ORIGINAL RESEARCH PAPER

Volume-7 | Issue-3 | March-2018 | PRINT ISSN No 2277 - 8179

INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

STUDY OF INCIDENCE OF UTI, PATHOGENESIS AND ITS SENSITIVITY PATTERN OF UTI IN PATIENTS IN PATIENTS WITH LOWER ABDOMINAL PAIN WHO VISITED THE DEPARTMENT OF OBG:

Gynecology

Dr Rekhalatha Associate Professor, Department of OBG, Kanachur Institute of Medical Sciences, Deralakatte, Mangalore.

ABSTRACT

Background: Urinary tract infections are common causes of both community acquired and nosocomial infections in adult patients admitted in the hospitals. Urinary tract infections can be defined as the presence of pathogenic bacteria in significant colony count in the bladder of upper urinary tract with its associated consequences. Asymptomatic bacteriuria is a term used to designate urinary tract infections in the absence of symptoms with the growth of bacteria colonies often crossing 1,00,000 / ml in a freshly voided midstream urine sample. Urethritis and cystitis are characterized by the inflammation of the urethra and bladder with symptoms of dysuria, frequency and lower pubic pain and it is associated with fever. Acute pyelonephritis is the bacterial infection of renal parenchyma and it is characterized by fever with rigors, flank pain, vomiting, costo vertebral tenderness with or without symptoms of cystitis. It may be associated with pus formation. Prastitis is quiet common and it involves infective inflammation of the prostate associated with dysuria, urgency, frequency and pain in the lower abdomen, perineum, or base of the penis. A sincere effort has been made in this study the Pathogenesis and its Sensitivity Pattern in UTI.

KEYWORDS

Urinary Tract Infections, Pathogens, Culture, Sensitivity.

Introduction:

The outer one-third of the female urethra, the urinary tract is normally sterile.[1]Urinary tract infection includes both asymptomatic microbial colonization of the urine and symptomatic infection[2]. Colony counts of >105/mL of midstream urine are occasionally due to specimen contamination, which is especially likely when multiple species are found[3].

Urinary tract infections can be first infections, unresolved bacteriuria during the drug therapy, recurrent urinary infections which can be reinfection or relapse.

The disease is exceeded in frequency among ambulatory patients only by respiratory and gastrointestinal infections[4]. Every female has a 20% life time risk of coming down with a UTI[5]. In children approximately 5% of girls and 1% of boys have a UTI by 11 years of age[6].

In sexually active females with recurrent UTIs the disease can be prevented by good perineal hygiene, emptying of the urinary bladder before and after intercourse, single dose cotrimoxazole immediately after intercourse. The treatment includes general measures like adequate fluid intake which helps frequent voiding of the bladder, use of urinary analgesics like phenazopyrodine hydrochloride for symptomatic relief. Increased fluid intake diuresis there by aiding the flushing of bacteria, reduces irritation and decreases the hyperosmalirity of the medulla. Specific drug therapy whether it is the first episode of UTI or recurrent infection. In acute infection, single dose therapy amoxycylline 500 mg, cotrimoxazole 2 tablets or doxycycline 200 mg affects cure in 80% of the cases of lower urinary tract infection. This dose is two to three times of the therapeutic dose. Occurrence of the relapse in the remaining 20% suggests acute pyelonephritis or prostatitis in young females. Treatment with appropriate antibacterial agents depends on urine culture sensitivity. The treatment given for 10 to 14 days. Cases with frequent relapses should be treated for six weeks. In pregnant females, only amino penicillins and cephalexim are permissible in the first trimester, following initial full dose treatment, suppressive therapy with single nightly dose will have to be carried out till term. All patients with recurrent infections will need appropriate radiological evaluation with intra- venous pyelogram, ascending pyelogram and urodynamic evaluation depending on the appropriate clinical diagnosis of the underlying condition. Final cure involve appropriate management of underlying conditions. Antibacterial agents which concentrate in prostatic tissue like cotrimoxazole, quinolones or erythromycin are used in the treatment of prostatitis. Aminoglycosides are used in fulminant cases. Complete eradication from the prostatic tissue may yet times need prolonged treatment for twelve days. Many a time in young couples, both partnere need to be monitored and treated to avoid from each other. It is also the most common cause of nosocomial infections in adults.[7] If asymptomatic bacteriuria is detected in diabetics, children, immunity lacking persons or during pregnancy should be treated. High clinical acumen, perseverance and diligent search for underlying cause and adequate therapy form corner stones in recurrent tract infections.

