Recurrent urinary tract infection in females

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Abstract:

Backgrounds:- recurrent urinary tract infections are occurrence of three episodes in 12 months or two episodes in 6 months, which causes of frequent visits of healthcare . Females more likely to have recurrent urinary tract infections than males , infection usually occur with reinfection with the same the bacterial that isolate previously.

Aims : to discussing the frequency of recurrent urinary tract infection in females at baquba teaching hospital

Patients and Methods : this is cross section study include females that present with recurrent urinary tract infections during the period from October 2023 to march 2024. the data had been collected including patient's demographics (marital status, number of infections in a year , age), signs and symptoms (hematuria, elevated temperature , loin pain, dysuria, flank pain, polyuria, nocturia, colour of urine, suprapubic pain, etc.) , present of chronic diseases and numbers of delivery and abortion were all considered in this study.

Results : 50 patients were enrolled in this study . the majority of them(84%) are married , and the most frequent infections occurring within one year are 1-3(56%) .Several of them had diabetes mellitus, frequent sexually intercourse , immunosuppressive medication use, menopause in women (26%) , kidney transplant, catheterization of urinary system , immobile patient , and incomplete treatment of previous episode as predisposed factors for recurrent UTIs. Throughout all patient groups, Escherichia coli is the most common pathogen ; nevertheless, Klebsiella, Pseudomonas, Proteus, and other species are also can result to produce complicated infection of urinary tract. Usually started treatment with nitrofurantoin , or Trimethoprim / Sulfamethoxazole or cephalosporin .

Conclusion : the most frequent problem seen during outpatient visits is recurrent UTI. About half of the patients with recurrent UTIs received continuous antibiotic prophylaxis, with Trimethoprim / Sulfamethoxazole are common medication being used . It worked well to lower the rate of recurrence, ER visits, and hospital admissions brought on by recurrent urinary tract infection .

Keywords :- Recurrent urinary tract infection in females , reinfection, predisposed factors · Trimethoprim / Sulfamethoxazole ,cephalosporin .

Introduction :-

Recurrent UTIs are define as occurance of three episode of urinary tract infection in twelve months or two episode in six month. [1]

Symptomatic UTIs that manifest as acute cystitis or pyelonephritis after previous episode has resolved,, typically with help of right medication . [5]

recurring urinary tract infections (UTIs) have two types: reinfection (i.e., recurring UTIs with bacteria that have already been isolated after treatment and a negative intervening urine culture, or a recurrent urinary tract infection by other types of bacteria) and relapses (i.e., symptomatic recurrent urinary tract infection with the same organism following appropriate medication).

The majority of recurrent urinary tract infections are caused by reinfection with the same pathogen. Healthy young women with a urinary system that is physiologically and anatomically normal frequently experience recurrent UTIs.[10]

The following factors increase a woman's risk of recurring urinary tract infection : symptoms after sexual activity, pyelonephritis signs or symptoms, and early antibiotic-induced symptom relief. Recurrent infections can be strongly negative predicted by the absence of nocturia and the persistence of symptoms between episodes of urinary tract infection. individuals with underlying medical factors that enhance their chance of developing severe urinary tract infection and the associated hazards of ascending infection (pyelonephritis or urosepsis) are another group of individuals who report with recurring urinary tract infection .

The phrase "complicated urinary tract infection " is difficult to define, however it is typically used to describe patients who have a genitourinary defect that predisposes them to the condition.

Clinical feature of cystitis suprapubic pain , hematuria , dysuria , Frequency, Urgency without any systemically associated features . [11].

Clinical features of pyelonephritis nause, pain in loin area , vomiting , tenderness at costovertebral angles and fever . [12]

Patients and Methods

In this study we conducted on (50) of females having either more than three symptomatic episodes with positive urine cultures each year or more than two symptomatic episodes with positive urine cultures in the previous six months. The data had been collected including the patient's demographics (marital status, number of infections in a year , age), signs and symptoms (hematuria, elevated temperature , loin pain, dysuria, flank pain, polyuria, nocturia, colour of urine, suprapubic pain, etc.), and the risk factors for UTIs (diabetes mellitus, immunosuppression medication, menopause, renal transplant, neurogenic bladder , frequent catheterization .) , past medical, surgical and drugs history including contraceptive used .

Result

Data of present study showed the most women with recurrent UTIs were married (84%) with no menopause (74%) and within age groups 21-30 (28%) and 31-40 (28%), regular menstrual cycle (48%), no use contraceptive pills (74%), and have 1-5 children (48%). The differences among personal features of women were significant ($p<0.05$) (table 1).

Table 1; Frequency and percentages of personal features of women with recurrent UTIs.

Total number of participants=50	Count	Percent	P value

Age groups (years)	21-30	14	28.0%	*P<0.05**
	31-40	14	28.0%	
	41-50	13	26.0%	
	51-60	7	14.0%	
	>60	2	4.0%	
Marital status	Single	8	16.0%	*P<0.001***
	Married	42	84.0%	
Menstrual cycle	No	13	26.0%	*P<0.05**
	Regular	24	48.0%	
	Irregular	13	26.0%	
Contraceptives use	No	37	74.0%	*P<0.001****
	Condom	2	4.0%	
	IUCD	6	12.0%	
	COCP	5	10.0%	
Menopause	No	37	74.0%	*P<0.001****
	Yes	13	26.0%	
Number of children	0	15	30.0%	*P<0.05**
	1-5	24	48.0%	
	>5	11	22.0%	

Data of present study showed the most women with recurrent UTIs have 1-3 infection (56%) in one years with no abortions (66%), no chronic diseases (56%) and no past surgery (60%).The differences among clinical features of women were significant ($p<0.05$) (table 2).

