

## Reproductive Tract Infections - Clinicoepidemiological Study Among Women Attending Tertiary Health Care Center, Ananthapuramu District, Andhra Pradesh.

Srinivasa Kumar PV<sup>1</sup>, Padmaja P<sup>2</sup>

<sup>1</sup>(Department of Community Medicine, Govt. Medical College, Ananthapuramu, India)

<sup>2</sup>(Department of Anatomy, Govt. Medical College, Ananthapuramu, India)

---

**Abstract:** RTIs are also known to act as one of the risk factor for transmission of HIV. The Objectives of the present study is to find the prevalence of Reproductive tract infections among both symptomatic and asymptomatic women and also to assess the levels of knowledge of women regarding RTIs and its prevention after taking treatment. 122 married asymptomatic and symptomatic women were explained about the study. Diagnosis of RTIs and treatment has given to patients based on the relevant history, gynecological examination, vaginal or cervical discharge examination. 60% and 72.7% were from lower socioeconomic status among symptomatic and asymptomatic women. Among various clinical presentations of both symptomatic and asymptomatic women, vaginitis was found to be predominant (26.2%) followed by cervicitis - 20.4%. Among which the candidiasis was higher among both asymptomatic and symptomatic women. Follow up cases, vaginitis and vulvitis was cured in 93.7% of studied women, cervicitis was cured in 23 (92%) out of 25 cases. Need to create awareness among rural and urban slum communities about menstrual and genital hygiene, advice to seek health care by both husband and wife, educate them about chances of acquiring STIs with multiple partners and the morbidity associated with RTIs.

**Key Words:** Reproductive Tract Infections, Women, Asymptomatic Women and Symptomatic Women.

---

### I. Introduction

Reproductive tract infections (RTIs) are the infections which affects any organ related to genital tract. Reproductive tract infections especially sexually transmitted infections causing a major gynecological problem worldwide. RTIs are also known to act as one of the risk factor for transmission of HIV, especially non ulcerative lesions increase the risk of transmission of HIV by 3-5 folds.

Sexually Transmitted infections (STIs) in the community were widespread due to migration of population from rural to urban areas, rise in population and increase in lack of sexual discrimination [1]. WHO estimates that each year there are over 340 million new cases of sexually transmitted infections reported in which 75-85% occur in developing countries. In India alone, 40 million new cases emerge each year [2].

RTIs can affect both men and women. Here RTIs among women were studied, as infections and consequences were very devastating among women. Women with asymptomatic infections were more important in spreading STIs in the community.

Women with STIs presents with various pathological lesions like vaginitis, bacterial vaginosis, cervicitis, salphingitis, endometritis and ulcerative lesions and many consequences also occur with RTIs, such as ectopic pregnancy, miscarriage, infertility, cervical carcinoma, pelvic inflammatory disease and also affects the fetus presenting with IUGR, Conjunctivitis, pneumonia, congenital anomalies etc. These consequences may be severe in some cases [3,4]. RTIs are also responsible for increasing in morbidity and mortality around the world [5].

Reproductive tract infections may also present as asymptomatic among women which cause widespread of disease in the community and also responsible for severe morbidity. Women show less interest on health seeking and have minimal knowledge on sexually transmitted infections. Besides this, many primary health centers do not have enough laboratory facilities to diagnose RTIs. Not only motivating women towards treatment and educating them about the consequences of RTIs, there is a need of availability of diagnostic facilities at primary health centers [4,6].

The Objectives of the present study is to find the prevalence of Reproductive tract infections among both symptomatic and asymptomatic women and also to assess the levels of knowledge of women regarding RTIs and its prevention after taking treatment.

### II. Materials And Methods

The study was done in OPD, in a tertiary care hospital at Anantapuram for one year. It is a prospective study with follow up of women attending Government General Hospital with various complaints such as vaginal

discharge, complaints related to pelvic inflammatory disease (PID), family planning services, dyspareunia and abdominal pain.

Married women with the age group of 18-60 years were included and pregnant women, women in postpartum period were excluded from the study.

A total of 153 patients were considered while doing this study, among them 31 patients were absconded because of various reasons. Remaining 122 asymptomatic and symptomatic women, presented with various clinical findings were included in the present study and they were explained about the study. Informed consent has been taken from them. Ethical committee has approved to do this study

Symptomatic women (n=100) were those presented with complaints of vaginal discharge, dyspareunia, pruritus, dysuria, skin erosions near vagina, lower abdominal pain and fever.

