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A COMPARATIVE STUDY OF UTI PREVALENCE IN RESIDENTIAL GIRLS USING INDIAN VS WESTERN TOILETS

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ABSTRACT:

BACKGROUND- *Urinary tract infection (UTI) is the commonest bacterial infectious disease among community practice with a high rate of morbidity and financial cost. Urinary tract infection is also the most common site of hospital infection, accounting for more than 40% of nosocomial infections (estimated to be 600,000 patients per year) reported by acute care given hospitals.1 Many study reported early half of all women will have a UTI once in their lives.2 And one third of women will have had at least one UTI by age 24 years.3 Simple, uncomplicated UTIs are quite common in women ages 20 to 50.*

AIM AND OBJECTIVES: *To compare the incidence of UTI among hostel girls (of Jayoti Vidyapeeth University, Jaipur (Raj.)) who were using Indian toilets vs Western toilets.*

METHOD: *A cross sectional study carried out where total residential 80 students were participated after meeting the inclusion and exclusion criteria whereas one group of 40 students were using usually western toilet and another group of 40 students Indian toilets. They were allocated UTI questionnaire to identify incidence of UTI for past two months.*

STUDY SETTING: *Girls Hostel, Jayoti Vidyapeeth University, Jaipur, Rajasthan.*

STUDY DURATION: *Two months from January to February 2020.*

RESULTS & DISCUSSION: *The occurrence of UTI more prevalent in girls who were in the habit of using western toilets, that was, 78.2% (21/35) and less common in those girls who were using Indian toilet that was, 21.7%. A higher incidence of girls that is, 65.2% were using toilet only 1–3 times in a day in whom the prevalence of UTI was also found to be the highest. The recurrence of episode is found more as episode >1 in last three months in 60.9% students using western toilet, whereas this was only 20% students, using Indian toilet.*

CONCLUSION: *This study revealed high incidence of UTI present among western toilet users comparative to Indian toilet users and more recurrence of UTI episode also found in western toilet users. This result was based on small sample size so for application of a larger population this results need to be validated large scale and multicentric trial.*

KEYWORDS: *UTI, Western toilet, Indian Toilet, Hostel girls.*

INTRODUCTION: Urinary tract infection (UTI) describes a condition in which there are pathogenic micro-organisms established and multiplying within the urinary tract anywhere from renal cortex to urethral meatus. A population of 10% pregnant women suffer from urinary tract infection. UTI elevates the risk of pyelonephritis, premature delivery, and fetal mortality among pregnant women.¹

Depending upon the site of infection UTI is divided as Pyelonephritis (infection in kidney), Cystitis (Bladder infection) and urethritis (Urethra infection). The ureters are very rarely the site of infection. Urinary tract infections (UTI) are among the most prevalent infectious diseases, with a substantial financial burden on society. These are among the most common bacterial infections in humans, both in the community and hospital settings and have been reported in all age groups in both sexes. Worldwide, about 150 million people are diagnosed with UTI each year.²

Women are more likely to develop UTIs than men, due to anatomical differences; the urethra is shorter in women than in men, and it is closer to anus, making it more likely that bacteria are transferred to the bladder. UTI affecting as many as 50% women at least once during their lifetime with 25% of those having the recurrent infection within the following six months. They occur most frequently between the ages of 16 and 35 yrs in females. In males, it is unusual under the age of 50 and if present indicates some sort of obstruction.³

REVIEW OF LITREATURE: The incidence of cystitis is greater in women, primarily due to the proximity of the urethral opening to the vagina and perianal area. Risk factors for UTIs in women particularly are fecal contamination, recent UTI, decreased fluid intake, irregular emptying, sexual intercourse, diaphragm and/or spermicide use, a symptomatic partner and some incidence as pregnancy, menopause, low vaginal pH or dryness of mucosa. Some of these are neurogenic bladder, renal disease, urologic anatomic abnormalities, instrumentation, immunosuppression, hospitalization, nephrolithiasis, and diabetes.⁴

UTI usually affect lower but sometimes both lower and upper urinary tracts. The term cystitis defines the lower UTI infection and is characterized by symptoms such as dysuria, hesitancy,

polyuria, and incomplete voiding, frequency, urgency, and suprapubic tenderness. Symptoms of UTI are not different among the sexes. Typically, females with acute dysuria can be affected one of three types of infections: acute cystitis; vaginitis due to *Candida* or *Trichomonas*; acute urethritis due to *Chlamydia trachomatis*, *Neisseria gonorrhoeae*, or herpes simplex virus.

