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Original Research Article

A study on prevalence of reproductive tract infections among women in a rural area of Tamil Nadu

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ABSTRACT

Background: Reproductive tract infections, adding burden to the morbidities in women especially in developing countries. Women, who are in reproductive age group, are at higher risk of contracting RTIs easily. Bacterial vaginosis, candidiasis and trichomoniasis are the commonly reported RTIs in India. Hence this study was planned to find the prevalence of self reported symptoms of RTIs and the prevalence of RTIs of public health importance in women of reproductive age group 15-49 years in a rural area.
Methods: A community based, cross sectional study was conducted among 461 women, who gave written consent. Participants were interviewed and if they have more than two symptoms of RTIs, they were included for gynecological examination and laboratory investigations at the rural health center.
Results: The prevalence of self reported RTIs was found to be 55.5% and 27.55% of participants had two or more symptoms of RTIs. Based on examination, Prevalence of cervisitis, vaginitis and pelvic inflammatory diseases were reported as 9.54%, 12.15% and 3.25% respectively. Based on laboratory investigation, candidiasis, bacterial vaginosis and trichomoniasis were reported as 6.075, 5.86% and 2.6% respectively.
Conclusions: With the prevailing burden of RTIs, it is important to create awareness and to health educate all women to reduce increasing trend of RTIs. This is possible with proper planning and implementation of health programmes in such a way that it should reach every women residing in the rural areas also.

Keywords: Reproductive tract infections, Candidiasis, Bacterial vaginosis, Trichomoniasis

INTRODUCTION

Reproductive tract infections (RTIs) which includes sexually transmitted diseases (STDs) continues to pose a major cause of morbidity in India, especially among the females in the reproductive age group. WHO has estimated that more than 340 million new cases of curable STIs namely syphilis, gonorrhea, chlamydia trachomatis and trichomonas vaginalis occur every year throughout the world in men and women aged 15-49 years with 151 million of new cases occurring in South and South-East Asia.[1]

Every year nearly 1.3 million women die of reproductive health problems that are largely preventable and 1 out of 20 teenagers contract a sexually transmitted disease, some of which causing lifelong disabilities such as infertility or death.[1]

In India, about 6% of the adult population is suffering from STIs/RTIs.[2] The most common presenting symptom of RTI is vaginal discharge, for which the women tend to seek health care.[3] Bacterial vaginosis, candidiasis and trichomoniasis are the commonly reported infectious causes of vaginal discharge.[4] Also women in the rural

part of India are more prone for RTI when compared to urban women.[5] With this in view this study was planned to be conducted in a rural area in order to find the burden of RTI and to find the prevalence of common RTI by laboratory investigations.

Objectives

To study the prevalence of self reported symptoms of RTIs and the prevalence of RTIs of public health importance in women of reproductive age group 15-49 years in a rural area.

METHODS

A community based cross sectional study was conducted in the field practice and demonstration area (FPDA) of rural health training center (RHTC) at Sripuram, belonging to Alandur block in Kanchipuram district. The study population includes all the women in reproductive age group (15-49 years) residing in Sripuram village during the study period, January 2012 to June 2012. Pregnant women, women during puerperal period, post menopausal women and unmarried females were excluded.

Sample size and sampling technique

Based on anticipated prevalence of RTIs among women of 15-49 years as 50% and with an alpha error of 0.05%, limit of accuracy of 10%, the sample size required for the study worked out to be 461. Systematic random sampling technique was adopted in order to select the required sample size. Data collection was done by household survey and only one female was randomly selected from each house.

Following, investigator explained about the purpose of the study to each participant and a written consent was obtained before starting the study. All participating females were informed that their participation was voluntary and that they could withdraw from the interview at any time without any consequences and also they were assured that their identity will be kept confidential and every effort was made, to keep the information, confidential.

A self-structured questionnaire was prepared to conduct the study in English, which was translated to Tamil and then participants responses were back translated to English. Study includes 1) One to one interview 2) Gynecological Examination and 3) Laboratory investigation.

During the interview, any women complaining of the under mentioned symptoms were empirically assumed to be suffering from RTIs, based on history.

(a) Vaginal discharge
(b) Lower abdominal pain
(c) Low back ache
(d) Urinary complaints like burning micturation, hesitancy or urgency.
(e) Menstrual complaints like increased menstrual bleeding, increased duration or frequency and bleeding associated with pain.
(f) Genital ulcers
(g) Dyspareunia.