Patient's detailed history regarding socioeconomic status, her menstrual, gynecological history and their chief complaints were noted. Patients were enquired thoroughly for any medical illness like tuberculosis, epilepsy, hematological abnormalities, hypertension and diabetes.

Vagina and Cervix was examined carefully using Sims speculum for any discharge, erosions, ulcers and abnormal growths. Vaginal discharge was collected from proximal vagina using Sims speculum. Discharge was smeared on a dry clean glass slide for wet mount and gram stain to look for any clue cells, trichomonas vaginalis, candida and other bacteria.

PH of vaginal secretions was measured using pH indicator papers and Amine test was done using 10% potassium hydroxide at Gynaec OPD (Out Patient Department) and the results were noted to detect bacterial vaginosis and nonspecific vaginitis cases. After obtaining report of wet mount and gram stain, it was correlated with clinical symptoms and signs.

Based on these findings, appropriate treatment was given to patients. Those patients in whom the symptoms were not relieved even after treatment and the patients above 45 years advised for pap smear.

Results were assessed and tabulated.

### **III. Results**

Asymptomatic and Symptomatic married women in the age group of 18-60 years were assessed for Reproductive tract infections.

Among 122 women most commonly affected age group was 26-35 years followed by 15-25 years. Most of them were came from urban slum areas (59.8%). 60% and 72.7% of the studied population were from lower socioeconomic status among symptomatic and asymptomatic women (Table.1).

Most of the patients were presented with complaining of vaginal discharge (82%), followed by 79% itching, 58% dyspareunia and lower abdominal pain and backache was 53% among symptomatic women.

Among various clinical presentations of both symptomatic and asymptomatic women, vaginitis was found to be predominant (26.2%) followed by cervicitis - 20.4%. Various clinical signs were tabulated in Table.2.

Clinical presentations reported among symptomatic and asymptomatic women were vaginitis (26% and 27.2%), cervicitis (21% and 18.1%), vulvitis (15% and 4.5%), cervical hypertrophy (9% and 13.6%), pelvic inflammatory disease (11% and 9%), cervical erosion (5% and 9%) and fibroid uterus (6% and 18.1%). 6% uterine prolapse and 2% cervical malignancy were observed only in symptomatic women.

After obtaining results of wet mount and gram stain, various etiology of vaginal discharge was assessed. Among which the candidiasis was higher among both asymptomatic and symptomatic women (Table. 3).

Asymptomatic and Symptomatic women were treated accordingly and advised to patients to come for follow-up. During follow up, on examination vaginitis and vulvitis was cured in 93.7% of studied women, cervicitis was completely cured in 23 (92%) out of 25 cases (Fig.1). About 25% of PID, fibroid uterus, cervical erosion and hypertrophy were not cured with treatment.

Out of 122 cases, 15 (12.2% ) were not completely cured with appropriate treatment. Pap smear was advised to those patients. 5 patients did not come for follow up. Pap smear findings was assessed in only 10 patients, inflammatory smear was noted in 7 cases (70%) and mild dysplasia was noted in 3 cases (30%).

### **IV. Discussion**

Many women are facing much problem due to reproductive tract infections (RTIs) worldwide. RTIs are more prone in low socioeconomic status and uneducated people. Most of the women staying in rural and urban slums have less knowledge about sexual promiscuity, menstrual and genital hygiene. RTIs are one among the risk factor for transmission of HIV.

Reproductive tract infections are responsible for increasing the morbidity and mortality. Cervical Malignancies were diagnosed every year about 5,29,828 and 2,60,000 deaths occurring globally [7]. In

developing countries STIs are among top five disease categories, and about one third of STIs occurring globally among people younger than 25 years of age [8].

In the present study among 122 women most commonly affected age group was 26-35 years followed by 15-25 years. Most of them were came from urban slum areas (59.8%). 60% and 72.7% of the studied population were from lower socioeconomic status among symptomatic and asymptomatic women. Most of them were married women - 76.2%.

