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RESEARCH ARTICLE

“COMPARISON OF LIVE BIRTH RATE IN IVF PATIENTS WITH SEVERE OATS AND NORMOZOOSPERMIC IN MALE FACTOR INFERTILITY”

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Abstract

Introduction: Infertility is defined as the inability of couples to have a baby after one year of regular unprotected intercourse, affecting 10-15 percent of couples.

Aims & objective: The present study aimed to compare of live birth rate in IVF patients with severe OATS and Normozoospermic in male factor infertility.

Methods: It is retrospective case record review of patients undergoing ICSI from 2018-2020 in a specialty fertility center. Infertile patients presenting at the Radha Hospital, CANDOR IVF Center, Surat were diagnosed for the study. Sample of male partner was diagnosed for different sperm parameters and select Normozoospermic and severe OATS patients.

Results: Total 100 infertile patients were considered for study, out of which 50 were or Normozoospermic and 50 patients with Severe OATS. The Fertilization Rate (95% and 87.5%) , Blastocyte Rate(67.5% and 58.8%) , Implantation Rate (39.9% and 28.9%), Pregnancy Rate (64% and 58%), Missed Abortion Rate (16% and 18%), Live Birth Rate (32.9% and 21.9%) in Normozoospermic and in severe OATS patients.

Conclusion: This study concludes, Fertilization Rate, Blastocyst rate, Pregnancy Rate, implantation Rate & Live Birth Rate are Slightly or mild higher in Normozoospermic compare to Severe OATS. While Missed Abortion Rate is higher in severe OATS. Overall, a negative relationship is observed between semen quality (Severe OATS) and Fertilization Rate, Blastocyst Rate, Pregnancy rate, Implantation Rate, Missed Abortion Rate and Live Birth rate.

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Introduction:-

Infertility is defined as the inability of couples to have a baby after one year of regular unprotected intercourse, affecting 10-15 percent of couples. [1]. Infertility is a serious health issue worldwide, affecting approximately 8% -

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10% of couples worldwide. Of 60-80 million couples suffering from infertility every year worldwide, probably between 15 and 20 million (25%) are in India alone [2]. According to a report by World Health Organization (WHO), one in every four couples in developing countries is affected by infertility. Large scale studies have shown that about half of all cases of infertility occurs due to female factors, 20-30 percent male factors, and 20-30 percent due to common cause of both gender [3]. The prevalence of male infertility in the general population is 15-20%, and of this the male factor is responsible for 20-40% and in India, the prevalence is around 23%. The diagnosis of infertility in men is mainly based on semen analysis. Unusual parameters of semen include: sperm concentration, appearance and motility. Infertility in men can be due to a variety of causes which are: Hormonal deficits, physical causes, sexual transmitted problems, environment and lifestyle, and genetic factors [4]. In a primary study by the WHO multi-center study, 45% of infertile men were found to be affected by oligozoospermia or azoospermia. Oligo-astheno-teratozoospermia (OAT) with abnormalities in sperm count, motility and morphology is considered as one of the most common causes of infertility [5]. While assisted reproduction technologies (ART) have been available for more than three decades, with more than 5 million children born worldwide from ART interventions such as in vitro fertilization (IVF). Hence, The present study aims to compare of live birth rate in IVF patients with severe OATS and Normozoospermic in male factor infertility.

Method:-

The retrospective case record review of patients was conducted between 2018 and 2020 following approval of the Institutional Human Research Ethical Committee. The case record review of ICSI patients in a specialist fertility centre during 2018-2020. Infertile patients presenting at the Radha Hospital, CANDOR IVF Center, Surat were diagnosed for the study. (Couples do not have child after 1 year of regular unprotected intercourse or failure of first pregnancy or previous failed IUI). Semen sample of male partner was diagnosed for different sperm parameters and select Normozoospermic and severe OATS patients. The results were analysed for descriptive analysis using Microsoft Excel 2013 for different parameters of the study like Fertilization Rate, Blastocyst Rate, Implantation Rate, Pregnancy Rate, Missed Abortion Rate, and Live Birth Rate.

Result:-

Total 100 infertile patients were considered for study, out of which 50 were Normozoospermic and 50 patients with Severe OATS.

