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An Epidemiological Study Of Genital Tract Infection Among Infertile Women

Dr. Manisha Gupta 1, Dr. Alpana Agrawal2*, Dr. Neelima Agarwal3, Dr. Arpita[4]

1. Dr. Manisha Gupta, Professor, Department of Obstetrics and Gynaecology, Santosh Deemed to be University, Ghaziabad.
2. Dr. Alpana Agrawal, Professor, Department of Obstetrics and Gynaecology, Santosh Deemed to be University, Ghaziabad.
3. Dr. Neelima Agarwal, Professor, Department of Obstetrics and Gynaecology, Santosh Deemed to be University, Ghaziabad.
4. Dr. Arpita, Assistant Professor, Department of Obstetrics and Gynaecology, Santosh Deemed to be University, Ghaziabad.

***Dr. Alpana Agrawal - Corresponding Author**

ABSTRACT

Background: The goal of this study was to identify the profile of genital tract infections and their relationship with clinical and demographic parameters as well as tubal diseases among infertile women in Ghaziabad.

Aim and Objective: To study of genital tract infection among infertile women

Methodology: It was a hospital-based prospective observational study that involved all couples visiting the Obstetrics and Gynecology department's out-patient clinic at Santosh Medical College and Hospital, Ghaziabad. An 18-month period, from January 2019 to June 2020, was used for the study's execution. 172 couples who met the inclusion criteria were enrolled in the study out of a total of 193 couples who were recruited and investigated. However, 10 patients' investigations weren't completed for 10 patients, and 11 couples were lost to follow-up.

Result: Only 8 male partners (4.6%) displayed signs of a genital tract infection. 5 of them were in the group with primary infertility. Between the two groups, the results were not comparable.

Conclusion: A marked proportion of infertile women have genital tract infections that can significantly influence their reproductive function and performance. These infections should be routinely screened and treated properly to prevent their consequences, such as infertility, which is especially important in developing countries.

Keywords: pelvic inflammatory disease (PID) , post-abortal , post-partum , infections

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INTRODUCTION

The clinical definition of infertility is an inability to conceive after 12 months or more of regular unprotected coitus [1]. From the demographer's point of view, infertility is defined as the absence of live birth in a woman of reproductive age (15–49 years) with regular unprotected sexual intercourse for more than two years [3]. Infertility is classified as primary or secondary. Primary infertility is denoted for those women who have not conceived previously. In secondary infertility, there is at least one conception but fails to repeat.

The etiologic sources of infertility can be of either the man or the woman or both. In the developing nations, bilateral uterine tube blockage is the commonest cause of infertility [4]. The fallopian tubal occlusion is mainly due to pelvic inflammatory disease (PID) which is caused by post-abortal and post-partum infections. In addition, ovulatory disorder, contraception use, and sociocultural factors are the causes of female infertility. Prolonged use of oral contraception, cultural factors like prolonged breastfeeding habit, and heat exposure of the male partners are reported risk factors affecting fertility. Genetic and environmental factors and infections can affect male fertility. These could lead to impaired sperm cell production, sperm transportation, and sexual habit which end up with infertility. Furthermore, the etiology of infertility shows a significant regional variation [4-6].

Increased frequency of visits by couples to infertility clinic because of gradual elimination of taboos associated with infertility, increase in age of women when couple decide to plan family, adoption of sexual behaviour that adversely affect fertility like multiple sexual partners, increased coital frequency,[7,8] contraceptive practices and lifestyle changes like obesity and alteration in habits like developing habit of smoking etc.

Infertility accounts for approximately 9-15% of reproductive-aged women worldwide, leading to considerable costs of treatment and long-term psychological stress [9]. The burden of infertility is inordinately higher among women in developing countries; in some of regions of South and Central Asia, sub-Saharan and Northern Africa, the Middle East, and Eastern Europe, the infertility rate can reach up to 30% among reproductive-aged women [10]. Female infertility can be related to various causes, including ovarian dysfunction, acquired gynecologic tumors, or genital tract infections [11]. Bacterial vaginosis (BV) is the most common cause of vaginal discharge and is strongly associated with reproductive failure, notably late fetal loss [12]. Candida albicans is a common commensal organism of the female genital tract but may occasionally cause diseases ranging from mild forms of vaginitis and cervicitis to serious illnesses [13]. Trichomonas vaginalis is a common vaginal parasite with worldwide distribution but is more common among women and individuals of a lower social status. Although trichomoniasis is associated with mild vaginal and cervical damage, it seems incapable of producing cervical factor infertility [13]. Concomitantly, several sexually transmitted diseases (STDs) such as Chlamydia trachomatis, Neisseria gonorrhoeae, and Mycoplasma genitalium infections can damage the columnar epithelium of the endocervix and spread to the endometrium and Fallopian tubes, contributing to pelvic inflammatory