Uncomplicated UTI refers to cystitis and pyelonephritis that affect young, healthy, nonpregnant, or ambulatory postmenopausal women more. Patients with complicated UTIs are those who have an associated risk for infection in the urinary tract as suffering from neurogenic bladder, nephrolithiasis, hospital-acquired infection, diabetes, indwelling catheters and immunosuppressed. Resistant organisms can be seen in either complicated or uncomplicated UTIs.⁵

CORRELATION OF RESEARCH WITH ANCIENT INDIAN LITERATURE:

Urological ailments management through medicinal and surgical procedure prevailed in ancient India from the Vedic era around 3000 BC. Medical doctrines are first encountered in the religious texts of that period called the Vedas compiled in successive generations from 3000 to 1000 BC. Many urologic ailments in human history is encountered in the Atharva Veda dealing with urinary retention. It specifies the management with camphor and indigenous herbs to be anointed on the abdomen along with chanting of the appropriate hymns.

Charaka Samhita emphasised on urologic ailments including urinalysis and clinical interpretations that was based upon the color, consistency, presence of blood, turbidity, stickiness, semen, pus and fat in urine. Charaka analyzed the urinary findings with the symptoms of frequency, dysuria, polyuria, intermittency, fever, malaise, nausea etc to arrive at an etiopathological explanation of the individual ailments. Susruta discussed various urological ailments with conjectures about their pathogenesis followed by detailed management. Even he mentioned a number of urethral probes, dilators and irrigating syringes for instillation of medications.⁶

SCOPE OF STUDY: A large sample size research can be conducted on the basis of information and limitations concluded by this retrospective study of small sample size. Information and knowledge basis educational session especially addressing UTI and its risk factors can be regularly held among the students so they can understand their health better way.

AIM & OBJECTIVES OF THE STUDY: To compare the incidence of UTI in hostel girls of Jayoti Vidyapeeth University, who were using Indian toilets vs Western toilets.

MATERIALS AND METHODOLOGY: UTI Symptom Assessment questionnaire (UTISA)⁷. This questionnaire is required to primary diagnosis of UTI and symptom severity of students during previous two months. UTISA is a 7 self-limiting questionnaire including questions regarding the core symptoms of UTI as frequency, Urgency, Low back pain, Lower abdominal pain, Residual urine and Blood in urine.

A cross-sectional study was carried out in the JAYOTI VIDYAPEETH UNIVERSITY, JAIPUR from January 2020 to February 2020. We screened total 160 students

age group of 18-30 years old, and selected 80 students where 40 students were using Indian toilet and remaining 40 always western toilet. Exclusion criteria were married students and the girls who refused to provide the necessary information or incomplete information.

This was completely voluntary admission for the Students and they were provided the option to withdraw anytime from the study during the data collection without any fear or obligation if they felt to do so.

The study tool was a designed self administered UTISA questionnaire containing questions related to risk factors for UTI and an episode of symptomatic UTI to access the diagnosis and severity of UTI cases.

Before distributing the questionnaires and seeking informed verbal consent, the purpose of the study and contents of the questionnaires were well explained to the students. After ensuring confidentiality, students were instructed to complete 30 min to complete the questionnaire under the supervision of the investigator.

OBSERVATIONS AND RESULTS: A comparative study was carried out with total 80 residential students of JVWU where 40 students using Indian toilet and another 40 use western toilet. All subjects were single and not sexually active. All the students studying in the JVWU were residing in the hostel. The study was carried out for a period of 2 months, January to February 2020.

