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Research Article

INFERTILITY AND IVF PREGNANCY: A CROSS-SECTIONAL STUDY AMONG NORTH INDIAN WOMEN

POOJA SINHA[1], NISHA MALIK[2], RAVISHEKAR N HIREMATH[3], VIVEK GUPTA[3], NAMITA BATRA[4]*, FLORIKA DAS[1], PRIYANKA PATEL[5]

[1]Department of Obstetrics and Gynecology, PGIMS, Rohtak, Haryana, India. [2]Department of OBG, AIIMS, Bilaspur, Chhattisgarh, India. [3]Department of Community Medicine, AFMS, New Delhi, India. [4]Department of OBG, University College of Medical Sciences, New Delhi, India. [5]Department of Hospital Adminstration, GMERS Medical College and General Hospital, Himmatnagar, Gujarat, India.
*Corresponding author: Namita Batra; Email: namitabtr@gmail.com

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ABSTRACT

Objective: The aim of the study is to compare the reproductive, perinatal, and neonatal outcomes among women conceived by *in vitro* fertilization to those females conceived spontaneously.

Methods: It is an observational descriptive cross-sectional study. The data were collected for 1 year and 6 months. The study population consisted of 82 term females admitted under the Department of Obstetrics and Gynecology of the hospital nearing termination who conceived after infertility. A semi-structured pre-designed questionnaire was used to collect the data.

Results: There was a significant difference in the mean age at conception of the patients who conceived spontaneously versus those who conceived after infertility treatments ($p<0.001$). The rate of cesarean section was higher in the group with a history of infertility (75%) with the rate being 35.7% in the spontaneous conception group ($p=0.038$). The neonatal outcomes were not significantly different in the two groups.

Conclusion: There is a need to analyze and compare patients on a larger scale, so as to decide if special algorithms are required to treat pregnancies conceived after infertility treatments.

Keywords: Infertility, *In vitro* fertilization, Pregnancy.

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INTRODUCTION

The birth of a child is considered a major part of human life; most men and women take parenthood for granted and look forward to it. A couple is generally considered clinically infertile when pregnancy has not occurred after at least 12 months of regular unprotected sexual activity [1]. Infertility is termed primary when it occurs without any prior pregnancy and secondary when it follows a previous conception. Infertility affects 72.4 million people worldwide and has been named a major medical and social problem by the World Health Organization [2].

Some conditions, such as azoospermia, endometriosis, and tubal occlusion more common in women with primary infertility but virtually all conditions occur in both settings. Making the distinction of little clinical benefits; The male and female gametes must first be placed next to each other at the best time for their development for conception to occur. The conceptus is transported to the uterine cavity while the endometrium is still supportive of the conceptus's continued growth and implantation. The male and female reproductive systems must be anatomically and physiologically intact for these events to take place, and coitus must occur frequently enough for the semen to be deposited in close time for the oocyte to be released from the follicle. An estimated 70% of the resulting embryos are defective and fail to develop or become non-viable soon after implantation, even in the unlikely case that fertilization is successful. It follows that the 10–15% of couples who experience infertility are not surprising. Individuals and couples who are unable to conceive experience extreme stress, and women typically experience the worst effects of society. In Mozambique, women who are infertile are prohibited from participating in specific social events and traditional ceremonies [3], whereas in Brazil, a married couple's quality would be deemed irregular in a "life without children" [4]. In China, especially in rural areas where social health insurance is not the best option, children – especially sons – are considered to be sources of security and income in the later years. Infertility-affected women frequently experience marital discord and some may even consider filing for divorce [5]. According to reports, 70% of infertile women in India face physical abuse as a form of punishment for their alleged "failure."[6].

There is insufficient attention being paid to infertility in India's reproductive health program, despite the International Conference on Population and Development Program of Action stating that reproductive health services should include the prevention and appropriate treatment of infertility (United Nations, 1994). In India, childless women have historically faced stigma and exclusion. Infertility can pose a threat to a woman's identity, social standing, and financial stability. As a result, it can be a significant cause of anxiety, which can lower self-esteem and create a sense of helplessness. A variety of customs and religious practices are sought after by couples, such as going to temples, refraining from going to a location where a woman has given birth, adhering to tantric rites, donning charms, taking part in rituals, and consulting astrologers. Anecdotal evidence suggests that a considerable number of childless couples seek the services of traditional healers or quacks. The lack of services in the public sector, stigmatizing beliefs, low male participation, expense, and inconsistent care quality are the main obstacles to early and appropriate treatment seeking. A childless woman faces stigma both within and outside the home. She is not permitted to take part in any of the many auspicious ceremonies, especially the ones that involve naming and childbirth [7].

