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PREVALENCE OF REPRODUCTIVE TRACT INFECTIONS AMONG PREGNANT WOMEN IN TERTIARY CARE SET UP NAGPUR MAHARASHTRA

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ABSTRACT A study conducted during January 2013 to June 2015 among pregnant women attending Govt Medical College and Hospital a tertiary care set up at Nagpur Maharashtra. Aim is to know the prevalence of reproductive tract infections (RTIs) among pregnant women and the type of infections. All pregnant women attending the outpatient department for antenatal check up were enrolled. Sociodemographic information and history were obtained from each enrolled subject on prestructured proforma. Specimens were collected for laboratory analysis of RTIs. Prevalence of RTI of 77.7% were found. Most prevalent were endogenous infections i.e. Vaginal Candidiasis 50.99%, Bacterial Vaginosis 22.66% & Trichomonas Vaginalis 15.01%. Streptococcus in 1.98%. All were negative for Gonorrhea and Syphilis.

Summary: RTIs are major public health problem among pregnant women complicating pregnancy in India. Where resources allow, routine screening and treatment of RTIs/STIs in the antenatal care setting should be offered and steps should be taken for early diagnosis and detection.

KEYWORDS : reproductive tract infections, prevalence, type of infections,

INTRODUCTION

Reproductive tract infections (RTIs) including both sexually transmitted and non-sexually transmitted infections of reproductive tract are responsible for major ill health throughout world.[1] WHO estimate that each year there are 340 million new cases of sexually transmitted infections arising among which 75.85% occur in developing countries .In India alone, 40 million new cases emerge each year.[2]

RTIs are due to endogenous organisms and/ or iatrogenic organisms. Endogenous RTIs are widespread among pregnant women, mainly due to overgrowth of organisms normally present in vagina, as a result of hormonal changes .They can be readily treated ,if not, they cause varying degree of discomfort from local irritation to pelvic inflammatory disease .The consequences of RTIs in pregnant women include abortion, post abortal sepsis, stillbirth, preterm delivery, premature rupture of membrane, postpartum haemorrhage, puerperal sepsis, low birth weight, intrauterine growth restriction, neonatal pneumonia, neonatal blindness, congenital infections and anomalies and also facilitate transmission of HIV[3].

Many studies have found a high prevalence of RTIs among pregnant women. It was reported that around 90% of reproductive tract infections were caused by Candida albicans, Bacterial Vaginosis,and Clamydia Trachomatis.[4,5,6]

Since these diseases lead to many complications, it is of prime importance to know the prevalence of the disease, causative organisms and attributing factors affecting the prevalence among pregnant women. So this observational cross sectional study was carried out to determine prevalence of RTIs among pregnant women visiting antenatal care unit of a tertiary care set up.

METHODOLOGY:

Aims and objective : nd Gynecology , a tertiary care health set up medical college Nagpur Maharashtra.

It is an Observational, Cross sectional study conducted during January 2013 to June 2014. All pregnant women attending antenatal care unit of tertiary care health centre were included in the study.

Exclusion criteria :

1. Subjects on antimicrobial therapy in preceding 2 weeks
2. Subjects having active vaginal bleeding

Based on previously published data with sample size of 453 pregnant women was estimated with 95% confidence interval with 3%permissible error covering ± 1.96 under normal curve (power of study 0.8) (ref. study was conducted in July 2010 at Hubli Karnataka, where prevalence of RTIs was 51.3%)[7]

In this cross sectional study 453 pregnant women were recruited. Random Number was generated by using random number table, i.e.10. So every consecutive 10th patient was involved in study and examined at their first visit. Informed written Consent of participant were taken and enrolled in the study group.

After enrollment, based on standard prestructured proforma history was recorded includes demographic data, general medical history, recent medication, including antibiotics, obstetric and gynecological history, past and present signs and symptoms possibly relevant to lower genital tracts infections. After gynecological examination including per speculum examination following specimen were taken for further evaluation

I. Vaginal swab

1.Swab was dipped in normal saline for wet mount, and KOH mount , and gram staining
2.Second vaginal swab was inoculated in transport media for culture

II. Endocervical swab

3. Smear was prepared for direct microscopy.
4. Other swab in special transport media for culture.

III. Venous blood sample: 5ml blood was collected for VDRL and HIV test.

These samples were transported to microbiology department of same hospital and following tests were performed :-

