority of the patients got enrolled were aging 21-35 years. The data was collected with the help of preformed questionnaire.*
Results: *340 patients were enrolled in the study 202 females and 138 males by purposive sampling. The urine sample was collected and sent to hospital laboratory for culture and examination. most of cases with positive culture with identified organisms had klebsiella pneumonia, Staphylococcus sp., Escherichia Coli, Pseudomonas, Proteus SP and Candida's.*
Conclusions: *it is concluded from the results of the study that E. coli is the most common organism causing UTI in both males and females.*
KEYWORDS: *Urinary tract infections, isolated microorganisms, Patients.*

Corresponding author:
Dr. Najeeb Ahmed
Medical Officer, RHC Kotsamaba
ahmednajeeb666@gmail.com

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INTRODUCTION:

The Urinary tract infection is the condition having multiple clinical symptoms that are clinically positive ranging from asymptomatic bacteriuria that may lead to kidney infections [1]. It is a serious health concern and is the 2nd most common disease of the body affecting the millions of the people and is a serious public health problem. According to an estimate, 150 million cases of urinary tract infections are diagnosed per annum [2]. The urinary tract infections are the most common bacterial infections being presented to clinicians on routine basis in the developing countries. A patient can be affected by UTI in any time in his life, in all ages including childhood and old age in both genders. [3]. The clinical symptoms of urinary tract infections include urinary pain or burning sensation while urinating, cola or vivid pink color and blood signs, more frequent as well as urgency to urinate. If the urinary bladder is filled with urine, the patient may sense pain in the pubic bone, in female's pelvic pain and in male's rectal pain and smell of cloudiness, even after the disease is softened the bladder still reacts sensitively. [4]. In infants and children, the clinical symptom of the urinary tract Infection can be fever. vomiting, more sleep, signs of malnutrition, or jaundice. Newly manifesting urinary incontinence may occur in elderly children [5]. The normal microbial flora is the habitant of parts of the body or reside in it. Normally bacteria are also found in vagina and urethral area that rarely cause disease in healthy people. After the child is born, the peri-urethral area gets normal habitants of bacteria to counter the UTI pathogens. when the patient is given antibiotics for any other disease, the normal flora o is destroyed and the risk of the UTI is increased. the lactobacillus species reside in the vagina and there are responsible for the specific odour of the vaginal are, they produce lactic acid and some produce hydrogen peroxide, during mensuration the normal vaginal flora is disturbed and hence the risks of UTI are increased. [6]. Almost 95% of the cases of UTI are due to bacteria that normally is habitant of the opening of urethra and then migrate to bladder. Most of the infections are due to retrograde rise in the number of bacteria from the faecal plexus via urethra to the bladder and then to the kidney, and it is more seen in women due to shorter urethra. The prevalence of all the UTIs are increasing in origin and the cause is the flora off the gastrointestinal tract which occupies per urethral area [7]. The increased incidence of UTI is in females as compared to males, the reason may be due to trauma during sexual intercourse and chronic pathogens in the perennial skin and in males the pathogens are found in the capsule. In case of infants, the congenital anomalies are the main reasons for UTIs. the prevalence of females compared to males, the more severe pollution during sexual intercourse, urethral massage, and even chronic pathogens present in perennial skin. In males, the organisms are often come under the capsule. And in elderly, the obstruction due to prostate enlargement causes partial emptying of the bladder and increases the risk of the UTI [8]. It is really important to treat the disease as soon as possible to reduce the risks for long term morbidity and mortality. [9]. The proper treatment requires the understanding of etiology and the bacterial factors and role of host. proper diagnosis and management in most of the cases result in the success in resolution of the infection. [10].

MATERIALS AND METHODS:

This was a cross sectional study carried out at Kulsoom International Hospital, Islamabad and the Duration of this study was from July 2019 to June 2020. In the study, 340 cases were enrolled. Patients presenting at the Urology department with symptoms of urinary tract infections were enrolled in the study by the purposive sampling. Patient's urine was collected and sent for culture and examination. The Data was taken with the help of preformed questionnaire. the data analysis was done by spss20. Data management was done properly keeping the filled questionnaires and all other relevant documents in safe lockers and putting the data on daily in SPSS to analyze statistically.