METHODS

It is an observational descriptive study. The study design is cross-sectional. The study was conducted within PGIMS ROHTAK Hospital. The data were collected for a period of 1 year 6 months. The study population comprised term females admitted under the Department of Obstetrics and Gynecology of the hospital. Patients near termination who conceived after infertility were included in the study. A total of 82 females fulfilling the criteria were taken for the assessment. A semi-structured pre-designed questionnaire was used for the survey. After taking permission from the concerned authorities of the institution, the study was conducted among the patients. Informed consent was taken from subjects before the interview. Data entry was made in EXCEL software and descriptive statistical analysis was used to characterize the data. Association with the factors was tested for significance using the Chi-square test and $p<0.001$ was considered statistically significant.

RESULTS

The results of the present study mentioned that around 84.2% of women aged 20–41 reported conceived after infertility-related problems. Among them, the majority (63.2%) are primary infertile and (39.3%) are secondary infertile. Table 1 says it in the proper way mentioning the data:

DISCUSSION

Table 1 presents the percentage of Indian women who conceived after having infertility problems by their obstetrics background characteristics. Around 84.2% of women aged 20–41 reported conceived after infertility-related problems. Among them, the majority (63.2%) are primary infertile and (39.3%) are secondary infertile. The problems of infertility are more common among women aged 20–30, residing in Urban areas, whose duration of infertility is more than 87.5% and whose previous abortions is 10% patterns were observed in POG (week) but have the same 37.8 weeks, and the problem of infertility was found more among women with P0 whose percentage are higher with the help of *in vitro* fertilization (IVF) treatment and results showed that women above 41 experienced more IVF treatment.

Table 2 shows pregnancy and complications that happen to those women who faced IVF treatment as we know women experience health problems during pregnancy. These complications can involve the health of the mother, the fetus, or both. Even women who were healthy before getting pregnant can experience complications. For us we focused on these women who experienced infertility and showed the differences between women with normal pregnancies compared to those with women conceived with the help of surgical therapy (Assisted reproductive technologies) IVF. We used this as our choice as we know we have three types of Assisted reproductive technologies, namely, IVF, gamete intrafallopian transfer, and zygote intrafallopian transfer/tubal embryo transfer (ET). For us we picked IVF it is our choice.

Table 3 shows different factors after giving birth, more than 40% of all deaths in children under 5 years of age occur during the neonatal period: The 1st month of life, we would like to mention the results of how our women experienced infertility and then giving birth using IVF within PGIMS Rohtak Hospital has the different compare to those with normal birth.

As we see the results from Tables 1-3, it show how women who experienced infertility got the best solution to them. Researches mention most children born from IVF appear healthy. From these tables noticed a small increase in health problems, such as low birth weight, premature birth, and congenital birth defects. There are no problems compared to normal people.

Infertility has taken the speed and is a very serious problem in Indian society. Although the number of IVF pregnancies is on a rapid rise in India, no significant data are available which analyses the outcomes. The problem of infertility exists in Indian women and using IVF treatment is rising in India, the first IVF baby must now be over 40 years old since her birth, and there have been many million IVF babies.

The world over the number of IVF pregnancies must be about 1–5%, and the number continues to increase. Although most pregnancies will be uneventful, a significant minority will experience complications.

Obstetricians and Infertility Specialists involved in the antenatal management of pregnancies conceived using ART must understand the potential risks and their management. They also need to acknowledge and understand that ART-conceived patients experience pregnancy

Table 1: Baseline and obstetric characteristics of women conceived after infertility (n=82)

Characteristic	Spontaneous (n=28) Mean±SD/N%	Ovulation induction (n=38) Mean±SD/N%	*In vitro* fertilization/intra-cytoplasmic sperm induction (n=16)	p-value
Age (years)	29.7±4.5	27.5±5.2	34.8±6.4	<0.001
20–30	60.7	84.2	31.2	
31–40	39.3	13.2	50	
>41	0	2.6	18.8	
BMI (kg/m^2)	24.9±2.5	25.4±4.2	25.8±2.1	0.692
Residence				0.554
Rural	39.3	34.2	50	
Urban	60.7	65.8	50	
Type of infertility				0.979
Primary	60.7	63.2	62.5	
Secondary	39.3	36.8	37.5	
Duration of infertility	8.2±4.2	6.1±3.4	10.3±6.6	0.006
Parity				0.634
P0	71.4	84.2	87.5	
P1	25	13.2	12.5	
≥P2	3.6	2.6	0	
Parity				0.634
P0	71.4	84.2	87.5	
P1	25	13.2	12.5	
≥P2	3.6	2.6	0	
Previous abortions	7	10	3	0.813
Previous ectopic	0	1	0	0.556
Previous CS	7.1	2.6	6.2	0.674
POG (weeks) at delivery	37.8±2.9	37.0±3.5	37.1±1.9	0.53

