

Anepidemiological Study on Causes of Infertility and Treatment Approaches in Warangal Region

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Abstract:

Aims and objectives:This study was conducted to determine the epidemiology, causes of infertility and treatment approaches.

Materials and Methods: An observational study was conducted for a period of 3 months in Obstetrics and Gynaecology. Necessary information was collected from patient case sheet, Investigation results and through medication history interview.

Results: Out of 130 cases, Primary infertility (73%) was most commonly seen and Female factors were predominant over male factors. Among female ovarian cyst and Poly Cystic Ovarian Disease (PCOD) 36.1% was the most common etiological factor and semen factor (30.7% was the only factor in male. Ovulation induction therapy(86%) was the most common treatment approach followed by IUI(11%) and IVF(3%).

Conclusion: Primary infertility rate was more than secondary infertility rate and female factors such as PCOD and Cyst were predominant over male factors. Alteration in life style and diet which causes hormonal imbalance could be a reason. Spreading awareness regarding the modifiable risk factors may help in reducing the infertility problems in couples.

Key words:Primary infertility, Secondary infertility, Etiology, Treatment.

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I. Introduction:

Infertility is the inability of a sexually active, non-contracepting couple to achieve pregnancy in one year. The World Health Organizations estimates that 60 to 80 million couples worldwide currently suffer from infertility. The average prevalence of infertility in developed countries and developing countries is 3.5-16.7 % and 6.9-9.3 % respectively [1].Overall prevalence of infertility in India to be 3.9 to 16.8 %. Estimates of infertility vary widely among Indian states from 3.7 % in Uttar Pradesh, Himachal Pradesh and Maharashtra, to 5 per cent in Andhra Pradesh, and 15 % in Kashmir. Subfertility can be either primary or secondary. Primary infertility refers to couples who have not become pregnant after at least 1 year having sex without using any contraception methods. Secondary infertility refers to couples who have been able to get pregnant at least once, but now are unable. Infertility is considered as one of the major healthcare problems in all societies worldwide. Among Indian women reporting primary infertility and Pelvic Inflammatory Disease(PID), Sexually Transmitted Infection (STI) prevalence was high. Risk factors and causes of infertility in women are numerous such as Age, Smoking, Alcohol, Obesity, Diet, Ovulation disorders, PCOS, poor egg quality, hypothyroidism, hyperprolactinemia, premature ovarian follicle, chronic conditions), fallopian tube block, fibroids, endometriosis. Whereas the causes of infertility in men may be oligospermia, asthenospermia, hypospadias, cystic fibrosis, hormonal imbalance, ejaculatory failure[2].

Investigations:-

Female partner

1. Full examination including assessment of body mass index

2. Baseline endocrinology on days 1-3 of menstrual cycle:

- Measure follicle stimulating hormone and luteinizing hormone to assess ovarian function.

-Measure mid-luteal (seven days before expected menstruation) progesterone to confirm ovulation.

If the menstrual cycle is irregular, assess prolactin and thyroid function plus testosterone if the patient has signs of hyperandrogenism (symptoms of polycystic ovary syndrome are acne, hirsutism, and alopecia).

3. Confirm rubella immunity
4. Cervical cytology and screening for *Chlamydia trachomatis* and other genital infections, particularly before assessing tubal patency
5. Imaging of pelvis (secondary care): ultrasound to assess ovarian and uterine morphology. X ray hysterosalpingography to assess tubal patency, if no history suggestive of tubal or gynaecological disease otherwise laparoscopic assessment of pelvis with facility to treat (endometriosis or tubal adhesions)

