To Study The Prevalence Of Tubal Obstruction As A Cause Of Infertility

Dr. Manisha Gupta [1*], Dr. Neelima Agarwal [2], Dr. Alpana Agrawal[3], Dr. Mansha Grover[4]

1. Dr. Manisha Gupta, Professor, Department of Obstetrics and Gynaecology, Santosh Deemed to be University, Ghaziabad.
2. Dr. Neelima Agarwal, Professor, Department of Obstetrics and Gynaecology, Santosh Deemed to be University, Ghaziabad.
3. Dr. Alpana Agrawal, Professor, Department of Obstetrics and Gynaecology, Santosh Deemed to be University, Ghaziabad.
4. Dr. Mansha Grover, PG - Final Year, Santosh Deemed to be University, Ghaziabad.

*Dr. Manisha Gupta - Corresponding Author

ABSTRACT

Background: Infertility is the inability to sustain a pregnancy in a woman with regular (2–3 times per week) unprotected sexual intercourse for a period of 1 year.This is a major public health problem that remains under recognised in Cameroon and most countries in sub-Saharan Africa. This study aimed at identifying the risk factors associated with tubal infertility in a tertiary hospital in Santosh University , Ghaziabad.

Aim and Objective: To study the prevalence of tubal obstruction as a cause of infertility

Methodology: It was a hospital-based prospective observational study that involved all couples attending 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. 193 couples were solicited, but only 172 couples who met the inclusion criteria were enrolled in the study. Of the 193 couples that were recruited and investigated, 10 patients were not thoroughly probed, and 11 were lost to follow-up.

Result: 23.2% of the male participants had abnormal sperm analysis results. In primary infertility, azoospermia was seen in 10.2%(10) of cases. 23.3% of primary infertility cases and 3% (2) of subsequent infertility cases showed oligospermia, respectively.

Conclusion: Being a housewife, working for yourself, having a history of Chlamydia trachomatis, Mycoplasma infection, and uterine fibroid were all independently linked to tubal infertility. Additionally, tubal infertility was linked to a history of pelvic surgery and previous procedures, diabetes mellitus, and persistent pelvic pain. Tubal infertility was less common in

young people, those in monogamous relationships, and those who used barrier means of contraception like the condom. To prevent tubal infertility, the goal of intervention will be the identification of these causes.

Keywords: diabetes mellitus, persistent pelvic , Tubal infertility , contraception.

INTRODUCTION

Infertility is the inability to sustain a pregnancy in a woman with regular (2–3 times per week) unprotected sexual intercourse for a period of 1 year [1]. Though it is a major public health problem, infertility in sub Saharan Africa remains largely under-recognised [2, 3]. An infertility belt has actually been described in Africa that cuts across West and Central Africa, including Cameroon [4]. Though the prevalence of infertility has been widely reported in medical literature, it is difficult to synthesize infertility prevalence data because of the incomparable definitions used [5]. However, in Africa, and Cameroon, in particular, this prevalence has been underestimated because infertile patients do not readily seek medical attention for various reasons including lack of awareness or knowledge, lack of resources as well as cultural and religious reasons [6–8]. It has been reported, previously, in Yaoundé, Cameroon that the female factor accounts for 30% of infertility; with infectious causes mainly Chlamydia, accounting for 48.9% [9]. There are few studies in Cameroon that report the risk factors associated with infertility. This study aimed at identifying the risk factors associated with tubal infertility at the Santosh University , Ghaziabad.

The clinical definition of infertility is an inability to conceive after 12 months or more of regular unprotected coitus [10-12]. 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 [13] . 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 [14] . 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 [15-16]. Infertility is as an important reproductive health problem that causes emotional, psychological, and social disorders [17] .Having a child is of considerable importance to women, and when they are unable to conceive, they are often subjected to strong pressure from family members and relatives. Infertility threatens women's families and social statuses and, in some societies,

may drive husbands to seek a divorce or re-marry. Infertility is considered to be a social stigma in many countries. The success of marriage overlies on the ability of a woman to bear children. Being infertile results in a serious psychological trauma. In some cases, it may end up with social disgrace and exclusion, verbal and physical abuse, and marriage violence and breakup. Especially for women, infertility significantly reduces their quality of life, expose for multiple sexual partners, sexually transmitted diseases, increased sexual dysfunction, and poor kinship. Therefore, it is a real personal, social, and public health issue, mainly in developing countries.

MATERIALS AND METHODS

It was a hospital-based prospective observational study that involved all couples attending 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. 193 couples were solicited, but only 172 couples who met the inclusion criteria were enrolled in the study. Of the 193 couples that were recruited and investigated, 10 patients were not thoroughly probed, and 11 were lost to follow-up. 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.