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disease (PID) [14]. PID can permanently damage the reproductive system and is substantially associated with infertility [15]. Although the prevalence of gonorrhea infection has decreased, that of Chlamydia trachomatis infection remains elevated and is the main cause of tubal infertility, chronic pelvic pain, and ectopic pregnancy. Moreover, in many cases, the signs and symptoms of higher genital tract infection are not notable and specific, which is why many patients remain undiagnosed

MATERIALS AND METHODS

It was a hospital based prospective observational study that included all couples attending the out-patient clinic of Obstetrics and Gynaecology department at Santosh medical college and hospital, Ghaziabad. The study was conducted over a period 18 months from January 2019-June 2020. Out of a total of 193 couples who were recruited and investigated, 11 were lost to follow up and 10 patients didn't get fully investigated so the remaining 172 couples who satisfied the inclusion criteria were enrolled in the study. A written informed consent was obtained from all the couples after explaining the purpose of the study and assuring them of the confidentiality before recruitment in the study. Approval from the Ethical Committee of the University was taken.

Both the partners were interrogated together. Demographic characteristics of eligible couples like age, religion, socioeconomic status, occupation, literacy level, residence, type of family were recorded on case information sheet. Relevant information regarding marital life of the couple like duration of married life, duration of infertility, history of cohabitation, coital frequency, history of any coital problem and their knowledge of fertile period was recorded.

RESULTS

Table 1: Socio-demographic data distribution of IUCD

Socio-demographic data distribution of Female		Number (%) n=172
Age	≤ 20 years	11 (06.39%)
	21-30 years	84 (48.83%)
	31-40 years	69 (40.11%)
	≥ 40 years	08 (04.65%)
	MEAN ± SD	27.88 ± 5.18
Religion	Hindu	104 (60.46%)
	Muslim	58 (33.72%)
	Sikh	7 (04.06%)
	Christian	3 (01.74%)
SES	Lower SES	54 (31.39%)
	Middle SES	55 (31.97%)
	Upper SES	63 (36.62%)
Education	Illiterate	67 (38.95%)

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	School	43 (25.00%)
	College	62 (36.04%)
Occupation	Unemployed	74 (43.02%)
	Employed	98 (56.98%)
Type of Family	Nuclear	87 (50.58%)
	Joint	85 (49.41%)
Residence	Urban	99 (57.55%)
	Rural	73 (42.44%)

In Table 1, Majority of the subjects fell in age group 21-30 years (n=84).Mean age was 27.88 ± 5.18 years (range 18-39), 54.20% of patients with primary infertility were in the age group of 21-30 years an47.69% of patients with secondary infertility were in the age group of 31-40 years . The results were statistically significant for age group >40 years (p-Value=0.02) between the two groups. The majority in the primary infertility group were Hindus (70.09%).In the secondary infertility group the proportion of Hindu and Muslim patients were almost comparable. The association was statistically significant for Hindus and Muslims in primary and secondary infertility group with p Value of 0.001 and 0.002 respectively. In terms of 1/3, the proportion of patients in each group's lower, medium, and upper socioeconomic classes was fairly evenly distributed. In couples with primary and secondary infertility, there was no statistically significant variation in the distribution of socioeconomic level. Females with primary infertility made up 42.05% of the population, while patients with secondary infertility made up 55.38% of the population. With p values of 0.0006 and 0.02, respectively, the results between initial infertility and secondary infertility were statistically significant for the illiterate and higher educated classes. The majority of patients with primary (40.18%) and secondary (47.69%) infertility were housewives.The difference in the unskilled worker category between the two groups was statistically significant with p-value of 0.03.71.02% of couples with primary infertility were living in urban areas whereas 64.61% of couples with secondary infertility were residing in rural areas. The p Value was highly significant with respect to residence in both the groups (p-Value= < 0.0001).

Table 2: Types of infertility.

Types of infertility	Number (%)
Female Infertility	64 (37.21%)
Male Infertility	56 (32.56%)
Combined Infertility	24 (13.95%)
Unexplained Infertility	28 (16.28%)

In our investigation, infertility was shown to be 5.1% common. Among all cases of infertility, the prevalence of primary and secondary infertility was 62.21% and 37.79%, respectively.

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Infertility due to male or female causes accounted for 32.56% of all cases, mixed infertility 13.95%, and unexplained infertility 16.28% of all cases.

Unidentified causes of infertility are referred to as unexplained infertility, while male and female factors can both be responsible for mixed infertility.