Aims and Objectives:

The aim of the study is to

1. Find the pathogens causing the Urinary tract infection.
2. Find the sensitivity pattern of the pathogens.

Materials and Methods:

Four Hundred Fifty cases who visited the Department of OBG, Kanachur Institute of Medical Sciences, Mangalore were used as the sample size of the study.

The plethora of the signs and symptoms which were seen were noted and the mid catch of the urine was done and sent to the Department of Microbiology for the pathogens to be identified.

The sensitivity pattern was also studied and reported.
The study was done from December 2015 to November 2017

Inclusion Criteria:

1. The age of the person were between twenty to fifty. This was done to prevent the age bias.
2. Confirmed cases of UTI were included.

Exclusion Criteria:

1. <25 years and > 50 years were excluded.
2. Any pre- existing urinary tract malformations were not included in the study.
3. Patients who were under immune suppressant drugs were not included in the study.

Results:

Table 1: Mean age of the patient

Patients	Mean age	Standard Deviation
450	32.11	5.33

Table 2:Incidence of UTI

Patients	Incidence	Percentage
450	100	22.22%

Table 3: Table of Significance

Patients	X-Value	P-Value (<0.05)
100	0.435	0.035

So it is significant.

Table 3: Frequency of pathogens in UTI

Organism	Frequency	Percent
E. coli	57	57%
S. aureus	21	21%
S. faecalis	19	19%

Pseudomonas	1	1%
S. pyogenes	1	1%
S. albus	1	1%
Total	**100**	**100.0**

Table 2: Antibiotics Sensitivity Pattern (to different organisms).

		E. coli	S. aureus	S. faecalis	Proteus spp.	Pseudomonas
Amoxicillin	Sensitive	19%	62%	71%	38%	0% 100%
	Resistant	81%	38%	29%	62%	
Augmentin	Sensitive	38%	79%	72%	63%	0% 100%
	Resistant	62%	21%	28%	37%	
Ofloxacin / Ciprofloxacin	Sensitive	70%	80%	76%	81%	59% 41%
	Resistant	30%	20%	24%	19%	
Gentamicin	Sensitive	58%	67%	31%	48%	34% 66%
	Resistant	42%	33%	69%	52%	
Nalidixic acid	Sensitive	40%	21%	22%	31%	19% 81%
	Resistant	60%	79%	78%	69%	
Nitrofurantoin	Sensitive	72%	55%	45%	34%	22% 78%
	Resistant	28%	45%	55%	66%	
Cotrimoxazole	Sensitive	44%	19%	19%	21%	16% 84%
	Resistant	56%	81%	81%	79%	
Tetracycline	Sensitive	32%	24%	42%	8%	09% 91%
	Resistant	68%	76%	58%	92%	

Discussion:

Common micro-organisms responsible for UTI are gram negative enterobacteriaceae, E. Coli, being the most commonly isolated organism in the acute infections. However Klebsiella species and certain gram negative non – fermenting bacterias are encountered in hospital acquired infections. Proteus group of organisms are commonly seen in presence of calculus disease of the urinary tract. Pseudomonas aeruginosa is seen in special urological situations following catheterization or instrumentation of urinary tracts or nosocomial infections that are acquired from the hospitals. The common etiopathogenic factors include anatomical abnormalities of the urinary tract in adults like meatal stenosis, bladder outlet obstruction due to urethral structures or enlarged prostate. Pelvi ureteric anomalies, vesico – uretric reflux, medullary sponge kidney with calcinosis, renal tubular acidosis, functional abnormalities resulting from bladder dyskinesia, bladder detrusor sphincter dysnergia and neurogenic bladder are some of the congenital causes responsibe for recurrent UTI. Common acquired causes include obstruction due to stones, tumors, uterine prolapse, vesico – vaginal fistula, cervicitis and vaginitis in females. In the group of female patients with ediopathic recurrent UTIs where there are no abnormalities of the urinary tract a number of host factors and bacterial virulence properties have been identified.