Table 2: Pregnancy and perinatal complications

Pregnancy and perinatal parameters	Spontaneous	Ovulation induction	*In-vitro* fertilization	p-value
Mild pre-eclampsia	21.4	15.8	25	0.702
Severe pre-eclampsia	7.1	2.6	12.5	0.369
GDM	0	5.3	12.5	0.178
ICP	0	7.9	0	0.165
Oligohydramnios	10.7	2.6	0	0.193
Polyhydramnios	3.6	0	0	0.377
GCMF	7.1	0	6.2	0.258
Placenta previa	0	2.6	0	0.556
Abruptio placenta	0	2.6	6.2	0.431
PROM	3.6	0	6.2	0.354
PPROM	10.7	10.5	6.2	0.870
IUGR	7.1	5.3	6.2	0.951
Anemia	7.1	5.3	6.2	0.951
Malpresentation	10.7	18.4	12.5	0.657
IUD	3.6	2.6	0	0.757
Induced delivery	46.4	36.8	18.8	0.186
LSCS	35.7	44.7	75	0.038

Table 3: Neonatal outcome and complications

Neonatal outcomes	Spontaneous	Ovulation induction	*In-vitro* fertilization	p-value
Birth weight	2548.5±667.2	2477.1±584.5	2801.8±500.7	0.196
Baby sex				0.859
Boy	42.9	42.1	50	
Girl	57.1	57.9	50	
Preterm birth	14.3	10.5	18.8	0.711
Low birth weight	42.9	34.2	12.5	0.116
MSL	7.1	13.2	6.2	0.625
1 min APGAR ≤7	21.4	5.3	0	0.031
5 min APGAR ≤7	7.1	2.6	0	0.431
NICU admissions	14.3	18.4	6.2	0.512

differently from naturally conceived patients. These patients experience fertility treatment as emotionally, physically, and mentally demanding. Moreover, they require more emotional support from the caregivers. IVF pregnancies may not be associated with any complications at all while at the same time, the levels of anxiety are high in all IVF conception. There are a few marked differences that must be kept in mind while dealing with IVF pregnancies. IVF the last resort for infertile couples with any of the above factors and failure of lesser treatments is the procedure of IVF and ET. In some cases of tubal occlusion, where the rate of success with tubal repair is low (<30%). IVF appears to be preferable to surgery because of the more rapid conception rate and the lower ectopic pregnancy rate.

In general, infertility has emerged as a serious health problem in India. The mushrooming of "infertility clinics" is a good indicator of people looking for solutions, at times expensive. The public healthcare system in India largely ignored this problem so far. With increasing incidences of infertility and modern treatment facilities, more attention is needed to address this emerging health problem. The government passed the ART bill to effectively regulate the functioning of "infertility clinics." The bill mentions who can run these clinics and needs registration of all these clinics. There are no special government interventions or programs to treat infertile couples in India. The subject of infertility is generally neglected. The studies on the type of treatment sought by infertile women are sporadic. Evidence shows that couples go to traditional healers or religious places for treatment. However, substantial developments in reproductive technologies have occurred. The number of private hospital specialists in these techniques has increased and infertile couples may be going to these as their first choice rather than to traditional or religious healers. The present study also shows that the majority of infertile couples prefer to go for allopathic treatments compared to traditional [8].

CONCLUSION

This was a prospective observational study and many interesting facts were observed from the data so garnered. There was a significant difference in the mean age at conception of the patients who conceived spontaneously versus those who conceived after infertility treatments ($p<0.001$). The rate of cesarean section was higher in the group with a history of infertility (75%) with the rate being 35.7% in the spontaneous conception group ($p=0.038$). The neonatal outcomes were not significantly different in the two groups. It is, thus, a persisting question if we continue to treat infertility treated patients as "precious" and have a low threshold for cesarean sections.

There is a need to analyze and compare patients on a larger scale, so as to decide if special algorithms are required to treat pregnancies conceived after infertility treatments.

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AUTHORS CONTRIBUTION

All authors have contributed to the preparation of the manuscript.

CONFLICT OF INTEREST

Nil.

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