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Original Research Article

Infertility-todays scenario at a secondary care centre

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ABSTRACT

Background: The study aimed at assessing the cause and findings of infertility in patients attending the outdoor of a Secondary care center. The purpose of the study was to emphasize the importance of availability of facilities at community health center level to assist in early diagnosis and timely management of infertility to minimize social, medical and economic burden.
Methods: This was observational study done by compiling available data.
Results: The result showed that polycystic ovary disease, tuberculosis, abnormal thyroid profile and pelvic inflammatory disease (PID) continue to be leading causes of infertility even in present day perspective.
Conclusions: Timely intervention can minimize long term implications of the above conditions.

Keywords: Infertility, Polycystic ovarian disease, PID, Genital tuberculosis, Thyroid profile

INTRODUCTION

Infertility continues to be a major problem and presenting complaints in gynecology outdoors. It is a medical and social distress for couples. Infertility is considered as a global concern which affects many aspects of life in both genders.[1] In this modern advancing era with all kinds of diagnostic and therapeutic options the only important factor to reduce the socioeconomic burden of any problem is timely recognition and diagnosis male factor infertility can be attributed to testicular or ejaculatory dysfunction, hormonal disturbances or genetic disorders, while female infertility can be attributed to ovarian dysfunction, tubal obstruction, or abnormal uterine structure.[2] Screening for thyroid function is recommended as a part of fertility workup most particularly prior to treatment with assisted reproductive technology.[3-5] Polycystic ovary syndrome, a disorder primarily characterized by signs and symptoms of androgen excess, ovulatory dysfunction, disrupts HPO axis function. Depending upon diagnostic criteria this disorder affects 6%-20% of reproductive aged women.[6,7] Perhaps the most important risk factor for female infertility is age. Women's ability to get pregnant declines with age; female fertility declines gradually starting around 35 years of age then declines more dramatically after 40 years of age.[8] Obesity itself is associated with anovulation apart from polycystic ovary syndrome women with a body mass index (BMI) greater than 27, have an increased risk of anovulatory infertility compared with women with a normal range BMI, relative risk, 3.1 (95% CI 2.2-4.4); absolute rates were not given in the American society of reproduction medicine guideline.[9] Secondary care centers are first site of access to specialist care for general population. However, for many individuals remaining childless is a cold fact, which has its roots in society and healthcare system, lacking standardized tools and diagnostic protocols to diagnose and treat infertility.[10] as well as the structure and proper financing to offer health care services.[11] A recent centre for disease control report suggested that a public health approach is needed for infertility prevention, detection and management.[12]

The objective of the study was to assess the clinical and laboratory findings in infertility patients and probable

cause of infertility in patients as per available resources at community health centre.

METHODS

The study was conducted as an observational study. The study was conducted by compiling data collected from 100 patients visiting a secondary health care center in Ajmer from 1st October 2023 to 31st March 2024, with complaints of inability to conceive. Data included age of patients, height and weight of patients. The height was measured with standardized stadiometer and weight with digital weighing machine. The BMI was calculated using the formula weight in kilogram divided by height in meters squared. Obstetrics and other medical history were collected by interview with patients as per standard history taking protocols. The ultrasound and other test findings were collected by reviewing reports of patients. The consent was taken from all patients.

Exclusion criteria

Females with age more than equal to 40 years, females with medical disorders, previous history of *in vitro* fertilization and females whose husbands have severe medical disorders were excluded.

For this study infertility is a disease of male or female reproductive system defined by failure to achieve pregnancy after twelve months or more of regular unprotected sexual intercourse. Primary infertility is the inability to have any pregnancy while secondary infertility is the inability to have a pregnancy after previously successful conception.[13] Polycystic ovarian disease diagnosis was made as per revised Rotterdam criteria. The revised Rotterdam criteria are now updated to evidence-based criteria. In adults, presence of at least two out of the following criteria of clinical/biochemical hyperandrogenism, ovulatory dysfunction, and polycystic ovary morphology (PCOM) with gynaecological ultrasound or elevated anti-Müllerian hormone (AMH) levels are required, after exclusion of differential diagnoses. Most women with polycystic ovary syndrome have a combination of hyperandrogenism and irregular cycles, and in these cases, there is no need to assess Polycystic Ovary morphology. In adolescents, both ovulatory dysfunction and hyperandrogenism are mandatory.[14]

In this study we have considered tuberculosis as a probable cause in interferon gamma release assay positive patients or Mantoux test with induration more than equal to 25 MM or diagnostic laparoscopy finding or histopathological finding suggestive of tuberculosis. Diagnosis of PID was made as per centre of disease control criteria.The centers for disease control and prevention (CDC) recommend empiric treatment for PID in sexually active young women (25 years old or younger) and other women at risk of STI (multiple sex partners or history of STI) if they are experiencing pelvic or lower abdominal pain, if no cause for the illness other than PID can be identified, and if one or more of the following is appreciated on bimanual pelvic examination: cervical motion tenderness, uterine tenderness, or adnexal tenderness.[15] The statistical analysis was done using chi square test.