The organisms come from the bacterial flora of the perineal region by ascending infection due to the close proximity of the anal canal and the urethra. They may come from foci of sepsis in the upper respiratory tract, orodental and cardiopulmonary regions through the blood stream. Any obstruction to the urinary passage distal to the bladder allows the the bacteria that have ascended up an opportunity to travel further upwards from the bladder to the ureters and the kidney due to high pressure in the system, leading to the reflux of bladder urine into the ureters. In young, sexually active females, trauma, during intercourse can result in the ascent of infections to the bladder. In pregnant females dilated ureters due to the hormonal influences and pressure of the gravid uterus enables the bacteria to travel from the bladder to the kidney. The growth of the bacteria depends on the host factors as well as the microbial factors. Most factors include availability of microbial receptors, sites on the uroepithelium, secretory state resulting from loss of secretory IgA due to bladder inflammation and presence of Tamm Horsfall protein in the urine. Microbial factors include capacity to adhere to the uroepithelium and presence of fimbriae of the bacteria in the absence of glucose are inhibitory to the bacterial proliferation. Presence of glucose in the urine as in daibetic subjects and low levels of urinary albumin are seen in presence of renal failure are seen to be condusive to the growth of bacteria. Spread to the upper tract is facilitated by the reflux from the bladder. Vesicoureteric reflux and reflux into the connecting ducts that is intra renal reflux. These two factors have an important role in the causation of pyelonephritis. Some non bacterial organisms can also cause UTI in special situations. Chlamydia trachomatis and mycoplasma homoinis may cause urethral syndrome. Fungal infections supervene in subjects with long standing urinary cathaters and in prolonged antibiotic therapy in immunocompromised hosts as seen in subjects with malignancies following organ transplantations as they will be under steroid therapy so that the host will not react towards the new attachment which is foreign.

Conclusion:

The incidence is significantly high in female patients complaining of lower abdominal wall. This is seen peculiarly high in the age bearing group. In this study the most common pathogens which causes the UTI and the sensitivity pattern has been reported.

Result:

1. Bailey RR. Urinary Tract Infection. In: Oxford Textbook of Medicine on CD-ROM. Oxford University Press and Electronic Publishing B. V; 1996 Section 20.8.1
2. Calvin M. Cunin. Urinary Tract Infections and Pyelonephritis. In: Goldman E. editor. Cecil Textbook of Medicine 21st edition. W. B. Saunders Company; 2000. p. 138
3. Stamm EW. Urinary Tract Infections and Pyelonephritis. In: Harrison's Principles of Internal Medicine 15th Edition on CD-ROM. Mc-Graw and Hill Companies Inc; 2001
4. Levi ME, Redington J Barth L. The Patient With Urinary Tract Infection. In: Schrier RW editor. Manual of Nephrology, 6th Edition. Lippincott Williams & Wilkins, 2005
5. David Howes. Urinary Tract Infection. eMedicine April 25 2005 (online)
6. Jenson BH, Baltimore RS. Infectious Diseases.In: Kleigman RM, Marcdante KJ, Jenson BH, Berhman RE editors. Nelson Essentials of Paediatrics 5th edition. Philadelphia: Elsevier Inc; 2006. p. 522.
7. Ozumba UC. Increasing incidence of bacterial, resistance to antibiotics by isolates from the urinary tract. Niger J Clin Pract. 2005 Dec;8(2):107-9.