

Original Research Article

Study of Etiological Factors of Infertility in a Tertiary Care Centre

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ABSTRACT

Background: Infertility is a global issue and the impact of it is not only on the individual but on the whole family. Considering the devastating complications of infertility on the psyche of the couple irrespective of the individual to be treated, this present study was undertaken to study the etiological factors.

Material and methods: This cross sectional study was conducted in M.S.Ramaiah Teaching Hospital, Bangalore in the department of Obstetrics and Gynecology between January 2012 to December 2012.

Results: During the period under study, a total of 98 infertile patients attended the outpatient department of our hospital. Out of these, primary infertility accounted for 66.3% (65 cases) of cases, while secondary infertility accounted for the remaining 33.7% (33 cases). The cause for majority of the primary infertility cases was female factors (90.8%) while that of the secondary infertility was found to be unexplained (57.6%) and this was found to be statistically significant (p=0.001).

Conclusion: It is very necessary to emphasize the fact that both the partners need to be investigated before finding the cause. There is a need to evolve a better model for disseminating knowledge about infertility and its causes so that prompt treatment could be done.

Keywords: Infertility, risk factors, female infertility, male infertility.

INTRODUCTION

According to the International Committee for Monitoring Assisted Reproductive Technology and the World Health Organization, infertility is 'a disease of the reproductive system defined by the failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse. [1] Inability of the woman (who has had no previous pregnancy) to conceive after one year of unprotected normal intercourse is called as primary infertility. Secondary infertility is usually defined as the inability to conceive despite exposure to pregnancy

for one year (2 years in some epidemiological studies) after having conceived at least once before. [2]

Infertility is a global issue and its prevalence has been escalating especially in resource poor countries. It is estimated that globally between 60-80 million couples suffer from infertility every year, [3] of which probably 15-20 million are in India. According to WHO, the national prevalence of primary and secondary infertility in India is 3% and 8% respectively. [4,5] In India alone, infertility affects as many as 1 in 6 couples. [6] In India cultural, socioeconomic, health care

practices and policies and environmental factors play a major role in the prevalence and etiology of infertility. [7] The social stigma and the psychological effects of infertility have a bearing on not only the individual who is infertile but also on the couple and the family as a whole.

In a developing nation like ours, a lot of stigma is still attached to infertility and it is often the woman who is blamed for her inability to bear a child. Most males are unwilling to be tested leave alone undertake treatment. Infertility can arise from a variety of causes both male and female. The lack of awareness about the risk factors, available treatment options and success rates of treatment hamper the efforts to address the issue. Infertility treatment remains a niche service, the specialized centers equipped to provide treatment remains inaccessible to a large section of our society.

The economic burden of treatment along with limited treatment options, many of which are outdated with poor therapeutic outcome reduces the number of couples coming forward for the treatment or completing the full course of treatment.

This being the scenario, the repercussions of infertility are far felt and include stressed marital life, higher incidence of divorce, physical violence, mental disorders like depression, social isolation, economic hardship and many others.

Considering the alarming increase in the trend of infertility and also its devastating complications on the psyche of the couple irrespective of the individual to be treated, this present study was undertaken to study the etiological factors. This study also explores the causes of both primary and secondary infertility in 98 couples attending a tertiary center.

MATERIALS AND METHODS

This cross sectional study was conducted in M.S. Ramaiah Teaching Hospital, Bangalore in the department of

Obstetrics and Gynecology between January 2012 to December 2012. Data was collected using a pre tested semi-structured questionnaire. 98 couples in child bearing age being treated for infertility in the hospital during the study period were included in the study.

Data was collected regarding the demographic details of the couple, married life, occupation, use and method of contraception, menstrual history, past medical and surgical history. Infertility in the couple was then classified as primary or secondary infertility. The findings of clinical examination were noted. The investigations included semen analysis, hormonal analysis in women with anovulatory cycles and ultrasonography. Hysterosalpingography and laparoscopy was done in patients in whom tubal factors was considered as a possibility. The semen analysis was analysed by the WHO criteria and when found to be abnormal, the male partner was referred to the urologist.