The data was collected and entered in the Microsoft excel sheet. Tables were made and percentages (frequencies) of various parameters were calculated and subjected to statistical test using chi-square test, T test wherever applicable. Statistical significance was taken as p value ≤0.05.

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%)
	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. The proportion of patients were almost equally distributed (in terms 1/3) in lower, middle and upper socioeconomic class in both the groups. There was no statistically significant difference in distribution of socioeconomic status in couples with primary and secondary infertility. 42.05% of females with primary infertility had higher education and

55.38% of secondary infertility patients were uneducated. The results were statistically significant for illiterate and higher education class between primary infertility and secondary infertility with p Value of 0.0006 and 0.02 respectively. Majority of patients in primary infertility group (40.18%) and in secondary infertility group(47.69%) 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%)

Infertility was observed to be 5.1% common in our study. The prevalence of primary infertility and secondary infertility among all cases of infertility was 62.21% and 37.79%, respectively. Female factors made up 37.21 percent of the total cases of infertility studied, male factors 32.56%, combined infertility 13.95%, and unexplained infertility 16.28%.

Unexplained infertility is when there is no known cause for the condition, whereas combined infertility occurs when both male and female factors are causal.

Table 3: HAS Findings.

| HSA Findings | Number (%) | | | p value |
	Primary Infertility (n=107)	Secondary Infertility (n=65)	Total (n=172)	
NORMAL	69 (64.4%)	63 (96.9%)	132 (76.7%)	<0.0001
AZOOSPERMIA	11 (10.2%)	0 (0%)	11 (6.3%)	0.0080
OLIGOSPERMIOA	25 (23.3%)	2 (3%)	27 (15.6%)	0.0004
ASTHENOSPERMIA	1 (0.9%)	0 (0%)	1 (0.5%)	0.44
TERATOSPERMIA	1 (0.9%)	0 (0%)	1 (0.5%)	0.44

Semen analysis was abnormal in 23.2% of male subjects. Azoospermia was observed in 10.2%(10)in primary infertility. Oligospermia was observed in 23.3%in primary infertility cases and 3%(2) in secondary infertility. The results were statistically significant for azoospermia and oligospermia between both the groups (p value 0.008 and 0.0004 respectively

DISCUSSION

Humans have a natural impulse to procreate. Infertility is a social stigma that can lead to terrible emotional experiences throughout life, including marital discord that ends in divorce. As there is a significant correlation between education and knowledge, the causes of infertility differ by geography, population, and education. Positive health behaviour change requires awareness of risk factors, thus the study was carried out to determine the sociodemographic trends and etiological reasons of infertility that are prevalent locally and to treat accordingly.

In our study, the prevalence of infertility was 5.1%. Improved health seeking behaviour and greater awareness that infertility is a treatable gynaecological problem can both be used to explain the rise in the number of infertile couples visiting infertility clinics. Primary infertility is the type of infertility that is frequently seen in our study. Additional research by Taimoora Al Subhi et al., Kalpana Singh et al., Seyedeh Zahra Masoumi et al., Ifeanyi E. Menuba et al., and Priyanka Sanjay Deshpande et al (27). The majority (62.21%, or 107 couples) of the 172 infertile couples who took part in the study had primary infertility, while the remaining 37.79%, or 65 couples, had secondary infertility. Our study's higher primary infertility prevalence can be attributed to the population's higher literacy rates and the fact that the majority of primary infertility cases are concentrated in urban areas.

Detailed history taken and physical examination of both male and female partner was conducted. Sociodemographic profile as well as history related to the marital life of all eligible couples was studied. Relevant history of female partner included menstrual history, clinical features of endocrine disorders like PCOS, hypothyroidism, hyperprolactinemia etc., features of PID, tuberculosis, history of addiction and any previous injury/ D & E/surgery. Male partner was questioned about any clinical features or previous history of infections, tuberculosis, addiction, coital problems and any history of surgery or trauma. All baseline investigations and special investigations like husband seminal fluid analysis, hormonal evaluation, endometrial biopsy, follicular monitoring and hysterosalpinography.

In our study female factor was responsible in 37.21%, male factor in 32.56%, a combination of both male and female factor in 13.95% and unexplained in 16.28%. Because of the rising rates of male infertility and delay in child bearing in females, the prevalence of infertility continues to rise. Contrary to the findings of present study 46.6% of female factors, only

9.16% of male factors, 10.83% of combined infertility and 33.33% of unexplained infertility was reported by a study conducted by Priyanka Sanjay Deshpande et al [8].