Male partner

1. Semen analysis, performed twice after two to three days of abstinence from sex

Treatment modalities:-

- I. Ovulation induction therapy: This is used for infertility with ovulation disorders like PCOD, ovarian cyst, poor egg quality.
- II. Intra-uterine Insemination (IUI): This is used to treat unexplained infertility or in female patient with endometriosis or due to male factor problems. In this procedure active sperms are collected and directly placed in uterus.
- III. In-Vitro Fertilization (IVF): In this procedure matured eggs are collected and fertilized with sperm outside the womb and then the zygote is placed in the uterus after 4-5 days.
- IV. Zygote Intra-Fallopian Transfer (ZIFT) and Gamete Intra Fallopian Transfer (GIFT): In ZIFT, the fertilized egg is directly transferred into the fallopian tube; whereas, in GIFT a mixture of sperms and eggs is placed in the fallopian tube and fertilization occurs there.
- V. Intra Cytoplasmic Sperm Injection (ICSI): In ICSI, a single healthy sperm is injected directly into a mature egg. ICSI is used when there is a problem with the quality of the semen, or there are few sperms, or prior IVF cycles have failed[3]

II. Materials And Methods

This study was conducted in Obstetrics/Gynaecology clinic for a period of 3 months. A total of 130 patients from surrounding region of Warangal were considered and the necessary patient information such as demographic data, past and present medical history and other relevant clinical information was collected from the selected patients.

Inclusion criteria:

1. Patients diagnosed with Primary or secondary infertility
2. Patients who are willing to participate
3. Patients taking treatment for infertility

Exclusion criteria:

1. Patients not willing to participate
2. Patients with lack of full examinations and evaluation results.

III. Results

1. Types of infertility:

Among 130 patients, 95 (73 %) were found to have primary infertility and 35 (27 %) were secondary. Of which 40 (31 %) patients were Male and 90 (69 %) were Female.

2. Age wise distribution:

Of 90 Female patients, majority 73 (81.1%) were in 20-30 years age group followed by 16 (17.7%) in 30-40 age group and 2 (2.2%) in <20 age group. Among 40 Male patients, 24 (60%) were in 30-40 years age group followed by 16 (40%) in 20-30 years of age group.

Table-1: Age wise distribution

S.no	Age group	Male	Female patients
1	< 20	0 (0 %)	2 (2.2 %)
2	20-30	16 (40 %)	73 (81.1 %)
3	30-40	24 (60 %)	16 (17.7 %)

3. Causes of infertility

Of 130 patients, major cause of infertility is PCOD and cysts (36.1 %) and semen factor (30.7%), followed by tubal block in female (9.2 %), hypothyroidism (8.4 %), fibroids (4.6%), infection (4.6 %), increased prolactin levels (3.8 %), thin endometrium (2.3 %).

Table-2: Causes of infertility

S.no	Causes	No of patients
1	PCOD and Cysts	47 (36.1 %)
2	Semen factor	40 (30.7 %)
3	Tubal block	12 (9.2 %)
4	Hypothyroidism	11 (8.4 %)
5	Fibroids	6 (4.6 %)
6	Infection	6 (4.6 %)
7	Increased prolactin levels	5 (3.8 %)
8	Thin Endometrium	3 (2.3 %)

4. Treatment approaches:

Table-3: Treatment wise distribution

Among 130 Patients, 90 % were treated with medication, 11.5% have underwent IUI and remaining 2.3% were treated with IUF.

S.no	Treatment	No. of patients
1.	Medication	112 (86 %)
2.	IUI	15 (11 %)
3.	IVF	3 (3 %)

IV. Discussion

Infertility is the major health problem as it has been estimated that there are 48.5 million infertile couples worldwide[4]. In this study primary infertility rate (73%) was much higher than the secondary infertility rate (27%) which is similar to studies conducted by Seyedeh Zahra Masoum *et al.*, [1], MarZieh Rostami Dovomet *et al.*, [5], Osama G. Elhussein *et al.*, [4].

Female factors (69%) were more comparable to male (31%) attributing to infertility which is similar to a study conducted by Seyedeh Zahra Masoum *et al.*, [1], Mohammad Reza Safarinejad *et al.*, [6]. But it is contrary to a study conducted by Seyedeh Zahra Masoum *et al.*, [1]. The plausible explanation for this may be approximately only 5% of the infertility incidence in couple may be due to anatomic and genetic factors, rest 95% is preventable. These preventable causes may be STD, Infections and Exposure to toxic substances which vary from region to region [7].

