Prevalence of the most common Reproductive Tract Infections among women attending family Planning clinics in Montazah-Alexandria

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Abstract

Background: The global burden of reproductive tract infections (RTIs) is enormous and of a major public health concern, particularly in developing countries where RTIs are endemic. RTIs constitute the second major cause of disease burden (after maternity related causes) in young adult women in developing countries**. Aim of work:** To measure the prevalence of Candida albicans, Trichomonas vaginalis and Bacterial vaginosis among married women and to identify some factors associated with them. **Subject and methods:** a cross sectional descriptive study was conducted in four health centers in El -Montazah health district-Alexandria. All women seeking family planning services at these clinics were included in the study till fulfilling the calculated sample size. An interview questionnaire, clinical examination and laboratory diagnosis were implemented on studied participants. **Result:** The study revealed that 484/615 (78.7%) studied women had at least one type of reproductive tract infections based on laboratory test. Candida albicans constituted (48.1%), Bacterial Vaginosis constituted (28.9%), mixed Candidiasis and Bacterial Vaginosis constituted (15.4%) Trichomonas vaginalis constituted (4.1%) mixed Trichomonas and Candidiasis and / or Bacterial Vaginosis constituted (3.3%). Education and employment were found to be significantly associated with reproductive tract infections however age and parity were not significantly associated with RTIs. **Conclusion:** RTIs are prevalent among women attending the family planning clinics. Both education and employment influence the presence of RTIs.

Recommendation: As family planning is often a woman's primary, and sometimes sole contact with the health care system; it is recommended to integrate RTI saeening & management with family planning services

Introduction

Reproductive tract infections (RTIs) are infections of the genital tract. Some are sexually transmitted. Overgrowth of endogenous microorganisms normally found in the vagina may cause RTIs Medical interventions may provoke iatrogenic infection. [(1)(2)(3)]

"Reproductive tract infections" is a global public health problem, mostly ignored by many women. Since a large proportion of women, suffer morbidity silently, and are reluctant to seek care [(4)]

The global burden of reproductive tract infections (RTI's) is enormous and of a major public health concern, particularly in developing countries where RTIs are endemic. RTIs, excluding Human Immunodeficiency Virus (HIV) constitute the second major cause of disease burden (after maternity related causes) in young

adult women in developing countries [1].

Three common infections are associated with vaginal discharge - bacterial vaginosis, Trichomoniasis and candidiasis, of which Trichomoniasis is a sexually transmitted infection. [5]

In Egypt 2001, a study implemented in a house-to-house survey using cluster sampling of 1344 married women from urban and rural areas of Upper Egypt the overall prevalence of RTIs was found to be 52.8%, with the most prevalent forms being Candida albicans (28.0%), Trichomonas vaginalis (8.7%), Aspergillus species (7.4%), Bacterial Vaginosis and streptococci (4.6%) and Chlamydia trachomatis (4.2%) [6]

Many women in Middle East and North Africa countries suffer from RTIs caused by lack of clean water for bathing and unclean practices during delivery or abortion. RTIs can cause persistent pain and discomfort, diminish women's productivity and quality of life. Many women do not realize they have a treatable RTI, because they have been taught to accept the symptoms as part of being a woman**.** [7]

RTI preventive programs should be integrated into other reproductive health care programs such as family planning, maternal and child health services .[1]

The number of studies conducted in RTIs arena in Egypt is limited; studies are needed to identify the magnitude of the problem to determine the necessary intervention.

The aim of the work:

1. To measure the prevalence of Candida albicans, Trichomonas vaginalis and Bacterial vaginosis among married women attending family planning clinics in El-montazah district-Alexandria.
2. To identify some factors associated with Candida albicans, Trichomonas vaginalis and Bacterial vaginosis among married women attending family planning clinics in El-montazah district-Alexandria.

Methodology

Study design: This is a cross sectional descriptive study.

Study population and site: Four health centers out of 18 health centers including family planning clinics were randomly selected from Al-Motazah health district. All women seeking family planning services at these clinics were included in the study till fulfilling the calculated sample size.