URINARY TRACT INFECTION(UTI):ETIOLOGICAL FACTORS						
VARIABLES	PRESENT		ABSENT		TOTAL	
<u>WATER INTAKE/ DAY</u>	Number	%age	Number	%age	Number	%age
<1L	14	60.9	31	54.3	45	56.3
1-2L	6	26	17	29.8	23	28.8
>2L	6	13.04	9	15.8	12	15
<u>HOLDING URINE</u>						
OCCASIONALLY	8	34.8	19	33.3	27	33.8
USUALLY	15	65.2	38	66.7	53	66.3
<u>TYPE OF TOILET USING</u>						
WESTERN	18	78.2	22	38.6		40
INDIAN	5	21.7	35	61.4		40
<u>USE OF TOILET</u>						
1-3 TIMES	15	65.2	11	19.3	26	32.5
4-8 TIMES	5	21	34	59.6	39	48.8
>8 TIMES	3	13	12	21	15	18.8

TABLE1:SHOWING VARIOUS ETIOLOGICAL FACTORS OF UTI

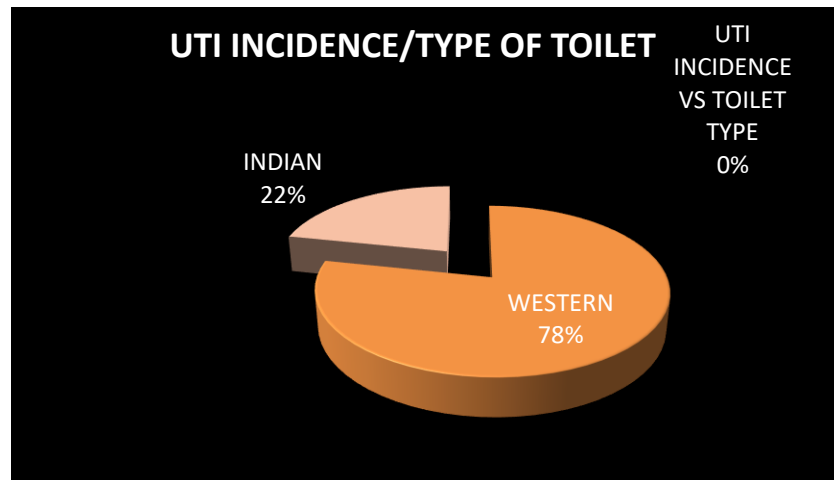


FIGURE 1: SHOWING INCIDENCE OF UTI VS TYPE OF TOILET

The data obtained from 80 hostel students showing almost 28.8% (23/80) of the hostel girls had a symptomatic episode within the last two months. It is found that 78.2% students were using western toilet and the students who were using Indian toilet were 21.7%. Most common experienced symptoms among both group were Dysuria, lower abdominal pain, increased frequency with incomplete emptying bladder.