RESULTS

In our study the prevalence of primary infertility was more than secondary infertility, 63% presented with primary and 37% with secondary infertility. Amongst females with primary infertility 12.69% had abnormal thyroid profile, 11.11% had findings suggestive of tuberculosis 36.50% had findings suggestive of polycystic ovarian disease and 23.80% PID. Polycystic ovarian disease is the most common consistent with literature indicating its high prevalence amongst infertility patients. Using chi square test, we got p=0.0003. Since p value is less than significance level, we reject null hypothesis. There is a statistically significant association between abnormal thyroid profile, tuberculosis polycystic ovarian disease, PID and primary infertility.

In secondary infertility 16.21% had an abnormal thyroid profile, 10.81% had findings suggestive of tuberculosis, 21.62% had findings suggestive of polycystic ovarian disease and 43.24% had findings suggestive of PID. PID is significantly associated with secondary infertility with a p=0.037. The p values for tuberculosis were 0.245, abnormal thyroid profile 0.423 and polycystic ovarian disease 0.461.

Table 1: Age distribution amongst infertility patients.

Age (in years)	N	Percentage (%)
18-25	28	28
>25-30	23	23
>30-35	32	32
>35-<40	17	17
Total	100	100.00

Table 2: BMI values in infertility patients.

BMI (Kg/m^2)	N	Percentage (%)
<18.5	5	5
18.5-22.9	34	34
23-24.9	23	23
25-29.9	28	28
≥30	10	10
Total	100	100.00

Table 3: Distribution of primary and secondary infertility amongst the subjects.

Variables	N	Percentage (%)
Primary infertility	63	63
Secondary infertility	37	37
Total	100	100.00

Table 4: Obstetric history of patients with secondary infertility.

Previous pregnancy outcome	N	Percentage (%)
Previous normal delivery	9	24.32
Previous LSCS	13	35.13
Previous abortion	14	37.83
Previous ectopic pregnancy	1	2.70
Total	37	100.00

Table 5: Findings in subjects with primary infertility.

Findings in subjects with primary infertility	N	Percentage (%)
Abnormal thyroid profile	8	12.69
Findings suggestive of tuberculosis	7	11.11
Polycystic ovarian disease	23	36.50
PID	15	23.80
No finding	10	15.87
Total	63	100.00

Table 6: Findings in subjects with secondary infertility.

Findings in subjects with secondary infertility	N	Percentage (%)
Abnormal thyroid profile	6	16.21
Findings suggestive of tuberculosis	4	10.81
Polycystic ovarian disease	8	21.62
PID	16	43.24
No finding	3	8.10
Total	37	100.00

DISCUSSION

In our study the prevalence of primary infertility was more than secondary infertility but in Africa the proportion of primary and secondary infertility is approximately equal.[16] In our study polycystic ovarian disease was also a major contribution to infertility. According to another study the prevalence of infertility in women with polycystic ovaries was between 70 and 80%.[17] In our study tuberculosis had a significant relation with infertility. A study of female genital tuberculosis among patients with infertility has shown an incidence of 3 to 16% early detection and suitable combination treatment regimes with adequate dosages can reduce damage and future infertility in these women.[18] Globally extra pulmonary tuberculosis in particularly female genital tuberculosis are growing problems with increasing ratio of morbidity and mortality worldwide. Female genital tuberculosis represents the most perilous form of extra pulmonary tuberculosis and is the leading cause of infertility and recurrent implantation failure in females.[19] Abnormal thyroid profile also had a positive correlation with infertility in our study. Considering the importance of thyroid hormones, even mild thyroid failure has been proposed as one of the possible causes for adverse fertility and pregnancy outcome.[20] In our study 23.80% females with primary infertility and 43.24% of females with secondary infertility had associated PID. In a study in China, during the evaluation of the association between Chlamydial infection, PID and infertility they found that previous PID was indicated to largely elevate the risk of infertility, especially tubal infertility.[21]

Limitations

The study being conducted at a secondary care centre other factors affecting infertility could not be studied due to lack of diagnostic test facility. A longitudinal study could not be done on the outcome of patients after providing medical treatment.

CONCLUSION

Thus, polycystic ovarian disease, PID, tuberculosis and abnormal thyroid profile contribute significantly to infertility. We should direct our resources at prevention of tuberculosis, improve lifestyle for polycystic ovarian disease prevention and early treatment wherever possible to minimize long term implications.

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