Inclusion criteria*:* Age from 15 – 49 years, married women, have no bleeding and not pregnant**.**

Sample size: Using Epi info statistical package. The main aim of the study was to determine the prevalence of RTIs among married women attending four family planning clinics . The prevalence rate of RTIs among married women was detected from a study of "Reproductive tract infections among married women in Upper Egypt to be 52.8%. [6]

At 95% CI and power 80%,expected frequency of 52.8% and worst acceptable frequency of 48%, a sample size of at least 407 was required and after adjusting for 10% drop out a sample size of 450 was suggested however 615 specimen were collected.

Study tools: An interview questionnaire was used and included: 1- Socio demographic data, Present

history of Contraception method, Symptoms of reproductive tract infections. 2- Clinical examination sheet: The trained service providers examined the study participants clinically and recorded the symptoms and signs. 3-Laboratory diagnosis using Wet mount microscopic examination to detect motile Trichomonas and Candida albicans and Gram stain microscopy of vaginal smear to detect Bacterial vaginosis [8].

Operational definition of the case of RTIs that we used*:* a client attending family planning clinic is considered to be a case of RTI if confirmed by laboratory (by microscopic diagnosis) to be one or more infection by Candida albicans, Trichomonas vaginalis and Bacterial vaginosis.

Ethical consideration

- Approval from the Ain shams University Ethical Review committee and from the family planning sector at the Ministry of health and population was obtained before the beginning of the study.
- Informed Consent was obtained from all study participants after explaining the aim and the nature of the study and assuring participants that confidentiality is maintained throughout the work.

Data management

All collected forms were revised for completeness, and logical consistency. Pre-coded data was entered on the statistical package of Social Science, version 19 (SPSS-19). Frequency tables and graphs were used to describe the sample population; Chi-square tests were used to compare qualitative variables and t test for continuous variables.

Results

A total of 615 women from four family planning clinics participated in the study, 29.4% of participants from Al-Amrawy health center; 27.2% from Al-Mandara health center; 26.5% from Al-Montazah Al-Refia health center and 16.9% from family planning clinic inside General Abokeer hospital. The age range was 18-49 years and the majority of participants (71.5%) were in the age group (20-34years) . Of all participants 38.4% were illiterate; 7.5% had primary or preparatory school; (40.1%) had technical diploma and 14.1% had high education. The majority of participants (82.1%) were not working. Five hundred and eighty eight women accounting for 95.6% were using family planning methods. About two third of participants had 2 or 3 children (61.3%). Also 21.5% of participants visited family planning clinic seeking medical advice for RTIs. (**Table 1**)
The study showed 78.7% of studied women had reproductive tract infections based on laboratory test. (**Figure1**)

The most prevalent RTIs in the study participants was candida albicans accounting for 48.1% followed by Bacterial Vaginosis constituting 28.9% , mixed Candidiasis and Bacterial Vaginosis were prevalent in 15.4% Trichomonas vaginalis 4.1% and mixed Trichomonas and Candidiasis and / or BacterialVaginosis : 3.3%. (**figure2**)

It was found that the prevalence of RTIs was 91.1% among illiterate women compared to 50% among highly educated and the difference was statistically significant $p<0.001$. Concerning employment status the prevalence of RTI was 84.4% in women who are not working while it

was 52.7% in working women and the difference was statistically significant p< 0.001. As regard age and parity there is no statistical significant difference. (**Table 2**)

It was found that 73.5% of studied participants reported that they have symptoms suggesting presence of RTIs. Vaginal discharge was the main presenting symptom accounting for 43.3% followed by vulval itching 25.4%. By clinical examination white cheesy discharge was the main sign accounting for 41.5% followed by nonspecific discharge (34.2%) then yellow frothy discharge (16.5%). (**Table 3**)

The prevalence of RTI was 80.4% among women who were using progestin only contraceptive methods; 79.2% among both intrauterine device (IUD) and combined methods' users while the lowest prevalence of RTIs is among women whose husbands were using condom (56.3%) & there is no statistically significant difference. (**Table 4**)

Prevalence of RTIs was 84% among women who were complaining from vaginal discharge, 85.2% among women complaining from abdominal or back pain and 63.8% among women not complaining from any symptoms of RTIs on direct question. The prevalence of RTIs was 91.2% among women with yellow frothy discharge and 88.2% among women with white cheesy discharge, while the lowest prevalence of RTIs 50.8% is among women free from signs of RTIs. **(Table 5)**