RESULTS:

All of the 340 patients having UTI and positive urine culture were enrolled in our study. There are 202 (64%) females having positive urine culture and 108 (36%) males having positive urine culture. Cases enrolled in our study aged 21 to 70 years. And bacteria identified of urine culture are as: Klebsiella pneumonia, Escherichia Coli, Candida and Pseudomonas. Staphylococcus sp., Proteus sp percentage and frequency of bacteria is given in the table no. 1. The most highly prevalent of the microorganisms is E. coli and the least frequent is Candida. The most frequent of the pathogen among females was recoded to be of E. coli (26%) and same is highest among males (12%).

Table 1: Percentage of Microorganisms with Sex Distribution

Microorganism		Frequency (Percentage)	Sex	
			Female	**Male**
Klebsiella pneumonea		64.6 (19%)	26 (8.6%)	34 (10.3%)
Escherichia	Coli	132 (39%)	78 (26%)	44 (13%)
Staphylococcus sp.		17 (5.7%)	10 (3.6%)	9 (3%)
Proteus sp.		15 (5%)	9 (3%)	6 (2%)
Candida		7 (2.3%)	2 (0.67%)	5 (1.6%)
Pseudomonas		99 (29%)	66 (22%)	24 (7%)

DISCUSSION:

Urinary tract infections pose serious challenge for the community and hospitals. According to surveys conducted, UTIs are the commonest bacterial disease reported in emergency and OPD patients. The hundred thousand of hospitalizations per annum are due to utis, 1.1 million emergency patients and 7 million OPD patients, causing a huge financial burden, as per an estimate 1.6 billion are being paid per year due to uti. [11]. There is variability in the results of prevalence of UTI depending on the age and sex of the cases [12]. Urinary tract infections are More common among females than in males,33% of the females are affected by uti in life time for at least once. [13].

In this study, the highly prevalent age for this disease is 21-35 years of age. and more female patients than males. 340 patients were enrolled in our study and 202 were females and 138 were males. The prevalence is near to the frequency reported by Ahmed and Avasarala i.e 12.7% [14] but it is higher than the study done by by Singh MM *et al.* who reported it to be 4.2% UTI. [15]. In Bangladesh, patients usually visit a doctor after experiencing severe complications for a disease condition. So, in a studies done by Bashar *et al*. and Rahman *et al*. higher frequency of UTI is reported i.e., 27% and 24.14% [16,17]. In our study, uti was most frequently found in age group21-35years, the results are similar to the other studies done. The incidence of uti is higher in females than males, females have marked high percentage of the urine culture positivity i.e 90.15% and males 9.85% of total cultures sent for examination. Out of 192 strains,175 were females and 17 were males Similarity in observations has been seen in the studies done by Astal et al.26, Khalifa et al [18], Bangladesh (Begum et al., 16.4% of female urinary tract infections in Dhaka).

The culture results usually show the Gram-negative intestinal bacteria as culprit, that mostly cause urinary tract infections, e.g E. coli, Klebsiella spp. And Proteus species [1]. The most commonly involved bacteria in UTI (80-85%) are E. coli. 30 In our study, the Escherichia coli had the largest of the groups with a frequency of 39%, then comes Pseudomonas sp 29% and then Klebsiella sp 19% and Proteus, Staphlococcus sp, and Candida were below10%. Other researchers (Basar et al. and Saber et al. also indicated higher corelation of E. coli (66.67% and 77.8% patients respectively) in patients of UTI. Another study done in 2014 in Lahore shows the frequency of UTI is with the highest prevalence of E-coli (80%) then followed by Staphylococcus aureus (9.4%),) Pseudomonas species (5.2%) and Proteus species 5.4%. In most of the studies conducted Escherichia coli has been the most prevalent organism.

CONCLUSION:

The Urinary tract infections are more frequent in females as compared to males and enteric bacteria E. coli is the most prevalent pathogen among both males and females. Identification and diagnosis of microorganisms are important and very helpful for physicians to decide and treat these patients accordingly.

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