- A wet mount of vaginal fluid was prepared and examined microscopically for presence of mobile oval flagellated protozoa s/o Trichomonas Vaginalis.
- Amine test preformed i.e. few drops of KOH solution were added to sample and a strong fishy odor indicates Bacterial Vaginosis. (whiff test)
- A smear of vaginal fluid was prepared and fixed with methanol

for gram staining. Smear evaluated under microscope for streptococci, yeast cells (Candidiasis), clue cells (Bacterial Vaginosis),

- Vaginal fluid from another swab were inoculated on SDA, after a sufficient growth on SDA, a standard germ tube test done (Candida Albicans).

A smear prepared from endocervical swab fixed with methanol for gram staining and evaluated by direct microscopy for N.Gonococci.

- other swab that was transported in special transport medium was incubated for culture of gonococci for confirmation.
- The sera were screened for antibodies to Treponema Pallidum by VDRL test, if positive, then confirmed by TPHA test. A patient is considered to have syphilis if both VDRL and TPHA test were positive.
- HIV was diagnosed by three step test according to NACO guidelines (trispot ,tridot and combet).

Pregnant women with RTIs were treated according to type of infection. All women were encouraged to inform their partner and to bring them for counselling and testing and treatment Statistical test like proportions and Chi-square test were used. Data was tabulated on Microsoft excel sheets and analysis done using SPSS version -16. P value <0.05 will be considered significant.

RESULT:

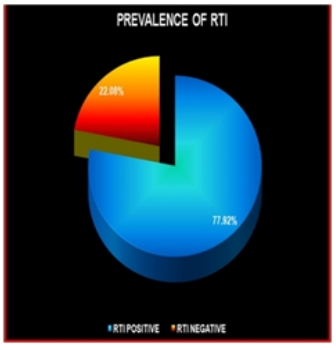

Figure no 1: PREVALANCE OF RTIs

Total 453 patients were recruited in this study 353 women were positive for RTIs. Figer no.1 shows the prevalence of RTIs among pregnant women is 77.92%. Hence further analysis done in 353 patients positive for RTI.

Figure no 2 shows that out of 353 positive cases of RTI 301 were symptomatic and 52 were asymptomatic. Table no 1 shows the trend of positive findings of RTIs in relation to age with maximum proportion between 21-29 yrs group of 58.64% and it is less in age group 18-20yrs (18.41%), 30-39yrs (21.52%)and >40yr (1.41%). The difference was statically significant (p value<0.05). Also shows that RTI positive cases were found more in rural population (78.75%).

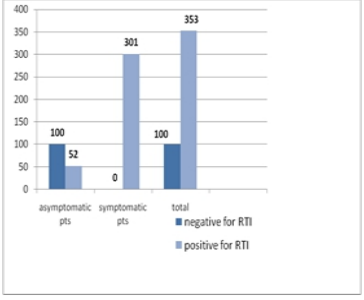

Figure no 2 : Symptomatology (p.value<0.05)

In this study maximum patient with RTI were graduate 218 (61.78%) and 90 (25.49%) patients having secondary education .Very few patients were illiterate and with primary education (0.84%) and (2.26%) respectively.

Most common primary symptom as vaginal discharge in 136(45.18%) cases followed by lower abdominal pain in 56 (18.60%), itching in 56 (18.60%)and dysuria in 53 (17.60%) cases. Most common primary sign as vaginal discharge 226 (64.02%) followed by Erythema 93 (26.34%) and Erythema and Edema both 34 (9.63%). No one had genital ulcer. Out of 226 symptomatic cases 136 had primary symptom of vaginal discharge, 20 patients with primary symptom of lower abdominal pain, 18 patients had primarily Dysuria . Asymptomatic patients with vaginal discharge were 52.

Figure no 3 shows that Endogenous infections were most common. With Vaginal Candidiasis in 180 (50.99%) and Bacterial Vaginosis in 80 (22.66%) pregnant women. This was followed by Trichomoniasis in 53 (15.01%) and Streptococcus in 7 (1.98%) pregnant women. Mixed infections in the form of Candidiasis and Trichomoniasis together was found in 18 (5.09%) pregnant women and Bacterial Vaginosis and Trichomoniasis together in 15 (4.24%) patients. All were negative for gonorrhoea & syphilis.

