

Reproductive tract infections among women attending gynaecology outpatient department

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ABSTRACT

BACKGROUND: Women often suffer silently with reproductive tract infections (RTIs) and sexually active young women are particularly susceptible to sexually transmitted Infections (STIs). The study aimed to know the prevalence of reproductive tract infections among married women attending Gynecological Outpatients Department of Tribhuvan University Teaching Hospital (TUTH), Kathmandu, Nepal.

MATERIALS AND METHODS: A hospital based cross-sectional design was used to investigate RTIs among women attending outpatients department of Gynae and Obstetrics, TUTH from July to November, 2006. A total of 208 samples from 104 women were examined microscopically and culture using standard microbial technique to investigate etiological agents of RTIs. Study samples were selected and examined on the basis of either having discharge or complaints of lower abdominal pain.

RESULTS: A total of 208 samples collected from 104 patients were examined and 26% samples were positive for different causative agents of RTIs. Thirty percent of women reported having symptoms related to RTIs and was common in young married women. Nineteen percent had STIs. Thirteen percent had trichomoniasis and 7% had gonorrhoea identified in Gram stained smears and cultures. Many women had endogenous RTIs. Bacterial vaginosis was diagnosed in 15% and vaginal candidiasis in 25% of women.

CONCLUSIONS: Young married women have a high prevalence of RTIs. Education and outreach programs are needed to reduce embarrassment and lack of knowledge related to RTIs. The low socio-economic status of women appears to have influence on high rate of infections.

KEYWORDS: Gynecological department, Married women, Reproductive tract infections, TUTH

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INTRODUCTION

Many women and men suffer from reproductive tract infections (RTIs), including sexually transmitted infections (STIs). Sexually transmitted diseases (STD) continue to be a major and growing public health problem in many parts of the world, especially in developing countries where estimated 340 million new cases of curable STIs occur each year, and 151 million of them in South and South Asia alone.¹

STIs are among the top five disease categories and about one third of STIs globally occur among people younger than 25 years of age.² WHO estimated that 400,000 new cases of STIs occur daily in the South East Asian Region (SEAR) alone.³ Centers for Disease Control (CDC) estimates that 19 million new infections occur each year, almost half of them among young people age 15 to 24 years.⁴

STIs are also common in Nepal. The high prevalence of STI in Far Western and Mid Western regions of Nepal could be attributed to the presence of certain communities like *Deuki* and *Badi*, who are engaged in commercial sex and have been found to be suffering from STIs.⁵ RTI often cause discomfort and there is a loss of economic productivity. The most serious long term sequelae in women are pelvic inflammatory disease (PID), infertility and cervical cancer, the latter of which may lead to maternal death.⁶ The prevalence of STIs increases the risk of the acquiring and transmitting HIV infections by three to five times.⁷ In Nepal, women are reluctant to seek medical treatment because of lack of privacy, lack of female doctor at the health facility and higher cost of treatment. The reluctance is exacerbated when symptoms are embarrassing, as they are with RTIs, especially among adolescents.

The gynecology morbidity was high among the female because still they keep secret about their gynecological problems.⁸ Furthermore, women, more so than men, tend to regard RTI symptoms as normal discomfort and therefore often do not seek treatment.⁹ The distribution of different RTIs such as Trichomoniasis (14%), Gonorrhoea (9%), Bacterial Vaginosis (16%) and Vaginal Candidiasis (34%) was found among the patients visiting at TUTH.¹² The RTIs among young married women is understudied in patients visiting this centre. hence we studied the prevalence of RTIs among married women attending Gynecological Outpatients Department of Tribhuvan University Teaching Hospital (TUTH), Kathmandu, Nepal.

METHODS

A hospital based, cross-sectional study was conducted from July to November 2006 at outpatients department of Gynecology, TUTH to investigate RTIs among married women aged 15-49 years.