The prevalence of RTIs was 85.6% among women who attended the clinics complaining of RTIs and 77.8% among women who attended the clinic for routine visit. (**Table 6**)

The prevalence of symptoms of RTIs was 94.9% among women with past history of RTIs during the year preceding the study. Regarding site of seeking medical care for the RTIs during the last year preceding the study, the prevalence of RTIs was 94.4% among women who sought treatment from primary health care units; 96.2% among women who used home remedies and 98% among women who did not seek any medical advice to treat the previous attack of RTIs. (**Table 7**)

Discussion

The study showed that 21.5% of participants visited family planning clinic seeking medical advice for RTIs, while based on laboratory test 484/615 (78.7%) of studied women had reproductive tract infections versus 73.5% based on the symptoms only with direct question to women and 89.8% based on the clinical examination only. These findings were in accordance with the results of a cross section study done in India using a simple random sampling technique on 656 women of 15–45 years as there is no big differences between diagnosis based on laboratory test in comparison with diagnosis based on symptoms or clinical examination, where the prevalence of RTIs among women was 40.4% based on their symptoms, 37.4% based on clinical finding and 34.3% based on laboratory test**.** [(4)]

In the present study Candida albicans constituted 48.1%, Bacterial Vaginosis 28.9%, mixed Candidiasis and Bacterial Vaginosis 15.4% Trichomonas vaginalis 4.1% Trichomonas and Candidiasis and / Bacterial Vaginosis 3.3% .

Causes of RTIs are similar to a study implemented in India in which the laboratory test revealed that

Candidiasis (16.1%) followed by Bacterial vaginosis (12.5%) and Trichomoniasis (4.27%) [4] And a study implemented in Vietnam in which the prevalence of Candidiasis was 26%, Bacterial vaginosis was11% and Trichomonas was 1%. [9]

In this study multiple infections were common as 18.8% of participants had two RTIs, this is similar to study implemented in China in which 20.4% of study group had two RTIs.[10]

The present study revealed that the presence of RTIs was not influenced by age (mean age among free women and those having RTIs was 30.76±6.48 and 30.19±6.18 respectively). Similarly the parity didn't influence RTIs occurrence (mean number of children among free women and those having RTIs was 2.30±1.13 and 2.31±1.09 respectively) this is in accordance with a house to house survey done in Egypt using cluster sampling on 1344 married women from Upper Egypt to study the magnitude and determinants of reproductive tract infections. This study showed that the pattern of RTIs was not influenced by age and parity. [6]

In the present study the prevalence of RTIs was 91.1% among illiterate women and showed a decreased trend with an increase in level of education as it was 50% among highly educated ($p<0.001$) this finding is in accordance with a study done in India in which it was reported that the maximum prevalence of RTIs was found among illiterate women (76.19%) and gradually decreased as the education of women increased as it was 44.8% among highly graduated women [11]) and a study done in Iran to determine the prevalence and risk factors of reproductive tract infections among a defined population of Iranian women reported that low educational levels (illiterate and under diploma level) were the risk factors for these infections.[12]

Concerning employment status in the current study, the prevalence of RTI was 84.4% in women who are not working while it was 52.7% in women who are working ($p< 0.001$) and this is in accordance with a study done in India that reported 38% of women who were home makers had RTIs against 26% of employed women.[4]

The current study revealed that the presence of RTIs was not influenced by any contraceptive method . This finding agrees with the study done in India that showed that the prevalence of RTI/STI was similar in users and non user of any contraceptives. The differences were statistically insignificant. [13]

In the present study the most common reported symptom was discharge accounting for 43.3%; vaginal itching 25.4% abdominal /back pain (18%) and dyspareunia (11.2%). This is similar to the study done in Lagos, Nigeria in which vaginal discharge was the commonest symptom accounting for 21.8% vulval itching (17.7%), lower abdominal pain 15.0% and pain dysparounia 2.7%. [14]) and similar to the study done in Beirut, Lebanon in which vaginal discharge was the most commonly reported symptom, with 33% of currently married women complaining of [15]