For statistical analysis, all the quantitative variables such as age, duration were expressed as mean and standard deviation. Qualitative variables such as type of infertility and etiological factors were expressed as percentage. The association between the type of infertility and the etiological factors were tested for statistical significance by chi square test of significance. P value of <0.005 was considered for statistical significance.

RESULTS

During the period under study, a total of 98 infertile patients attended the outpatient department of our hospital. Out of these, primary infertility accounted for 66.3% (65 cases) of cases, while secondary infertility accounted for the remaining 33.7% (33 cases).

The mean age of the female patient in this study was 27.22 years and that of the patients with primary infertility was 24.57 years (18-29 years, SD-2.867) while the mean age of the secondary infertility

patients was found to be 32.45 years(29-40 years,SD-3.308) and differences between these means was found to be statistically significant (p=0.001) (Table 1)

Table 1- Distribution of primary and secondary infertility according to age

Age	Primary		secondary		p value
	No. Cases	%	No.cases	%	
19-24	30	46.15%	0	-	0.001
25-29	35	53.85%	4	12.1	
30-34	0	-	18	54.54	
>35	0	-	11	33.3	

All the primary infertility cases were <30 years old, with maximum number of cases in the age group 25-29 years (35 cases). On the other hand, only 4 women with secondary infertility were in the age group < 30 years. Maximum number of cases belonged to the age group 30-34 years. The association between age group and infertility status was found to be statistically significant (p=0.001).

Majority of the primary infertility cases (89.2%, 58 cases) had a married life of less than 5 years, with the mean duration of married life among primary infertility patients being 34.49 months (12-60 months, SD-14.406) while all the secondary infertility cases were married for more than 6 years with the mean duration being 111.06 months (60-204 months, SD- 42.857). This association between duration of married life and infertility was also found to be statistically significant (p=0.001), i.e., the difference between these means was found to be statistically significant (Table 2).

Table 2 –Distribution of infertility patients according to married life

Duration	Primary		Secondary		P value
	No. Cases	%	No.cases	%	
1-5	58	89.2%	0	-	0.001
6-10	07	10.8%	22	66.7	
>11	0	-	11	33.3	

Overall female factors of infertility contributed to 60.2% (59 cases) and only 1.5% due to male factors

The cause for majority of the primary infertility cases was female factors (90.8%) while that of the secondary

infertility was found to be unexplained (57.6%) and this was found to be statistically significant (p=0.001) (Table 3).

Table 3- Distribution of factors of infertility

factors	primary	%	secondary	%	P value
male	01	1.5%	0		0.474
female	59	90.8%	0		0.001
combined	05	7.7%	14	42.4%	0.001
unexplained	0	0	19	57.6%	0.001

Only 54 male patients (55.10%) underwent semen analysis. The commonest abnormality noted in the semen analysis was found to be oligospermia. Among the primary infertility cases, 4.6% had oligospermia (p=0.004) while 24.2% of secondary infertility cases had oligospermia (p=0.001). In addition, among the secondary infertility cases, 24.2% had asthenospermia (p=0.004) and 6.1% had azoospermia. (Table 4).

Table 4- Distribution of male factors of infertility

factors	primary	%	secondary	%	P value
azoospermia	0	0	2	6.1	0.045
oligospermia	3	4.6	8	24.2	0.004
asthenospermia	0	0	8	24.2	0.001

Among the female factors, majority of the primary infertility cases 72.3% (47 cases) had anovulation (p=0.001) as etiology. In 9.2% a tubal etiology were responsible, with a similar number for peritoneal etiology. 7.7% of the patients had a uterine etiology, while 4.6% had endometriosis. In the cases of secondary infertility, 6.06% had tubal etiology and 6.06% had uterine etiology. (Table 5)

