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Research Article

FREQUENCY OF URINARY TRACT INFECTION AMONG WOMEN USING CONTRACEPTIVES ATTENDING KHARTOUM HOSPITALS

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ABSTRACT

Background: Use of contraceptives has been reported in some studies to predispose to urinary tract infection (UTI). This study aimed to determine the frequency of UTI among women using contraceptive attending Khartoum hospitals during August, 2013, Khartoum State

Methods: This was descriptive cross sectional study in which consenting adult females who using contraceptives with symptoms and signs of UTI. 101 urine samples were tested by semi-quantitative culture on chromogenic agar plate. A significant bacterial count was taken and examined to identify pathogens according to the colour in chromogenic agar.

Results: The frequency of UTI among study group was 20.8% (n=20). The contraceptives used were pills 36.6%, condom 5.9%, Depo provera shot 20.8%, intra uterine devices 17.8% and Implanon 18.8% most common frequent isolated organism were *Escherichia coli* 5.9%, and *Candida albicans* about 5.9%.

Conclusion: In the present study about 80% of contraceptives user had no UTI.

Keywords: Contraceptive, Khartoum Hospital, Urinary tract infection, Frequency, Women.

INTRODUCTION

Urinary tract infections (UTIs) are the most common bacterial infection, accounting for 25% of all infections¹. It is a significant health problem, both in community and hospital-based settings^{2,3}. Acute cystitis refers to infection of the bladder (lower urinary tract); it can occur alone or in conjunction with pyelonephritis (infection of the kidney – the upper urinary tract⁴). Most episodes of cystitis and pyelonephritis are generally considered to be uncomplicated in otherwise healthy non pregnant adult women. Among the 6–8 million young women estimated to have acute cystitis each year^{2,4}, most have only single or sporadic episodes. However, some 25%–50% experience recurrent episodes⁵⁻⁷.

One of the most serious problems that developing countries still have to solve is the rapid and uncontrolled increase in population⁸. Worldwide, contraceptive use has increased substantially over the past two decades, with improvements in existing contraceptive methods and the development of several new, more effective and acceptable methods with fewer side effects⁹.

The efforts to improve contraceptive usage are commendable, but there has been increased concern about their safety¹⁰,

many studies highlight the side effects and complications of different contraceptive methods¹¹⁻¹⁴. These studies mostly looked at hormonal contraceptives in which nausea, high blood pressure, varicose veins, menstrual disorders and breast cancer were reported¹¹. Previous studies identified urinary tract infection as a complication of contraceptive use^{15,16}, the predisposition of women to urinary tract infection (UTI), facilitated by the heavy colonization of their lower vagina and periurethral area by uropathogenic bacteria^{17,18}, is aggravated by contraceptive use. Even though UTI is cause of morbidity, mortality and great economic loss^{19,20}, but their epidemiology and associated risk factors have received little study. This study will therefore fill this gap in knowledge which aimed to determine the frequency of UTI among women using contraceptive attending Khartoum hospitals.

MATERIALS AND METHODS

Design

The present study was descriptive cross sectional study in which consenting adult females who using contraceptives with symptoms and signs of UTI attending Khartoum hospitals during August, 2013, Khartoum State were included.

Subject selection

Female contraceptive users with symptoms and signs of UTI attending Khartoum hospitals during August, 2013, Khartoum State were included in this study.

Pregnant ladies; patients with diabetes; patients experiencing vaginal discharge, patients identifying with antimicrobial use during the last 14 days and those hospitalized or catheterized during the four weeks before enrolment were excluded from the study.

Sampling method

Data were collected using a structural interviewing questionnaire that covered socio-demographic characteristics including age and educational level and types of contraceptives used, duration of using contraceptives, and symptoms of UTI. A modified semi-quantitative technique was employed by spreading a standard 0.001ml bacteriological loop full of urine over the surface of chromogenic agar plate (Liofilchem Italy, 610612). The plates then incubated aerobically at 37°C for 24 hours. The number of bacterial colonies were counted and multiplied by 100 to give an estimate of the number of bacteria present per milliliter of urine. A significant bacterial count was taken as any count equal to or in excess of 10⁵ per milliliter and examined to identify pathogens according to the colour in chromogenic agar.

Analyzing

The data retrieved from the questionnaires were analyzed using the Statistical Package for Social Sciences (SPSS) version 16 and the Microsoft Excel (MS) software program. The frequencies of urinary tract infection, age distribution, type of contraceptive duration of using contraceptive, symptoms of UTI & education level were obtained. The degree of association of urinary tract infection with duration of using and the type of contraception were determined using Chi-square test. Statistical significance was set at a *p*-value of less than or equal to 0.05 (*p*-value ≤ 0.05).