A total of 208 samples (104 vaginal discharge and 104 endocervical discharge) were collected. Study samples were selected from patients either having vaginal discharge or complaints of lower abdominal pain in women aged 15-49 years. Trichomoniasis, gonorrhoea, bacterial vaginosis, and vaginal candidiasis and other parameters like socio-demographic, educational, marital, reproductive status were investigated. Syphilis and Chlamydial infection were not investigated. Unmarried women in whom a speculum examination was not deemed culturally appropriate were not included in the study. Pregnant women reported of having missed periods, active bleeding per vagina or with history of birth in the previous six weeks were not included in the study. RTIs were diagnosed as mentioned in table 1.¹¹

Ethical approval was taken from the Institutional Review Board, Institute of Medicine, Maharajgunj, and Kathmandu. Prior verbal and written consent was taken from all patients. A standard questionnaire was developed to collect the patient characteristics and consent was taken from respondents and hospital then administered to each patient. The collected data were entered and analyzed by using Statistical Package of Social Sciences version 16 (SPSS v 16). Chi-square test (χ^2) was used to compare the categorical data.

RESULTS

One hundred four patients were included in the study. The mean age of the women was 35.5 years. Majority of the women were illiterate and belonged to Brahmin ethnic group (33%) (Table 2). Regarding occupation of husbands, most of them were salaried workers (32%), followed by laborer (22%), small business (13%), military (12%), farmers (11%), transport workers (5%) and remaining 5% had other occupations (data not shown).

Women's' mean age at menarche was 14.5 years and mean age at marriage was 18 years. The majority had been pregnant twice or thrice and had two children but 10% had never been pregnant.

Table 1. Diagnostic criterion for laboratory –diagnosed RTIs and other gynecologic conditions¹¹

Laboratory-Diagnosed RTIs	Diagnosis Criteria
STIs	
• Trichomoniasis	Positive wet mount preparation test
• Gonorrhoea	Isolation of <i>Neisseria gonorrhoeae</i> from cervical culture or identification of gram- negative intracellular diplococci in Gram-stained cervical smear
Endogenous infections	
• Bacterial vaginosis	Presence of at least three of the following: (a) Positive amine test (b) presence of clue cells in Gram-stained vaginal smear (c) vaginal fluid pH >4.5 and (d) Homogenous white gray discharge that stick the vaginal walls
• Vaginal candidiasis	Positive culture for <i>Candida</i> with the presence of clinical sign (red inflamed tissue and curdy white discharge)

Table 2. Educational status of patients

Education	RTIs (n=104)		Total	χ^2 value
	Yes n (%)	No n (%)		
Illiterate	17 (44)	22 (56)	39	8.52
Primary	5 (23)	17 (77)	22	
High school	5 (23)	17 (77)	22	
College and University	2 (10)	19 (90)	21	
Total	29	75	104	

Majority of women were living with their husband, one woman was widowed, two women were divorced, 10% of the women were separated from husband and 14% of their husbands were living away from home (data not shown). Thirty percent of women reported having gynecological symptoms. A total of 208 samples (104 vaginal discharges and 104 endocervical discharge) from 104 patients were examined. Out of which 26% samples were positive for different causative agents of RTIs.

Overall, 60% of the women had laboratory-diagnosed RTIs (Table 3). Among the 104 women who reported excessive vaginal discharge, 62% had RTIs, according to the laboratory finding (Not shown). Fifteen percent women reported still birth among them; 25% had RTIs and 44% had endogenous infections. Seven percent women had miscarriage; 29% had RTIs and 29% had endogenous infection among them. Most of the women who had RTIs were in age group 25-35 years however this was insignificant (Table 4).

DISCUSSION

A total positive RTI cases were 26.4 % detected by examination of vaginal and endocervical swabs. Among the positive, the vaginal swabs showed 61.5% and endocervical swabs showed 7% positive

for different etiological agents of RTIs, a rate well correlated with study conducted in TUTH Nepal.¹² Four types of microorganisms have been identified, where most predominant organism was *Candida albicans* 25%. The prevalence rate was followed by *G. vaginalis* 14.4%, *Trichomonas vaginalis* 12.5%, and *Neisseria gonorrhoeae* 6.7% intracellular diplococci 5.8%. These different aetiological agents of RTIs are highly related to each other (χ^2 calculated value is much grater than tabulated value). These all types of infection are transmitted by similar type of mode of transmission. Those finding were similar to another study conducted at TUTH, the prevalence of *Trichomonas vaginalis* 13.8%, *G. vaginalis* 15.59%, *Candida albicans* 23.9%, *Neisseria gonorrhoeae* 8.8%, Gram-negative intracellular diplococci 6.4% (Table 5).¹² Bacterial infections of the genital tract are common and cause significant morbidity. In a study carried out in South the incidence of sexually transmitted infection were *G. vaginalis* 6.2% and *N. Gonorrhoea* 5.7%.²¹