One patient was positive for HIV who had lower abdominal pain, with erythema and edema and had Candidiasis and Trichomoniasis. Figure no.4 shows The proportion of RTI is found to be maximum in multi gravida i.e. 182 patients (51.55%). In second gravida it was present in 106 patients (30.02%) and in primigravida it was present in 65 patients (17.28%). The incidence of infection increases as parity increases with p value <0.05.

Figure no.5 shows the proportion of RTIs found to be increasing with increasing gestational age. RTI was found in 90 patients (25.49%) with gestational age <20 weeks, 112(31.72%) patients with 21-33 weeks and maximum in 151 (42.77s%) cases with >33weeks of gestation.

Table no 1 : Sociodemographic characteristics, obstetric history and clinical presentation of 353. (symtomatic and asymptomatic pregnant women [n=353]).

Indicator		No of case n=353	Percentage %
AGE	18-20 yrs	65	18.51%
	21-29yrs	207	58.64%
	30-39yrs	76	21.52%
	>40yrs	05	1.41.%
RESIDENCE	Rural	278	78.75%
	Urban	75	21.24%
EDUCATION	Iliterate	3	0.84%
	Primary	8	2.26%
	Secondary	90	25.49%
	Graduate	218	61.75%
	Postgraduate	34	9.63%
SYMPTOMS	Vaginal discharge	136	45.18%
	Lower abdominal pain	56	18.60%
	Dysuria	53	17.60%
	Itching	56	18.60%
CLINICAL SIGNS	Vaginal discharge	226	64.02%
	Erythema	93	26.34%
	Erythema and edema	34	9.63%
	Genital ulcer	0	0

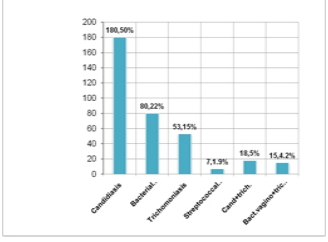

Figure no 3: Type of Infections

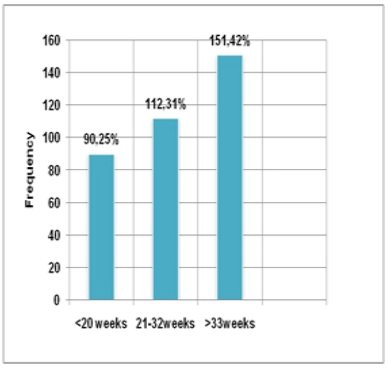

Figure no 4: Parity distribution of RTI positive cases.

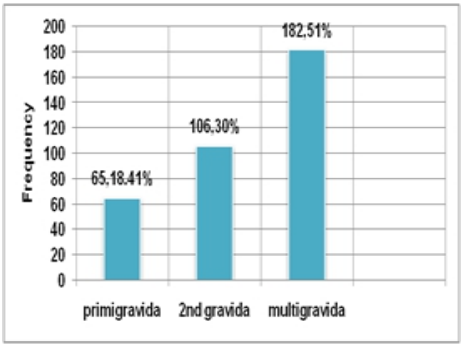

Figure no 5: Relation of Gestational age of RTI positive cases.

DISCUSSION

Reproductive Tract Infections is global health problem including both sexually transmitted infections and not sexually transmitted infections of reproductive tract. RTIs in many cases are asymptomatic among women making their detection and diagnosis difficult.[1]

RTI is most prevalent among women of reproductive age group and also in pregnant women.[8,9,10]

In our study prevalence of RTI among pregnant women was 77.92% .Among symptomatic patients it was 100%. It may be because RTI is common among pregnant women due changes in normal vaginal flora. Among asymptomatic patients 34.21% were positive for RTI. (sp value.0.001) So RTI is also common in asymptomatic pregnant women. These is similar to a study conducted by Mahmoud MOBASHERI (Iran)[13] where prevalence of RTI was found to be 71.76%.

It differs from observations made by S sangeetha,Bendigeri et. al. (Karnataka)[7] where the prevalence of RTI was less (51.3%) whereas NgyuyenMH (Vietnam)[11] has found the prevalence of RTI as 54.4%, who have retrospectively studied the presence of RTI in patients with abortion.

Study shows the trend of RTI more among 21-29yr age group women. Similar to observation made by Sangeeta et.al.Hubli Karnataka. This age group is active reproductive age group with marital status, sexual activity and child bearing age. Hence the risk of RTI is more common in this age group.