The present study shows tubal pathology (54.45%) to be the leading cause amongst various causes of female infertility. It likely reflects rise in the prevalence of subclinical infections and their sequelae especially genital tuberculosis which has a high prevalence in this area but is difficult to document and prevalence of risk factors in our study population that further increases the risk of pelvic infections like multiple sexual partners and inability to maintain proper menstrual hygiene.

Previous study by Kalpana Singh et al [18] also reported tubal factor infertility (24.06%) as the leading cause of female infertility followed next by hypothyroidism in 23.9% cases. Similar reports of tubal factor as the commonest cause was stated in another study by Osaikhuwuomwan James A et al [9] .

CONCLUSION

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.

The following factors were independently associated with tubal infertility: being a housewife, self-employed, history of Chlamydia trachomatis and Mycoplasma infection, and uterine fibroids. Furthermore, a history of pelvic surgery and other surgeries, diabetes mellitus, and chronic pelvic pain were also associated with tubal infertility. Young age, those in monogamous marriages, and users of barrier methods of contraception (condom) were less likely to have tubal infertility. Identification of these factors is a target of intervention to avoid tubal infertility.

REFERENCES

1. Brugo-Olmedo S, Chillik C, Kopelman S. Definition and causes of infertility. Reprod BioMed Online. 2001;2:173–85.
2. Uadia PO, Emokpae AM. Male infertility in Nigeria: a neglected reproductive health issue requiring attention. J Basic Clin Reprod Sci. 2015;4:45–53.
3. Gerrits T, Shaw M. Biomedical infertility care in sub-Saharan Africa: a social science review of current practices, experiences and view points. Facts Views Vis Obgyn. 2010;2:194–207.
4. Okonofua F. Infertility and Women's reproductive health in Africa/Infertilité et Santé reproductive des femmes en Afrique. Afr J Reprod Health Rev Afr Santé Reprod. 1999;3:7–12.

5. Mascarenhas MN, Flaxman SR, Boerma T, Vanderpoel S, Stevens GA. National, regional, and global trends in infertility prevalence since 1990: a systematic analysis of 277 health surveys. PLoS Med. 2012;9:e1001356.

6. Gerrits T. Biomedical infertility care in low resource countries: barriers and access. Facts Views Vis Obgyn Monog. 2012;2:1–6.

7. White L, McQuillan J, Greil AL. Explaining disparities in treatment seeking: the case of infertility. Fertil Steril. 2006;85:853–7.

8. Dyer SJ. Infertility-related reproductive health knowledge and help-seeking behaviour in African countries. ESHRE Monogr. 2008;2008:29–33.

9.   Nana PN, Wandji JC, Fomulu JN, Mbu RE, Leke RJI, Woubinwou MJ. Aspects Psycho-Sociaux chez Patients Infertiles à laMaternite Principale de l'Hopital Central de Yaoundé, Cameroun. Clin Mother Child Health. 2011;8:1–5.

10. Mascarenhas MN, Flaxman SR, Boerma T, Vanderpoel S, Stevens GA. National, Regional, and Global Trends in Infertility Prevalence Since 1990: A Systematic Analysis of 277 Health Surveys. PLoS Med 2012 9(12): e1001356. https://doi.org/10.1371/journal.pmed.1001356.

11. Priyanka Sanjay Deshpande, Alka Shanti Prakash Gupta. Causes and prevalence of factors causing infertility in a public health facility. Journal of Human Reproductive Sciences 2019;12(4):287-293.

12. World Health Organization. Reproductive health indicators for global monitoring: guidelines for their generation, interpretation and analysis for global monitoring 2006; Geneva: World Health Organization: 63.

13. Rutstein SO, Shah IH. Infecundity infertility and childlessness in developing countries. Geneva: World Health Organization 2004.

14. Prof. K. Manimekalai, Dr. S. Poulpunitha, Dr. P. Veeramani. Infertility: An alarming situation in India. International Journal of Scientific & Technology Research February 2020; 9(2):2606-2609.

15. Osaikhuwuomwan James A, Osemwenkha Abieyuwa P. Etiological pattern of infertility; an appraisal of contemporary trend in the region of Niger-Delta. International Journal of Medical and Health Research Sep 2015; 1(2):75-77.

16. Sujata Ganguly, Sayeed Unisa. Trends of Infertility and Childlessness in India: Findings from NFHS Data. Facts Views and Vis in ObGyn 2010; 2(2): 131-138.

17. Sarah Hodin. The Burden of Infertility: Global Prevalence and Women's Voices from Around the World. MHTF Blog January 2017.

18. *Kalpana Singh, Rekha Kumari, Alok Ranjan, Geetam Bharti.* Analysis of causes and clinical pattern of infertility in couples coming to a tertiary care centre in Bihar, India 2017. DOI: http://dx.doi.org/10.18203/2320-1770.ijrcog20172118.