The proportion of women experiencing RTIs was high in the patients studied. Most of the women with RTIs were in age group 25- 35 years, were married and living with husbands. However, no significant relationship was established between age group and RTIs syndrome ($P>0.05$). Rates of laboratory -diagnosed RTIs in this study were

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Table 3. Laboratory diagnosed RTIs and other gynecological condition, by presence of symptoms

RTIs		Yes,	No	Total	χ^2 value
		n (%)	n(%)		
STIs	Trichomonas	13(13)	87(87)	104	61.03
	Gonorrhoea	7(7)	97(93)	104	
Endogenous infection	Bacterial vaginosis	16(15)	84(85)	104	
	Vaginal candidiasis	26(25)	78(75)	104	
	Total	62	346	416	

RTIs, reproductive tract infections; STIs, Sexually transmitted infections

Table 4. Correlation between age group and RTIs syndrome

Age groups (Years)	Yes	No	Total	χ^2 value
				1.76
Up to 35	33	22	55	
Above 35	18	27	45	
Total	51	49	100	

generally lower than those found Maharashtra State of India, Nigeria and Nairobi study but infection rate was higher than Tamilnadu India, and Bangladesh.^{15, 18,, 20, 14, 19} The infection rate is quite similar to another study in Nepal, New Guinea.^{12, 16} The higher rate in the other studies may be attributed to a wider age range of participants and the fact that adolescent women had been sexually active. It is difficult to compare the incidence of STIs in one region with that of other because of different medical, social and economical factors. RTIs rate were much low in Bangladesh and Tamilnadu and much higher in the Maharashtra state of India.^{19,14,15} The variations may be caused by differences in sexual norms and practices, which may affect exposure to RTIs, as well as by difference in willingness to report symptoms or be examined. Women in rural Bangladesh may be more secluded *Neisseria gonorrhoeae* is associated with behavior

of persons. Nepal is still largely a traditional and live in more conservative sexual milieu.¹³ By contrast, social values in tribal areas such as that in the Maharashtra state of India study commonly allow more sexual freedom.¹⁹

In this study gonococcal infection rate was much higher than elsewhere.^{15, 16, 17,18,19,20} The organism *Neisseria gonorrhoeae* is associated with behavior of persons. Nepal is still largely a traditional country and multiple sex partners of married women are very rare due to cultural, legal and social taboos. The high prevalence might be due to their husbands having multiple sexual practices. High prevalence was found among the laborers' wife. It might be due to unsafe multiple sexual practices, low economic status, lack of education, poor living standard, ignorance and difficulty in accessibility of immediate health care facilities may also attribute to higher rate of STDs.

CONCLUSIONS

Prevalence rate of RTI/STIs was high in illiterate, low socioeconomic status women; vaginal discharge (one of the most important selection criteria), occupation and education were found to

Table 5. Comparison of laboratory diagnosed RTIs with women across the seven countries

Laboratory-diagnosed infection rate %	Nepal (Present study) n= 104	Nepal ¹³ n=150	Tamilnadu India ¹⁴ n=451	Maharashtra India ¹⁵ n= 650	New Guinea ¹⁶ n=210	Egypt ¹⁷ n=509	Nigeria ¹⁸ n= 410	Bangladesh ¹⁹ n= 804	Nairobi ²⁰ n= 55
Trichomonas	13	14	1	14	46	18	9	0.8	20
Gonorrhoea	7	9	10	3	1	0	3	5	3
Bacterial Vaginosis	14	16	#	62	#	9	22	6	21
Vaginal Candidiasis	25	24	1	34	#	11	62	7	26

Unavailable

pose a remarkable risk to contribute to STIs. Women need accurate health education about gynecologic and reproductive morbidity to reduce stigma and embarrassment of RTIs. Health personnel at gynecological department and associated clinics now routinely ask married women if they are experiencing RTI symptoms, a practice that has promoted both education and treatment. Similar education and health care efforts implemented on a wider scale could dramatically improve the health of young women in Nepal.

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CONFLICT OF INTERESTS: None to declare

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