In similar to this study, Kosmabiya JK et al [9] documented that RTIs were prevalent among women hailing from urban areas (69%) than rural areas (53%) and they also reported that majority of them were in age group of 26-35 years. Nandan D et al [10] observed that more than two third of women were less than 34 years of age and the prevalence of RTIs were 35.2% with rural prevalence of 49%. Because young adults involve more in sexual activities, most affected age group was less than 35 years.

Most of the patients were presented with complaining of vaginal discharge (82%), followed by 79% itching, 58% dyspareunia and lower abdominal pain and backache was 53% among symptomatic women. Nandan D et al [10] also observed in line with this study as vaginal discharge 94% followed by lower abdominal pain 55%, backache 70% and vulval itching 49%. Kamal Hazari et al [11] documented that out of all women studied, 41% women complained of excessive vaginal discharge.

Among various clinical presentations of both symptomatic and asymptomatic women, vaginitis was found to be predominant (26.2%) followed by cervicitis - 20.4%. Clinical presentations reported among symptomatic and asymptomatic women were vaginitis (26% and 27.2%), cervicitis (21% and 18.1%), vulvitis (15% and 4.5%), cervical hypertrophy (9% and 13.6%), pelvic inflammatory disease (11% and 9%), cervical erosion (5% and 9%) and fibroid uterus (6% and 18.1%). 6% uterine prolapse and 2% cervical malignancy were observed only in symptomatic women.

Jasmin Helen prasad et al [12] reported that prevalence of RTIs was 40%. Among Reproductive tract infections 80% had cervicitis and 6% had Pelvic Inflammatory disease. Aggarwal et al (13) reported that 32% of women examined had vaginitis, 21% women had cervicitis, and 19% of women had pelvic inflammatory disease Alpna Thakur et al [14] reported that bacterial vaginosis (38.2%) was the most common presentation followed by candidial vulvovaginitis (32.1%). Other STIs such as molluscum contagiosum and anogenital warts were observed in various studies on reproductive tract infections[14,15,16].

In the present study candidiasis was detected in 44%, followed by 32% bacterial vaginosis and 24% of trichomoniasis in symptomatic women by wet mount and gram stain examination. Asymptomatic women have shown more percentage than symptomatic women in this study, this may be due to lesser sample size of asymptomatic women. Shalini S et al [17] reported that candidiasis is the predominant finding followed by trichomoniasis. Aggarwal et al [13] observed that 48% had bacterial vaginosis, 0.8% had fungal infection and 9% had trichomonal infection. Neeria J et al [18] documented that commonest RTI was bacterial vaginosis (11%) followed by candidiasis (4%).

Asymptomatic and Symptomatic women were treated accordingly and advised to patients to come for follow-up. During follow up, on examination vaginitis and vulvitis was cured in 93.7% of studied women, cervicitis cases were completely cured in 23 (92%) out of 25 cases. About 25% of PID, fibroid uterus, cervical erosion and hypertrophy were not cured with treatment. Out of 122 cases, 15 (12.2% ) were not completely cured with appropriate treatment. Pap smear findings was assessed in only 10 patients, inflammatory smear was noted in 7 cases (70%) and mild dysplasia was noted in 3 cases (30%).

About 16.9% of patients were not relieved of symptoms because of many reasons such as less knowledge on genital hygiene, absence of sexual promiscuity, ignored treatment due to social stigma, partners are not seeking informal advice, unable to perceive morbidity related to RTIs, low literacy. 5% of women with RTIs were observed with mild dysplasia changes in cervix. Asymptomatic women those who have clinical findings related to RTIs/STIs should screen properly to reduce the prevalence of RTIs. As PID, Cervical erosion, Cervical hypertrophy are not completely cured in most of the patients and have more chances of turning in to malignancy, hence they have to be screened and advised for Pap smear.