RESULTS

Among total number of 101 adult females who using contraceptives, had an age range between 20 and 50 years, the majority of the participants 46 (45.5%) belong to 20-30 years age group.

As indicated in table (1) the contraceptives used were Condom 6 (5.9%), Depoe proverb shot 21 (20.8%), Intra uterine devices 18 (17.8%), Implanon 19 (18.8%) and pills 37 (36.6%)

The frequency of UTI among study group was 21(20.8%) and 80 (79.2%) of contraceptives user had no UTI. The frequency of bacterial isolates revealed that *Escherichia Coli* 5.9%, and *Candida albicans* about 5.9%, *Enterococcus faecalis* 4% *Pseudomonas aeruginosa* about 3%, *Klebsiella pneumoniae* about 1% and *Proteus mirabilis* about 1%.

Chi-square analysis showed that association between UTI and duration of using contraceptives was statistically significant with *p*-value 0.02 (Table 3)

As shown in table (3) Chi-square analysis showed that association between UTI and type of contraceptives was statistically not significant (*p* value=0.06).

DISCUSSION

Previous studies identified urinary tract infection as a complication of contraceptive use^{15,16}, the predisposition of women to urinary tract infection (UTI), facilitated by the heavy colonization of their lower vagina and periurethral area by uropathogenic bacteria^{17,18}, and are aggravated by contraceptive use.

The effects of progesterone on muscle tone, peristalsis of the ureters and also on the urinary Vasculature may a count for the UTI in women who use who use hormonal contraceptives².

The frequency of UTI amongst contraceptive users in this study is quite similar to an earlier studies that reported the high prevalence of UTI amongst the barrier contraceptive users may therefore emanate from unhygienic conditions during application of the condom,²⁴ which was the one barrier method used in this study. Secondly, unlubricated condoms may abrade the vaginal wall and make it vulnerable to infections. Thirdly, it has been suggested that the users of the barrier methods are likely to have increased vaginal fluid pH, alterations in normal vaginal flora, and increased rates of introital colonization with *E. coli* – all associated with UTI²⁵.

In this study a predominance of participants within the 20–30-year age bracket amongst the contraceptive users. This predominance can be explained by the fact that this is the reproductive age bracket, when sexual activity is a norm. The reduced number of contraceptive users in the older age group could be explained by the fact that, with aging, there is a decline in ovarian hormonal secretion during the menopausal transition, which may alter libido, sexual response and functioning²¹⁻²³, with concomitant loss of interest in contraception.

The part played by the hormonal contraceptives in the etiology of UTI was to a lesser degree than that reported in a study by Ziaei and colleagues²⁶.

Table 1: Frequency of some related variables among 101 Female contraceptive users

Characterization	No (%)
Type of contraceptive	
Condom	06 (5.9)
Depoe proverb shot	21(20.8)
Intra uterine devices	18(17.8)
Implanon	19(18.8)
Pills	37(36.6)
Duration of use contraceptive	
>3 year	76 (75.2)
3-6 year	19(18.8)
6-9 year	1(01)
9-12 year	5(05)
Age/ year	
20-30	46 (45.5)
31-40	34 (33.7)
41-48	21 (20.8)
Education level	
Primary	47(46.5)
High	23(22.8)
Graduate	31(30.8)

Table 2: Relation between type of contraceptives & UTI by culture among 101 female contraceptive users

Type of contraceptives	UTI by Culture		Total (n)	P. value
	Positive (n)	Negative (n)		
Condom	2	4	6	0.06
Depoe provera shot	4	17	21	
IUDS	5	13	18	
Implanon	2	17	19	
Pills	8	29	37	
Total	21	80	101	

Table 3: Relation between duration of contraceptives & UTI by culture among 101 female contraceptive users

Contraceptives duration of use	Culture		Total n (%)	P. value
	Positive	Negative		
< 3 year	11	65	76	0.02
3-6years	9	10	19	
6-9years	0	1	1	
9-12years	1	4	5	
Total	21	80	101	

CONCLUSION

In the present study the frequency of UTI among study group was 20.8 (n= 21. 8%)

The fact that the most participants were asymptomatic makes it an unacceptable public health problem that calls for urgent intervention, in terms of health education and promotion and encouragement of the use and duration of using contraceptive methods that more effective and acceptable methods with fewer side effects and carry lesser risks of urinary tract infection.

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