Also the current study revealed that there is a statistically significant difference between the current symptoms and the presence of RTIs as the prevalence of RTIs was 84% among women who were complaining of vaginal discharge; 85.2% among women complaining of

abdominal / back pain; 83.5% among women complaining of vaginal itching and 84.3% among women complaining of dyspareunia. This finding is disagreeing with a study done in Egypt that reported that symptoms mentioned by the women were of low discriminating value in detecting RTIs. [6]

In the present study the most common sign was white cheesy discharge accounting for 41.5%, nonspecific discharge 34.2% and bad vaginal smell 7.8%**.** Also the study revealed a statistically significant difference between the signs discovered by clinical examination and the presence of RTIs as the prevalence of RTIs was 91.2% among women with yellow frothy discharge and 88.2% among women with white cheesy discharge and 69.3% among women with nonspecific vaginal discharge.
This finding is in accordance with the study done in Egypt in which it was reported that clinical signs detected by the gynecological examination were significantly associated with presence of RTIs. [6]

In the present study 70.2% of studied women suffered from at least one attack of RTIs during their last year among them 89% sought medical care. The primary health care units were the main facilities where treatment was sought accounting for (42.1%) while 36.6% of studied women used home remedies and 10.9% ignored the symptoms**.**

These findings are in accordance with the study done in Lagos, Nigeria in which 37.4% of respondents had experienced at least one symptom in the previous six months. The majority of those who reported symptoms (87.9%) sought medical treatment. Only 9.9% treated themselves while 2.2% ignored symptoms. Government health centers were the most visited health facilities for treatment (32.5%) followed by pharmacy (22.5%) [13]. The difference in reported prevalence of RTIs among Nigerian women and current study being lower in Nigeria's study can be attributed to the fact that the current study inquired about prevalence of RTIs in the year preceding the study while the other study inquired about only six months preceding the study.

Conclusion and Recommendations

Highly RTIs are prevalent and very high among women attending the family planning clinics as it was 78.7% based on laboratory test. The study highlights the need for raise the awareness of community regarding protection of RTIs. Both education and employment influence the presence of RTIs. The primary health care units were the main facilities where treatment was sought (42.1%)**.** The findings of this study could be used to improve the quality of RTIs patients care. Because family planning is often a woman's primary and sometimes sole contact with the health care system; it is recommended to integrate RTIs management with family planning services.

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Table (1) Characteristics of studied women

Variable	Frequency (n=615)	%
Health center		
Al-Amrawy	181	29.4
Al-Mandara	167	27.2
Al-Montazah al-Refia	163	26.5
Abo-Keer hospital	104	16.9
Age in years		
18 – 24	11	1.8
20 - 24	126	20.5
25 - 29	176	28.6
30 - 34	138	22.4
35- 39	93	15.1
40 - 44	45	7.3
45 – 49	26	4.2
Education		
Illiterate	236	38.4
Primary and preparatory school	46	7.5
Intermediate education (technical diploma)	247	40.1
High institute and faculties	86	14.0
Employment		
Working	110	17.9
Not working	505	82.1
Number of offspring		
No children	10	1.6
One child	151	24.6
Two children	196	31.9
Three children	181	29.4
Four children and more	77	12.5
Family planning practice		
Users	588	95.6
Non users	27	4.4
Cause of visit the clinic		
RTIs examination	132	21.5
Routine visit	483	78.5

Table (2) RTIs distribution according to socio demographic characteristics

Variable	RTIs status		Total	Test of significance
	Free of RTIs N=131 N(%)	+ve RTIs N=484 N(%)		
Education				
illiterate	21(8.9%)	215(91.1%)	236	$\chi 2 =$ 64.380
Primary & prep	10(21.7%)	36(78.3%)	46	p = 0.000
Intermediate	57(23.1%)	190(76.9%)	247	
High education	43(50%)	43(50%)	86	
Employment				$\chi 2 =$ 53.904
working	52(47.3%)	58(52.7%)	110	P = 0.000
Not working	79(15.6%)	426(84.4%)	505	
Age $\bar{x}\pm$SD	30.76+6.48	30.19+6.18	t test =0.863 p value =0.389	
Parity $\bar{x}\pm$SD	2.30+1.13	2.31+1.09	t test =0.093 p value= 0.926	