## V. Figures And Tables

Table No.1 Characteristics of Studied population

Demographic features	Symptomatic Women (n=100)	Percentage (%)	Asymptomatic Women(n=22)	Percentage (%)
Rural/Urban distribution				
Rural	39	39	10	45.4
Urban	61	61	12	54.5
Age in years				
15-25	26	26	6	27.2
26-35	58	58	13	59
46-60	16	16	3	13.6
Kuppuswamy Scale				

Upper (I)	0	0	0	-
Upper Middle (II)	14	14	2	9
Middle (III)	26	26	4	18.1
Upper Lower (IV)	43	43	12	54.5
Lower (V)	17	17	4	18.1
Marital Status				
Married	75	75	18	81.8
Widow	11	11	1	4.5
Divorcee	14	14	3	13.6

Table No.2 Clinical presentations among asymptomatic and symptomatic women

Clinical findings	Symptomatic Women (n=100)		Asymptomatic Women (n=22)		Total
	No. of Cases	Percentage (%)	No. of Cases	Percentage (%)	
Vaginitis	26	26	6	27.2	32
Vulvitis	15	15	1	4.5	16
Cervicitis	21	21	4	18.1	25
Pelvic inflammatory disease (PID)	11	11	2	9	13
Cervical Erosion	5	5	2	9	7
Cervical Hypertrophy	9	9	3	13.6	12
Uterine Prolapse	5	5	0	-	5
Fibroid uterus	6	6	4	18.1	10
Cervical Malignancy	2	2	0	-	2
Total	100	100	22	100	122

Table No:3 Etiology of RTIs by wet mount and gram stain examination

Smear Examination	Symptomatic Women (n=100)		Asymptomatic women (n=22)	
	No. of cases	Percentage (%)	No. of cases	Percentage (%)
Candidiasis	44	44	10	45.4
Bacterial vaginosis	32	32	8	36.3
Trichomoniasis	24	24	4	18.8

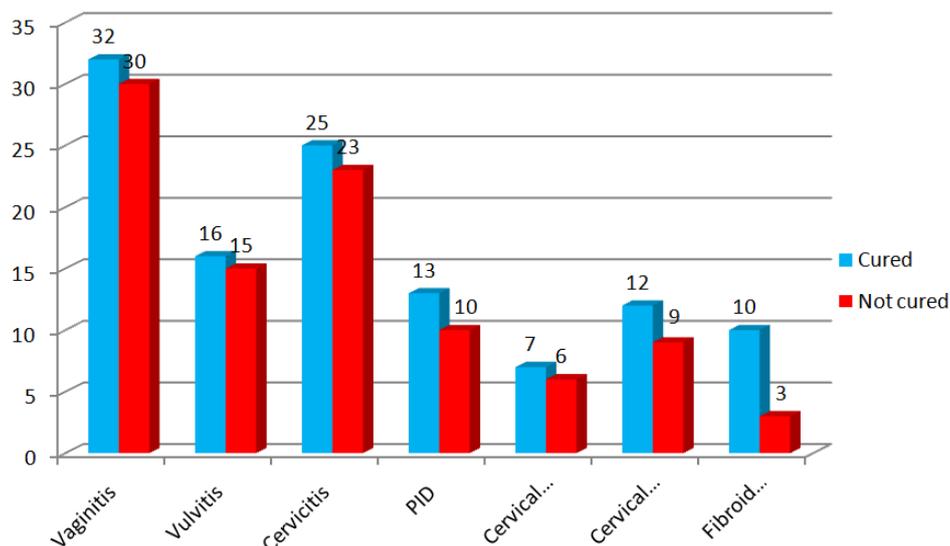


Fig No.1 Representing the percentage of reproductive tract infections cured with appropriate treatment

## VI. Conclusion

This study concluded that there is a need for screening of even asymptomatic women with high reproductive activity. Need to create awareness among rural and urban slum communities about menstrual and genital hygiene, advice to seek health care by both husband and wife, educate them about chances of acquiring STIs with multiple partners and the morbidity associated with RTIs. There is also a need for training of nurses, health workers, dais, anganwadi and ASHA workers regarding RTI identification and referral using syndromic approach. This combined approach will help to reduce the burden of RTI in the community.

### **Acknowledgements**

We are thankful to Obstetrics and Gynaecology Staff for their most support while doing this study especially during follow up. We are also grateful towards Microbiology and Pathology staff for their cooperation in this study.