Those women with self reported symptoms suggestive of RTIs and with any 2 of the following symptoms: vaginal discharge, lower abdominal pain, genital ulcer and low back ache were included for a detailed gynecological examination and laboratory investigations, at the rural health centre.

Laboratory investigations[6,7]

Vaginal pH test: Vaginal pH was determined by dipping a pH paper into the discharge, present on the vaginal speculum after removing from the vagina to differentiate the different types of infections. P^H of more than 4.5 was used as a diagnosis for bacterial vaginitis and pH more than 5.5 for trichomonas.

Amine test: It was done by adding a drop of 10 per cent KOH on vaginal discharge taken on a clean microscopic slide, intense fishy odour indicated the bacterial vaginitis.

Wet mount: Drop of vaginal fluid mixed with one drop of normal saline covered with cover slip was observed under light microscope for trichomonas and cluecells.

Grams staining: This was used for the test of gram negative cocco-bacilli (cluecells) suggestive of bacterial vaginitis and presence of gram positive yeast bodies suggesting candidiasis.

Data entry and analysis was done by using Statistical Package for Social Sciences (SPSS) 16 version software. Proportion of women with symptoms of RTI based on history, gynecological examination and laboratory investigations were calculated as percentages.

RESULTS

The mean age of the study participants was found to be 33.9±7.7 (S.D) years. The overall literacy rate was found to be 88.3% and 11.7% were illiterate. Majority of the study participants, 83.5% were unemployed which includes home makers and among the rest 5%, 3.7%, 2.6%, 5.2% were found to be engaged in unskilled, semiskilled, skilled and professionals works respectively (Table 1).

Based on history

The prevalence of self reported RTIs was found to be 55.5% with 95% confidence interval of 51- 60%, based on the history. Among the symptoms of RTI, the

commonly reported symptom was discharge per vaginum (30.2%) followed by low backache, lower abdominal pain and genital ulcers (28%), (26.2%), (0.7%) (Figure 1).

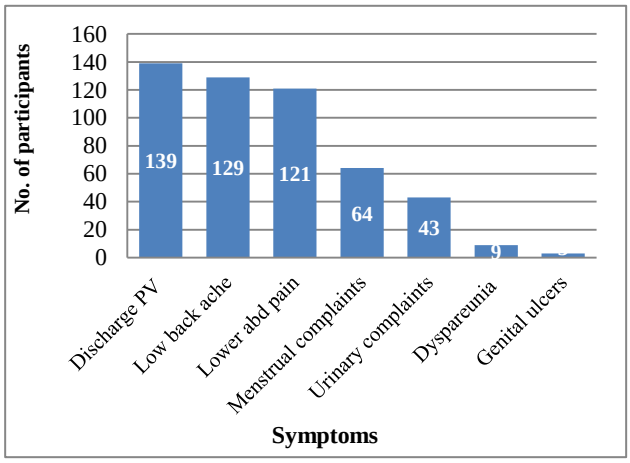

Figure 1: Participants with symptoms of RTI.

The participants with two or more symptoms of RTI, who were included for clinical examination and laboratory diagnosis was 127 participants (27.54%).

Table 1: Characteristics of the study participants.

Sl.no	Characteristics	All participants N=461 (%)
1	**Educational qualification**	
	Post graduate	12 (2.6)
	Graduate	141 (30.6)
	Higher secondary	71 (15.4)
	High school certificate	91 (19.7)
	Middle school certificate	59 (12.8)
	Primary school certificate	33 (7.2)
	Illiterate	54 (11.7)
2	**Occupation**	
	Professional	24 (5.2)
	Skilled worker	12 (2.6)
	semi skilled worker	17 (3.7)
	Unskilled worker	23 (5.0)
	Unemployed	385 (83.5)

Based on gynecological examination

Following the gynecological examination, 12.14% were diagnosed to be suffering from vaginitis and among the rest 9.54% and 3.25% were diagnosed to have cervicitis and pelvic inflammatory disease. 5.63% of the participants who underwent clinical examination were found to be normal.