Table 3: Features of urethritis.

Features of Genital Tract Infection (*more than one variable can be present in one subject)	Number (%)			p-value
	Primary Infertility (n=05)	Secondary Infertility (n=03)	Total (n=08)	
Discharge	04 (80%)	01 (33.33%)	05 (62.5%)	0.21
Burning Micturation	04 (80%)	03 (100%)	07 (87.5%)	0.43
Swelling In Testicles	02 (40%)	01 (33.33%)	03 (37.5%)	0.85
Pain Or Tenderness in Testicles	01 (20%)	01 (33.33%)	02 (25%)	0.69

In Table 3, Only 8(4.6%) male partners had symptoms of genital tract infection. Out of which 5 were in primary infertility group. Results were not comparable between the two groups.

DISCUSSION

Humans instinctively desire to have offspring. Inability to reproduce is a social stigma and can cause painful emotional experiences throughout the life including marital disharmony leading to broken marriages. The aetiology of infertility varies from one region to another and from one population to another and as education is positively correlated with knowledge. Awareness of the risk factors is a prerequisite to positive health behaviour change therefore the study was conducted to ascertain the sociodemographic trends and etiological factors of infertility prevalent locally and manage accordingly.

The prevalence of infertility in our study was 5.1%. The rising numbers of infertile couple presenting to the infertility clinic is well explainable by improved health seeking behaviour and increased awareness that infertility is a treatable gynaecological condition. The pattern of infertility commonly observed in our study is primary infertility. Other studies by Priyanka Sanjay Deshpande et al(2),Seyedeh Zahra Masoumi et al(18), Ifeanyi E Menuba et al (17) and Taimoora Al Subhi et al(16). Out of the 172 infertile couples who participated in the study, 62.21% (n= 107) had primary infertility and the remaining 37.79% (n=65) had secondary infertility. The higher prevalence of primary infertility in our study is attributable to higher literacy rates amongst the population under study and majority of cases with primary infertility being concentrated in urban areas.

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Our study depicts similar rates of knowledge of ovulatory period in a menstrual cycle among infertile couples as shown by a recent study by Shilpa Pankaj Kshrisagar et al [19]. Though another recent study by Reeta Mahey et al [20] shows further lower rates of only 15% of infertile couples having accurate knowledge about the fertile window. The reason behind the higher rates of fertility window unawareness could be because of lack of fertility education during school and college education.

Present study reports a very low incidence of 1.74% of female genital tuberculosis in patients presenting with infertility when compared with other studies by Asha Baxi et al [21], Savita S. Sughra Shahzad et al [53].Such low incidence has been reported because genital tuberculosis is a paucibacillary disease and difficult to diagnose. Alsowe have not included cultures of the tissue, laparoscopy and PCR for mycobacterium tuberculosis for diagnosing genital tuberculosis in the work-up for genital tuberculosi

As a result, primary infertility is more common than secondary infertility, according to our study. The majority of infertility cases are caused by female infertility, but there is an increase in the prevalence of male factors, which is a reflection of shifting aetiological trends as well as shifting attitudes. Better understanding and increased awareness among society's members also encourage investigation of both partners. While oligospermia is the most prevalent irregularity of the semen in men, tubal factors and PCOS are the primary causes in women.

CONCLUSION

Reproductive health is a global health issue which has a high prevalence. The inability to have children affects couples worldwide and causes emotional and psychosocial distress in both men and women. Many factors like physiological, genetic, environmental and social contribute to infertility. Global, regional and national estimates of prevalence of and trends in infertility are needed to target prevention and treatment efforts. According to WHO, infertility resulting from sexually transmitted diseases or reproductive tract infections are predominant cause in developing nations.

In our study the proportion of primary infertility was more as compared to the secondary infertility. The commonest causes of female infertility were pelvic inflammatory diseases, tubal factors, abortion, and ovulatory dysfunction. Most of them are all preventable causes. This indicates that the management of infections affecting the reproductive organs and abortion requires attention. Oligospermia were the commonest causes of male-related infertility.

Infertility is a generational issue rather than just a personal one, in general. Therefore, infertility clinic availability and advancement, as well as the management of reproductive tract infections and abortion, should be the main priorities of governments and health policymakers. There have also been reports of unexplained causes of infertility, which urges

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us to improve our diagnostic tools. Women, in particular, are plagued by infertility, which could at least be defeated with psychological assistance.

Many infertile women have genital tract infections that can significantly influence their reproductive function and performance. These infections should be routinely screened and treated. In addition, sexual education should concentrate on preventive measures. These low-cost activities can provide significant benefits for avoiding both infections and their consequences, such as female infertility, which is especially important in developing countries.

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