Table 5-Distribution of female factors of infertility

Female factors	Primary	%	secondary	%	P value
anovulation	47	72.3%	0	0	0.001
tubal	06	9.2%	02	6.06	0.072
endometriosis	03	4.6%	0	0	0.210
uterine	05	7.7%	02	6.06	0.102
peritoneal	06	9.2%	0	0	0.072

On ultrasound, 20% (13 cases) of the primary infertility had features of PCOS, while 7.7% (5 cases) showed presence of fibroid. In secondary infertility. Ovarian cyst was found among 24.24% (8 cases),

These results were found to be statistically significant (p=0.006,0.001) (Table 6).

Table 6- Distribution of ultrasound findings

ultrasound	primary	%	secondary	%	P value
PCOS	13	20	0	0	0.006
Ovarian cyst	0	0	8	24.24	0.001
fibroid	5	7.7	0	0	0.102

Laparoscopy findings revealed tubal block (9.2%), adhesions (9.2%), hydrosalpinx (4.6%) and endometriosis in 4.6% of primary infertility cases. No laparoscopic findings of significance were noted among cases of secondary infertility. (Table 7)

Table 7-Distribution of Laparoscopic findings

Laparoscopic findings	primary	%	secondary	%	P value
Tubal block	06	9.2%	0		0.072
adhesions	06	9.2%	0		0.072
hydrosalpinx	03	4.6%	0		0.210
endometriosis	03	4.6%	0		0.210

HSG detected 4 cases of unilateral tubal block and 4 cases of bilateral tubal block in primary infertility cases. On studying endocrine abnormalities among the infertile patients, it was noted that 30.8% of the primary infertility cases had hypothyroidism (P=0.001) which resulted in anovulation. Hyperthyroidism was noted in 3.1%. Among secondary infertility cases, 1 patient was found to have hyperprolactinemia, but no thyroid abnormalities were noted among any of the cases.

DISCUSSION

In the present study primary infertility accounted for 66.32% and secondary for 33.67% of the cases which is similar to the study by Gulfareen Haider et al. [8] Cates et al study showed 23% of infertile couples in Asia and 16% in North Africa suffered from secondary infertility. [9]

The mean age of the female patient in this study was 27.22 years (25-29 years) which is almost same as the studies by Abbasali et al. (29±6 years) [10] and Sumitha Dutta et al. (26-30 years) [6] Most

of the primary infertility patients 35.7% were also in the age group (25-29 years). Duration of infertility in majority of primary infertility patients was 1- 5 years same as found in study by Sumitha Dutta et al. [6]

Among the etiological factors, we found that female factors were responsible in 60.2% of the cases, male 1.5%, combined in 19.4% and unexplained in 19.4%. Aflatoonian et al study reported female factor as the main cause of infertility similar to our study (57.7%). [11] In study of Abbasali et al female factors have contributed to 34.7%, male-38.9%, combined 14.6%, unexplained in 11.8%. [10] The low prevalence of male factor may be attributed the lack social acceptance and to the fact out of the 98 patients only 54 of them consented for semen analysis. The prevalence of unexplained infertility was 19.4% which is similar to that reported by Jacob Farhi et al study in which it was 20.7%. [12] Ovulatory disorders ranged between 21-50% in various studies and in our study it was found to be 72.3%. [13-15] PCOS contributed to 20.51% of the cases similar to that of Bhabani Pegu et al study. [16] Tubal factors contributed to 6.06% among the secondary infertility patients and 9.2% among the primary cases while in the study by Lunenfeld et al it ranged between 11 to 76.7%. [17]

CONCLUSION

In a developing country like India whenever a couple is unable to conceive, it is assumed that the fault is of the female. Hence it is very necessary to emphasize the fact that both the partners need to be investigated before finding the cause. There is a need to evolve a better model for disseminating knowledge about infertility and its causes so that prompt treatment could be done.

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