Table 2; frequency and percentages of clinical features of women with recurrent UTIs.

Total number of participants=50		**Count**	**Percent**	**P value**
Number of infection in one years	1-3	28	56.0%	*P<0.05**
	4-6	15	30.0%	
	>6	7	14.0%	
Number of abortions	0	33	66.0%	*P<0.001****
	1	7	14.0%	
	2	7	14.0%	
	3	1	2.0%	
	4	2	4.0%	
Chronic diseases	Yes	22	44.0%	*P>0.05*
	No	28	56.0%	
Past surgery	No	30	60.0%	*P<0.01***
	Caesarean section	10	20.0%	
	Cholecystectomy	6	12.0%	

	Appendectomy	4	8.0%

Discussion

In the present study demonstrates that recurrent urinary tract infection (UTIs) are highly prevalent in females due to a number of host factor that appear to predispose them to (recurrent UTIs) , these factor include change in vaginal local pH and cerviovaginal antibody level , increased uropathogenic bacteria adherence to the uroepithelium and potentially difference in anatomy of pelvis such as a shorter urethra to anus distance .

Most frequent infections occurring within one year 1-3 (56%), followed by 4-6 (30%) , and >6 (14%)
Additionally 26% of cases occur after menopause as a result of atrophy of mucosa and lack of prophylactic estrogen use . [21]

Majority of females in this study they are married approximately (84%) that regular sexual activity are the best indicator of recurrent urinary tract infection in patients who present with repeated episode of clinical features. This females should be management with prophylactic after coitus or long term antibiotic .

During this study we find the females with chronic disease about (44%) most of them having diabetes mellitus .

An additional study on recurrent urinary tract infections carried out in 2016 at King Abdulaziz Medical City, National guard health affair (

NGHA) , riyadh . The study revealed that comorbidities (immunocompromised patients like diabetic mallitus , catheterization of urinary tract , immobile patients and transplant of kidney) as well as age and married women were associated with recurrent urinary tract infection, which corroborated our findings.

The most common organisms across all patient group is Escherichia coli , however patients with diabetes are more likely to have klebsiella and group B streptococcus . Patients on long term catheterization are more likely to contract pseudomonas infection . patients with injury in spinal cord or structures abnormalities of urinary system, or catheterization are more likely to have infections with proteus mirabilis . [6]

The gold standard for diagnosis urinary tract infection in patient exhibiting symptoms is a positive culture with more than 102 colony forming units per milliliter; however a culture is frequently not required to diagnosis patients with typical clinical features .[7] . Treatment patient with use of antibiotics, modifications of behavior and products of cranberry. When the patient exhibits symptoms, a midstream urine bacterial count of 1 × 105 CFU/L need to be regarded as positive. Currently, the conventional treatment consists of a three-day course of trimethoprim/sulfamethoxazole (TMP/SMX) or a fluoroquinolone (i.e ciprofloxacin , ofloxacin , norfloxacin)which also effective [14]. The best course of treatment for patients at risk of complication of UTIs are broad spectrum antibiotics like fluoroquinolones and do urine culture for guide treatment subsequently . Do imaging of kidney if present any suspicions for abnormalities in structures.[4]

Recommendation

- ➢ Women who experience recurrent UTIs should be used continuous daily antibiotic prophylaxis with cotrimoxazole, nitrofurantoin, cephalexin, trimethoprim, trimethoprim-sulfamethoxazole, or a quinolone over a 6- to 12-month period. [18]
- ➢ Postcoital prophylaxis should be made available to women who experience recurring urinary tract infections linked to sexual activity
- ➢ Women who are postmenopausal and have frequent urinary tract infections should be administered vaginal oestrogen.
- ➢ to remove of bacteria, sip a lot of water . [3]
- ➢ never hold your urination .
- ➢ after bowel motion wiped from front to back .
- ➢ urinate to allow remove of bacteria after sexual activity . During sexual activity use adequate lubrication .
- ➢ It has been suggested that used of methenamine and vitamin C which can lead to increased acidity of urine , ideally less than 5.5 . [9][13]

- D-mannose are suggested treatment for patients with repeat cystitis can be lead to lower ability of pathogens to adherence to mucosa of urothelium by binding to ligand of bacteria surface . [19]
- prophyltically Cranberries can lower adherence of bacteria to urothelium by producing proanthocyanidins . [16][17]

CONCLUSION

Women are more likely than males to get UTIs, and their chances of recurrence are significantly higher. However, given that the patient may be experiencing relapses in their illness or repeated reinfections, management demands an aggressive and prompt course of treatment. About 50%of the patients with who had recurrent urinary tract infection were treated with continuous antibiotic prophylaxis. If this doesn't work, the patients are referred to urologic and radiologic investigations and are labelled as having recurrent or relapsing urinary tract infection, for which a structural urinary tract defect or a long-standing renal infection must be confirmed before receiving long-term treatment. It is important to address compromised immunity to prevent chronic morbidity.