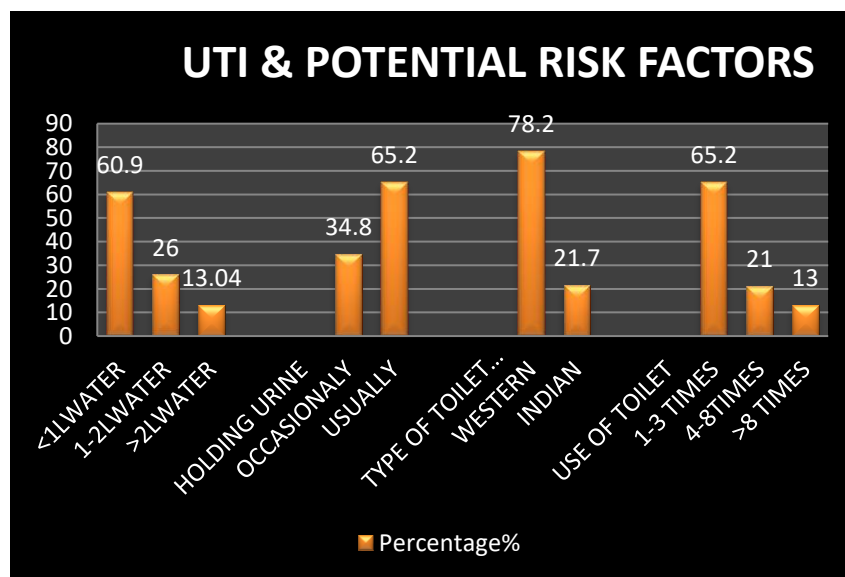


FIGURE 2: SHOWING INCIDENCE OF UTI AND ETIOLOGICAL RISK FACTORS

Majority of UTI incidence seen in that students whose water intake was <1L a day. The students who have a habit of holding urine for a longer time more were 65.2%. A higher incidence of girls that is, 65.2% were using toilet only 1–3 times in a day in whom the prevalence of UTI was also found to be the highest. The occurrence of UTI more prevalent in girls who were in the habit of using western toilets, that is, 78.2% (21/35) and less common in those girls who were using Indian toilet usually that is, 21.7%.

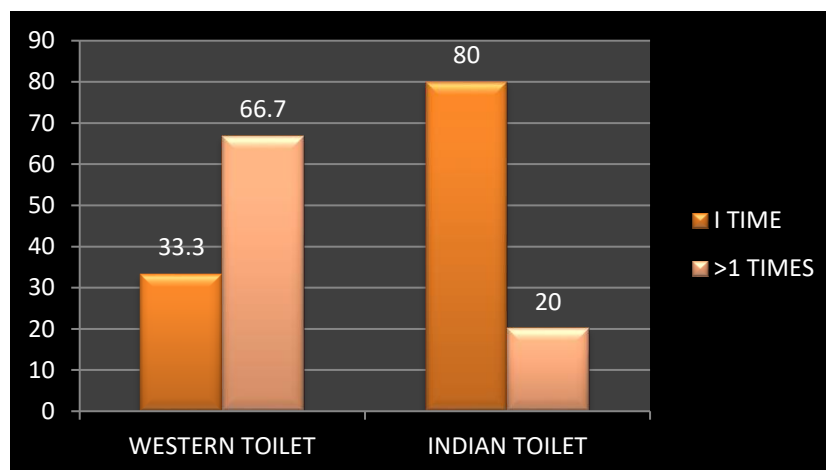


FIGURE 3: RECURRENCE OF UTI VS TYPE OF TOILET

The recurrence of episode is found more as episode >1 in last three months in 60.9% students using western toilet, whereas this was only 20% students, using Indian toilet.

DISCUSSION: The present study shows that UTI was more prevalent in those girls who using western toilet and less incidence found in those who using Indian toilet. More recurrence of UTI episode was also found in western toilet users comparative to Indian toilet users. The girls are likely to “hold on” resulting in stasis of urine leading in UTI. Waiting for too long time for micturation, it can cause stretching the bladder muscle too much that not all the urine is pushed out, which increase the risk for UTIs. Sometime the students adapted this kind of behaviour by limiting their water intake and tried not to go to toilets thus, they were more prone to acquire UTI. The drinking less or infrequently is a common practice to avoid the need of urinating during work classroom and training sessions and may increase the risk of developing UTI. A higher number of girls were using the toilet only 1–3 times in a day (65.2%) and the prevalence of UTI was also found to be the maximum in them.

In the current study, UTI was found to be more common in girls using western toilet. Another factor which may have contributed towards UTI is that women need to sit down to use the toilet but have difficulty doing so as they are fearful of catching germs from the toilet seat. and hesitate to sit down on a wet seat, sprayed by the last users. It is reported from many research studies that around 80% of women “hover” over the seat to urinate when in public toilets, whereas they prefer to sit while using the toilet at home. Hovering contributes to residual urine retention, as the bladder cannot empty properly and contribute to development of infection.

LIMITATION: This study was conducted with small sample and special section of population hence, the results cannot be extrapolated on the general population. Study should be carried out with larger sample size combined with multicentric to get the correlation between more perfectly.

CONCLUSION: This study revealed high incidence of UTI present among western toilet users comparative to Indian toilet users. The many factors also associated along this as holding urine, less water consumption, uncleanliness of toilet seats of western toilets and less

frequency of urination to avoid unclean toilets contribute for affecting UTI more so educational session should be regularly held among these residential students to address UTI and its risk factor. More health promotion programmes are needed to be implemented to increase the awareness about UTI and improve their behaviour and habits to minimise this incidence.

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