Most of the infertile women (81.1 %) were found in the age group of 20-30, whereas infertile men (60%) were found in the age group of 30-40 which was compatible with the other study conducted by Seyedeh Zahra Masoum *et al.*, [1] and Roupia Z., Polikandrioti M *et al.*, [8].

Ovulation disorders in which ovarian cyst and PCOD (36.1%) were the most common etiological factors in female followed by fallopian tube block and hypothyroidism which is similar to a study conducted by Osama G. Elhussein *et al.*, [4], M G R hull *et al.*, [9] where as in male semen factor (30.7%) in such as oligospermia and asthenospermia was only etiological factor found in our study which is similar to the study conducted by Osama G. Elhussein *et al.*, [4], M G R hull *et al.*, [9].

In our study, Ovulation induction therapy (86%) was the most common approach followed by IUI (11%) and IVF (3%) as most of the patients found to have ovulation disorders, PCOD and Cysts as the common etiological factor and it is similar to study approaches clinical practice Anderson Sanches Melo *et al.*, [10].

V. Conclusion

Infertility is a health issue that requires appropriate treatment strategy. Primary infertility rate was more than secondary infertility and factors responsible for female infertility were predominantly more over male factors. The main causes of female infertility were ovulation disorders such as ovarian cyst and PCOD followed by tubal block and hypothyroidism. Life style modifications and dietary changes significantly help in the restoration of hormonal imbalance. Clinical pharmacist can play a vital role in spreading awareness regarding the modifiable risk factors and help in reducing the infertility problems in patient population.

References

- [1]. Seyede Zahra Masoumi¹, Parisa Parsa², Nooshin Darvish, Sahar Mokhtari, *et al.*, An epidemiologic survey on the causes of infertility in patients referred to infertility centre in Fatemeh Hospital in Hamadan. Iran J Reprod Med. August 2015; Vol. 13.No. 8, pp: 13-516.
- [2]. Infertility in men and women- Medical News Today.
- [3]. Shahnaz Anwar and Ayesha Anwar: Infertility: A Review on Causes, Treatment and Management. Science Open Access Journal. June 16 2016. Volume 2 issue 6-040.
- [4]. Osama G. Elhussein, Mohamed A. Ahmed, Suliman O, *et al.*, Epidemiology of infertility and characteristics of infertile couples requesting assisted reproduction in a low-resource setting in Africa, Sudan. Fertility Research and Practice. 2019, 5:7.
- [5]. Marzieh Rostami Dovom, Fahimeh Ramezani Tehrani, Mehrandokht Abedini, *et al.*, A population-based study on infertility and its influencing factors in four selected provinces in Iran (2008-2010). Iran J Reprod Med. August 2014; Vol. 12. No. 8, pp: 561-566.
- [6]. Mohammad Reza Safarinejad. Infertility among couples in a population-based study in Iran: prevalence and associated risk factors. International Journal of Andrology. Vol. 31, 303-314.
- [7]. Abbasali Karimpour Malekshah, Amir Esmailnejad Moghaddam P, Narges Moslemizadeh, Sepideh Peivandi, *et al.*, Infertility in Mazandaran province - north of Iran: an etiological study. Iranian Journal of Reproductive Medicine; 2011, Vol.9. No.1. pp: 21-24.
- [8]. Roupaz, Polikandrioti M, Sotiropoulou P, *et al.*, Causes of infertility in women at reproductive age. Health science journal; April 2009, volume 3, issue 2.
- [9]. M G R hull, C M A Glazener, N J Kelly, *et al.*, Population study of causes, treatment, and outcome of infertility. British medical journal; December 1985, volume 291.
- [10]. Anderson Sanches Melo, Rui Alberto Ferriani, Paula Andrea Navarro. Treatment of infertility in women with polycystic ovary syndrome: approach to clinical practice. Clinics; 2015.70(11):765-769.

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