Table (3) Presenting signs and symptoms among studied women

Status	Frequency	%
Symptoms		
No symptoms	163	26.5
Symptoms	452	73.5
Total	615	100.0
Reported symptom		
Discharge	196	43.3
Vulval Itching	115	25.4
Abdominal or back pain	81	18.0
Dyspareunia	51	11.2
Bad smell discharge	9	2
Total	452	100.0
Clinical examination		
Clinically free	63	10.2
Had sign of RTIs	552	89.8
Total	615	100
Signs by clinical examination		
White cheesy discharge	229	41.5
Nonspecific discharge	189	34.2
Yellow frothy discharge	91	16.5
Bad smell discharge	43	7.8
Total	552	100

Table (4) Distribution of RTIs according to contraceptive methods used

Type of contraceptive Method	**RTIs Status**		**Total**	**Test of significance**
	Free N=131 N(%)	Affecyed **N=**484 N(%)		
IUD	48(20.8)	183(79.2)	231	X^2 = 6.402 P= 0.171
Combined methods	22(20.8)	84(79.2)	106	
Progestin only methods	46(19.6)	189(80.4)	235	
Condom	7(43.8)	9(56.3)	16	
Non users	8(29.6)	19(70.4)	27	

Table (5) RTIs distribution according to symptoms and signs of RTIs among studied women

Variable	RTIs Status		Total	Test of significance
	Free N=131 N(%)	Afected N=484 N(%)		
Symptom on direct question				
Vaginal discharge	33 (16.0)	172 (84)	205	X^2 =9.583
Abdominal or back pain	12 (14.8)	69 (85.2)	81	
Vulval itching	19 (16.5)	96 (83.5)	115	P=0.000*
Dyspareunia	8(15.7)	43 (84.3)	51	
No complaint	59 (36.2)	104 (63.8)	163	
Signs on examination				
Nonspecific vaginal discharge	58 (30.7)	131 (69.3)	189	
White cheesy discharge	27 (11.8)	202 (88.2)	229	X^2 =60.698
Yellow frothy discharge	8 (8.8)	83(91.2)	91	P= 0.000*
Bad odor	7 (16.3)	36 (83.7)	43	
Free	31 (49.2)	32 (50.8)	63	

Table (6) RTIs distribution according to the reason of visit the facility

Cause of visit the facility	RTIs Status		Total	Test of significance
	Free N=131 N(%)	Afected N=484 N(%)		
RTI examination	19(14.4)	113(85.6)	132	X^2=15.769 p=0.000*
Routine clinic visit	105(22.2)	367(77.8)	472	
Infertility or counseling	7(63.6)	4(36.4)	11	

Table (7) RTIs distribution according to Past history of RTIs in the year preceding the study and Site of seeking medical care

variable	RTIs Status		Total	Test of significance
	Free N(%)	Afected RTIs **N(%)**		
Past history of RTIs				
Yes	22 (5.1)	410 (94.9)	432	X^2 = 227.516
No	109 (59.6)	74 (40.4)	183	p = 0.000*
Total	131(21.7)	484(78.7)	615	
Site of seeking medical care				
Private clinic	4 (13.8)	25 (86.2)	29	X2 = 6.193
Primary Health unit/general hospital	10 (5.6)	169 (94.4)	179	p = 0.18
Pharmacy	1 (6.3)	15 (93.8)	16	
Home remedies	6 (3.8)	153 (96.2)	159	
Ignored	1 (2)	48 (98)	49	
Total	22(5.1)	410(94.9)	432	