The proportion of RTI is more in rural area than urban area. This was seen in studies conducted by S.Shrestha et.al. Nepal as well as the present study. It may because of poor genital hygiene, poor living conditions and health seeking behavior is also low.

It is found that the percent of RTI (61.75%) is common in graduate women. It may be due more concern, awareness and health seeking behavior of educated women than illiterate women.The study conductsed by Mohmoud mobasheri et.al (Iran) (13) show the prevalence of RTI to be common in graduate women (62.37%).

Cases of RTI were asymptomatic in 27.01% and 66.44% were symptomatic. The incidence of RTI in asymptomatic patients is comparable.

The most common symptom was vaginal discharge and most common sign was also vaginal discharge.

In present study the prevalence of Candidiasis was more (50.70%) comparable to study conducted by NgyuyenMH Vietnam(11) the prevalence of Candidiasis was highest.

With the prevalence rate of bacterial vaginosis in present study (22.94%) the second most common type of infection as seen in studies conducted in Dhaka Bangladesh[14], S.Shrestha et.al. Nepal [12], NgyuyenMH Vietnam[11].

In present study we could not find any case of syphilis .It may be because of proper implementation of routine screening programmes and health promotion policies.

The rate of infection appears to be increased with duration of pregnancy as pregnancy advances. In our study the proportion of RTI was more in pregnancy >33 weeks of gestation. Similarly the study conducted by Mohmoud mobasheri et. al. (Iran) [13]shows that infection rate was more in 2st half of pregnancy (64.71%) than 1st half (35.29%).

In present study incidence of RTI was highest in multi i.e. 51.55% and in 2nd gravida it was 30.02% and in primi it was 17.28%.

The higher incidence in multigravida may be due to women with more number of children are exposed to increased number of deliveries, use of contraceptive devices specially IUCD and gynaecological surgeries, which contribute to occurrence of RTI in women.

Even though 152 patients were asymptomatic the presence of RTI in these patients was much high, amounting to 34.21%. This indicate that among the positive cases most of the patients were asymptomatic. So we can strongly recommend all pregnant women specially who have ever had a premature delivery or low birth weight baby, vaginal examination regardless of symptoms .If these cases go undetected it may result abnormalities in childbirth and maternal health.

Hence emphasis should be to conduct strict routine maternal health check up and screening among all pregnant women.

After thorough analysis of data observations are as follows:

1. The prevalence of RTI was 77.92%.
2. RTI is more common in age group 21-29 years.
3. Majority of patients belong to rural area (78.75%).
4. Majority of patients were graduate (61.75%).
5. The proportion of RTI was more in patients with >33 weeks of gestation i.e.42.77%.
6. The RTI was more common in multigravida 51.55%.
7. All patients with symptoms of RTI had 100% infection. Among asymptomatic patients 34.21% patients were positive for RTI and only 65.78%were negative for RTI.
8. Most common symptom and sign were vaginal discharge 45.18% and 64.02% respectively.
9. Among study cases prevalence of Candidiasis was more 50.99%. *Bacterial Vaginosis* was 22.66%, *Trichomoniasis* was 15.01%, *Streptococcal* infection was 1.98%, and mixed infection was 9.29%.

CONCLUSIONS:

Reproductive tract infections (RTIs) and sexually transmitted diseases (STDs) represent a major public health problem in developing countries(1) .The consequences of RTIs are numerous and potentially devastating. These include postabortal and

puerperal-sepsis, ectopic pregnancy, fetal and perinatal death, cervical cancer, infertility, chronic physical pain, emotional distress, and social rejection of women. Currently pregnant women with and without symptoms of RTIs are not routinely screened or treated for *Bacterial vaginosis,* while other infections, such as Syphilis, *Trichomoniasis* and *Candidiasis,* are usually diagnosed and treated during pregnancy. As *Bacterial vaginosis* in pregnancy is associated with premature rupture of membranes, premature delivery, and chorioamnionitis, it needs particular attention.

Rates of RTIs and STIs are still high among pregnant women in India. Where resources allow, routine screening and treatment of STIs/RTIs in the antenatal care setting should be offered and steps should be taken for early diagnosis and detection, also for appropriate management of these cases to reduce further transmission of HIV/AIDS.

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