Based on laboratory investigations

Among the participants clinically diagnosed with vaginitis, cervicitis and pelvic inflammatory disease it was reported that 6.07%, 5.85% and 2.6% were confirmed to be suffering from candidiasis, bacterial vaginosis and trichomoniasis, respectively, through the laboratory investigation (Table 2).

Table 2: Proportion of RTI based on gynecological examination and laboratory investigations.

	N (%)	95% CI
Particulars		
Participants with any symptom of RTI	256 (55.5)	51.0 – 60.0
Participants with two or more symptoms of RTI	127 (27.55)	23.7 - 31.8
Gynecological examination		
Cervicitis	44 (9.54)	7.2-12.6
Vaginitis	56 (12.15)	9.5-15.5
PID	15 (3.25)	2.0-5.3
Laboratory investigations		
Candidiasis	28 (6.07)	4.2-8.6
Bact. vaginosis	27 (5.86)	4.1-8.4
Trichomoniasis	12 (2.6)	1.5-4.5

Associated factors for RTI

In this study, 407 participants were reported to be literate and 54 were illiterate and among illiterates 41 participants and among literates 166 participants were found to have RTIs. This was found to be statistically significant ($p<0.005$) with odds ratio (OR) 4.6. Also there was no association found between other factors like occupation and RTI.

DISCUSSION

This study was undertaken among women in reproductive age group 15-49 years, to assess the burden of reproductive tract infections among them. RTIs being a burden, especially in rural areas of developing countries among the reproductive age group women as this age group is both sexually active as well as highly fecund and both being risk factors for acquiring RTIs.

In this study, by clinical examination it was found that 9.54% and 12.14% were suffering from cervicitis and vaginitis, respectively. Also prevalence of PID was reported as 3.25% in this study, which is comparable to the study done by Vasireddy et al in Andhra Pradesh where prevalence of PID was found to be 5.29%.[8] In another study, prevalence of 2.5% was reported in Maharashtra by Chauhan et al.[9]

The prevalence of candidiasis in the present study was found to be 6.07%. This is comparable to the study done by Arora et al in Haryana which reported the prevalence of candidiasis as 4.2%.[5] Also, another study had done by Agarwal in New Delhi reported the prevalence of candidiasis as 13.7%.[10]

Bacterial vaginosis was detected in 5.85% of the women, in this study, which is comparable with the study done to find the prevalence of bacterial vaginosis by Das et al in Odisha reported 8% and Agarwal et al in New Delhi reported 21.4%.[10,11]

Trichomoniasis was found to be present in 2.6% of the participants. The prevalence obtained in this study is comparable to that obtained by Agarwal et al who reported a prevalence of 0.4%.[10] This figure was slightly lower than the prevalence (4.3%) obtained by Garg et al in urban slums of India.[12]

Similar to this study, a study done by Sreeelatha et al in Karnataka reported high prevalence of RTI/STI was found among illiterates (40.9%) and also reported that RTI decreases with the increasing level of education and found to be lowest in degree holders and above group (20.8%).[13] A cross sectional study was done by Rani et al in rural Uttar Pradesh also showed decreasing trend in RTI occurrence with higher levels of education.[14] Occurrence of RTIs was higher among illiterates than among literates. This clearly depicts that with proper education of women better awareness can be created among women in order to prevent the reproductive tract infections.

Strengths and limitations

This study was conducted in rural area of Kanchipuram district in Tamil Nadu, where not many studies were done to find the prevalence of RTI. Also there were some limitations in this study that should be noted. Since the study was conducted in the rural area, due to lack of infrastructure the gold standard test for diagnosing the RTI were not used.

CONCLUSION

With this increasing burden of RTIs, it is necessary to take measures to reduce the RTI's prevalence. Though the education status of women is better, the prevalence of RTI especially candidiasis, bacterial vaginosis and trichomoniasis are still high and this depicts that still there is a lack in the knowledge about RTIs and about its preventive measures.

Recommendations

Health programmes and MCH services are to be structured in such a way that it should deliver intensive education and create awareness about the RTIs and their modes of spread in order to prevent the RTIs. Also proper menstrual and perineal care should be though for all women especially during their adolescent age itself. Training the health care workers in the aspects of picking the cases, suffering from RTI and early treatment and improving the infrastructure of primary health centers in rural areas with appropriate laboratory investigations to diagnose RTI is needed.

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