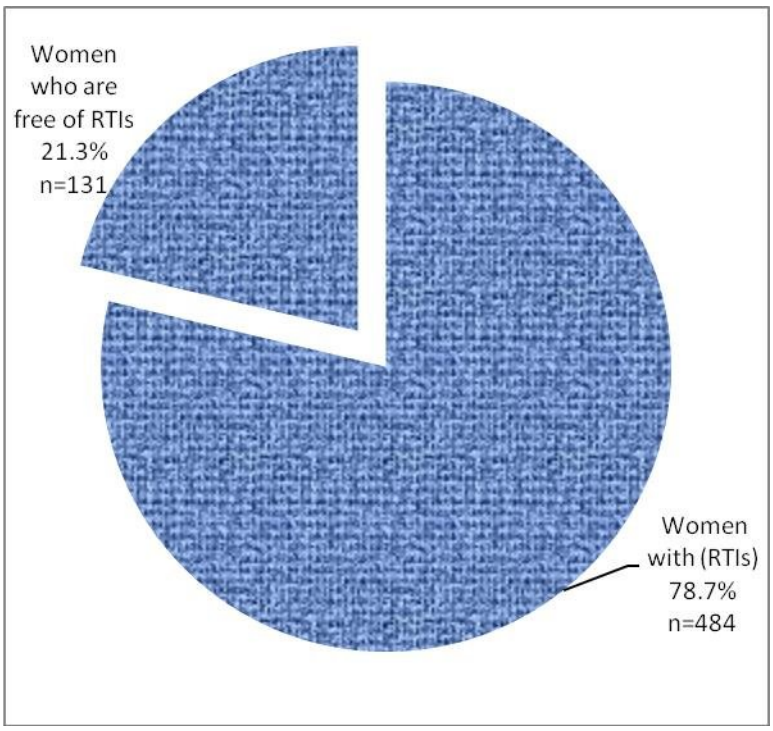

Figure (1) Prevalence of RTIs among studied women in the four family planning clinics

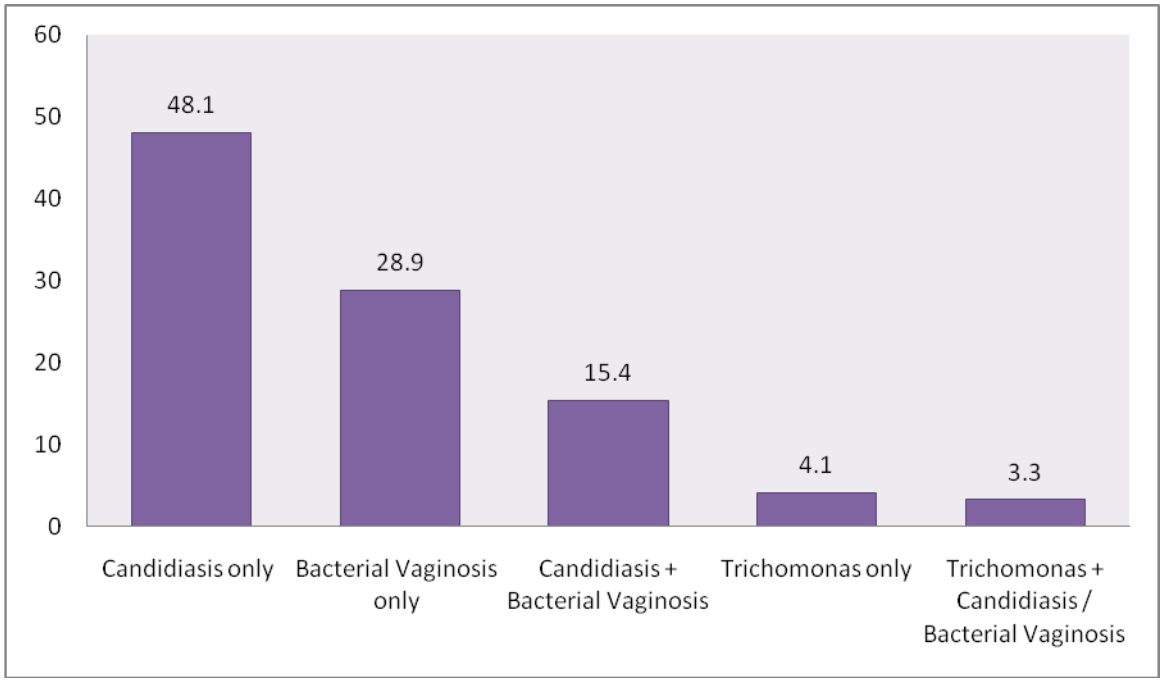

Figure (2) Types of RTIs among studied women