### **References**

- [1]. YS. Marfatia, A. Sharma, SP. Joshipura., Overview of Sexually Transmitted Diseases. In: Valia RG, Valia AR, Editors. IADVL Textbook of Dermatology. Mumbai, Bhilani Publishing House. 2010, 1766-77.
- [2]. SS. Balmurugan and ND. Bendigeri ND, Community- based study of reproductive tract infections among women of the reproductive age group in the urban health training centre area in Hubli, Karnataka, *Indian J Community Med*, 37, 2012, 34-8.
- [3]. S. Garg, N. Sharma, P. Bhalla, R.Sahay, R.Saha, U. Raina et al, Reproductive morbidity in an Indian urban slum: Need for health action, *Sexually transmitted infections*, 2002;78:68-69.
- [4]. R. Sahay, P. Bhalla, S.Garg, Mehra Malti, An epidemiological and sociological study of symptomatic and asymptomatic RTI and STI among women in an urban slum Report on task force project: Special programme of research development and training in human reproduction, Maulana Azad Medical College New Delhi 2000.
- [5]. A. Meheus, Women's health: Importance of RTI, pelvic inflammatory disease, cervical cancer in reproductive tract infections, Global impact and priorities for women's reproductive health (NY), 1992.
- [6]. K. Maitra, J. Degraft-Johnson, K.K. Singh, A.O. Tsui, Prevalence of self reported symptoms of reproductive tract infections among recently pregnant women in Uttar Pradesh, India, *Indian J Biosoc Sci*, 33(4), 2001oct, 585-601.
- [7]. Global prevalence of cervical cancer. 2010. Available from: [http:// humanpapillomavirus\\_ relatedcancers\\_ WHO.reportupdate.co.in](http://humanpapillomavirus_relatedcancers_WHO.reportupdate.co.in)
- [8]. Ibid and WHO, Young People and Sexually Transmitted Diseases, Fact Sheet, Geneva: WHO, 1997, No. 186.
- [9]. J.K. Kosambiya, K. Vikas Desai, Pankaj Bhardwaj and Tanuja Chakraborty, RTI/STI prevalence among urban and rural women of Surat: A community-based study, *Indian J Sex Transm Dis*, 30(2), 2009 Jul-Dec, 89-93.
- [10]. D. Nandan, SK. Misra, A. Sharma, M. Jain, Estimation of prevalence of RTIs/STDs among women of reproductive age group in district Agra, *Indian J Community Med*, 27, 2002, 110.
- [11]. A. Kamal Hazari, A study on prevalence of RTI among attending NIRRH clinic, Mumbai. Available from: <http:// icmr nic.in/RTI/pdf>.
- [12]. Jasmin Helen Prasad, Sulochana Abraham, M. Kathleen Kurz, Valentina George, MK. Lalitha, Renu John, MNR. Jayapaul, Nandini Shetty and Abraham Joseph, Reproductive Tract Infections Among Young Married Women in Tamil Nadu, India, *International Family Planning Perspectives*, 31(2), 2005 June.
- [13]. A.K. Aggarwal, R. Kumar, V. Gupta, M. Sharma, Community based study of reproductive tract infections among ever married women of reproductive age in a rural area of Haryana, India, *Journal of Communicable Diseases*, 31, 1999, 223-28.
- [14]. Alpna Thakur, Sita Malhotra and Suhail Malhotra, Clinico-epidemiological profile of 1000 patients attending STI/RTI clinic, *Egyptian Dermatology Online Journal*, 9(2), 2013 Dec.
- [15]. S. Choudhry, V.G. Ramachandran, S. Das, S.N. Bhattacharya, N.S. Mogha, Pattern of sexually transmitted infections and performance of syndromic management against etiological diagnosis in patients attending the sexually transmitted infections clinic of a tertiary care hospital, *Indian J sex Transm Dis*, 31(2), 2010, 104-8.
- [16]. S. Choudhry, VG. Ramachandran, S. Das, SN. Bhattacharya, NS. Mogha. Characterization of patients with multiple sexually transmitted infections: A hospital based survey, *Indian J sex Transm Dis*, 31(2):87-91, 2010.
- [17]. S. Shalini, NS. Murthy, Chandrasekhar Nooyi Shalini, MS. Rajanna, V. Geethamani, Study of Reproductive tract infections among women attending urban health centers in Bangalore city. *Indian J. Prev. Soc. Med*, 42(3), 2011, 268- 272.
- [18]. J. Neerja, A. Aruna, G. Paramjit, S. Bableen, BS. Babica, Community-based study of reproductive tract infections, including sexually transmitted infections among the rural population of Punjab, India, *Indian Jour Community Medicine* , 34, 2009.