Table 1:- Fertilization Rate in Normozoospermic and Severe OATS patient.

	Normozoospermia	Severe OATS
Fertilization Rate	95.0%	87.6%

Table 2:- Blastocyst Rate in Normozoospermic and Severe OATS patient.

	Normozoospermia	Severe OATS
Blastocyst Rate	67.5%	58.8%

Table 3:- Implantation Rate in Normozoospermic and Severe OATS patient.

	Normozoospermia	Severe OATS
Implantation Rate	39.9%	28.9%

Table 4:- Pregnancy Rate in Normozoospermic and Severe OATS patient.

	Normozoospermia	Severe OATS
Pregnancy Rate	64%	58%

Table 5:- Missed Abortion Rate in Normozoospermic and Severe OATS patient.

	Normozoospermia	Severe OATS
Missed Abortion Rate	16%	18%

Table 6:- Live Birth Rate in Normozoospermic and Severe OATS patient.

	Normozoospermia	Severe OATS
Live Birth Rate	32.9%	21.9%

Discussion:-

Infertility is defined clinically in women and men who cannot achieve pregnancy after 1 year of having intercourse without using birth control, and in women who have two or more failed pregnancies [6]. Many different medical conditions and other factors can contribute to fertility problems, and an individual case may have a single cause, several causes, or – in some cases – no identifiable causes. Overall, one-third of infertility cases are caused by male reproductive issues, one-third by both male and female reproductive issue or by unknown factors. Male infertility is defined as the inability of a male to make a fertile female pregnant, also for a minimum of at least one year of unprotected intercourse. The male is solely responsible for about 20% and is a contributing factor in another 30% to 40% of all infertility cases [7]. There are several reasons for male fertility to occur, including both reversible and irreversible conditions. Other factor that could influence is age, medications, surgical history, exposure to environmental toxins, genetic problems, and systemic disease. The key purpose for evaluating a male for infertility is to identify his contributing factors, offer treatment for those that are reversible, determine if he is a candidate for assisted reproductive techniques (ART) and offer counseling for irreversible and untreatable conditions [8].

In the present study Total 100 infertile patients were considered for study, out of which 50 were Normozoospermic and 50 patients with Severe OATS. The Fertilization Rate (95% and 87.5%) , Blastocyst Rate(67.5% and 58.8%) , Implantation Rate (39.9% and 28.9%), Pregnancy Rate (64% and 58%), Missed Abortion Rate (16% and 18%), Live Birth Rate (32.9% and 21.9%) in Normozoospermic and in severe OATS patients.

Another study done by (Gordana K et al.) in which 44 cycles of ICSI were carried out. In their study,FR (87% and 89%), IR (14% and 33%), PR (10% and 67%) and LBR (14% and 67%) respectively. In this Fertilization Rate was nearly similar to current study. There are other parameters that are not comparable to our study.

Also Present study compare with (kalliopi E et al.) Fertilization, Blastocyst, Pregnancy and Implantation rates were analysed in 1020 embryos from 219 couples undergoing first ICSI treatment cycle. Blastocyst Rate [58.0% and 40.6%], Pregnancy Rate [26% and 17.2%] and Implantation Rate [30.7% and 25.9%] in Normozoospermic and Severe OATS Patient respectively. Results are almost the same as the current study.

Conclusion:-

Infertility is a prevalent condition that affects over 70 million people globally. A variety of lifestyle choices and genetic issues have been implicated in the condition.

In this study total 100 infertile patients were enrolled in which 50 patients were Normozoospermia and 50 were severe OATS. Age of female partner ranged from 24 years to 40 years and Male Partner with 25 years to 40 years. ICSI procedure were carried out in all patients with the indication of Primary infertility & previous IUI failed patient and stimulated with FSH& HMG stimulation.

This study concludes, Fertilization Rate, Blastocyst rate, Pregnancy Rate, implantation Rate & Live Birth Rate are Slightly or mild higher in Normozoospermic compare to Severe OATS. While Missed Abortion Rate are higher in severe OATS.

Overall, a negative relationship was observed between semen quality (Severe OATS) and Fertilization Rate, Blastocyst Rate, Pregnancy rate, Implantation Rate, Missed Abortion Rate and Live Birth rate.

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