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A Review on Stress Related Infertility

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Abstract: -
About 15% of couples experience infertility, a global health issue. It can lead to a great deal of financial, emotional, and social stress. This analysis examines the various ways that infertility impacts individuals, including how psychological distress and the expensive cost of treatment (between INR 1,00,000 and 3,50,000 in India) can cause people to discontinue their therapy. The article describes methods for diagnosing both men and women, including semen analysis and hormone testing. Additionally, it examines pharmaceutical therapies such as Letrozole to initiate ovulation, Coenzyme Q10 to improve gamete quality, and more sophisticated Assisted Reproductive Technologies (ART) such as Intracytoplasmic Sperm Injection (ICSI). The results highlight the fact that while medical advancements like ICSI increase fertilization rates, positive results depend on controlling lifestyle factors and psychological stressors. The review comes to the conclusion that improving reproductive success and patient well-being requires a patient-centered approach that combines medical therapy with psychological counseling and lifestyle change.

I. Introduction: -

Being infertile is a painful experience that lowers life satisfaction and causes social and psychological stress. 15 or so globally. Infertility affects a large portion of couples. infertility prevalence. It varies between 5.3 to 30% depending on the nation.(1)
There is a lot of emotional hardship associated with infertility. There is mounting evidence that stress itself has an impact. It might have an impact on how infertility therapy turns out. A questionnaire is called the Fertility Problems Inventory (FPI). It assesses five dimensions of perceived infertility-related stress:
• Social issues
• Relationships and sexual concerns, fear
• a pessimistic view of parenting and the need for a childless lifestyle
• Global or cumulative stress metrics.(2)

Men and women may experience different levels of tension and intimacy in their marriages. In a study that examined the relationship between stress and infertility...

Men are believed to be less stressed in infertile couples. Psychologically, women are more impacted. Only men are affected by infertility. Additionally, studies have demonstrated that fruitful couples have higher levels of marital intimacy than infertile couples.(1)

Numerous causes and contributing factors for quitting smoking have been the subject of studies undertaken globally. treatment for infertility. Psychological stress, family and personal issues, misdiagnosis, and societal and demographic factors can all be taken into account in this context. Factors, egalitarianism, financial difficulties, expensive medical care, troubles with family and interpersonal relationships, treatment's perceived futility, and religion Effective factors include cultural taboos, shame and embarrassment, fear of infection, fear of failure or adverse effects, and beliefs. reasons for declining infertility therapy. In a 2010 prospective cohort research, for instance, personal life circumstances (58%) and financial issues, Infertility treatment termination has been linked to (e.g., immigration, death in the family, etc.) (38%), inactive treatment (26%), and psychological stress (20%).(3)

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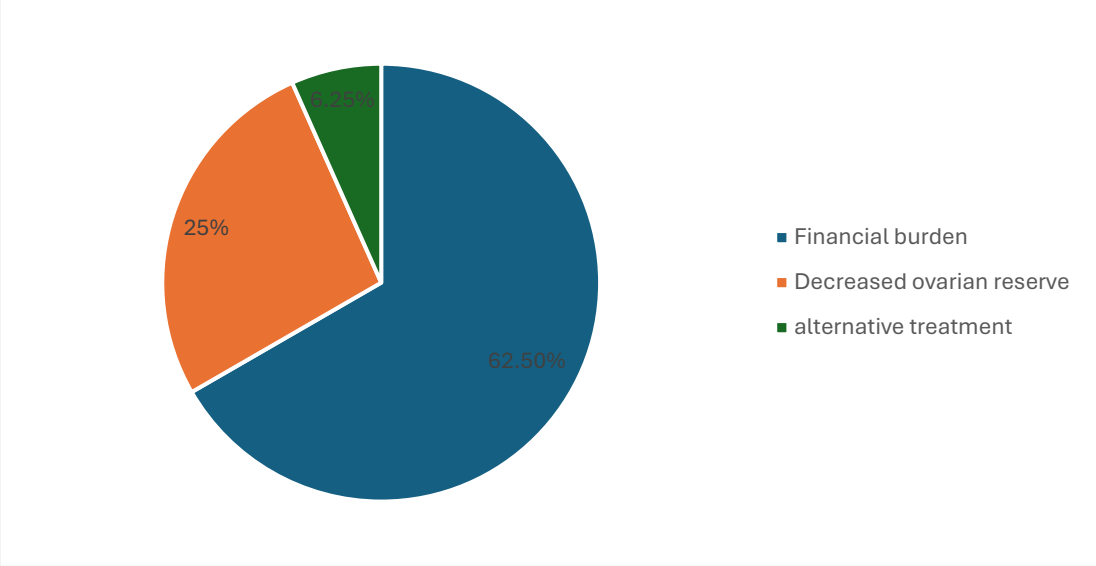

FIGURE 1: factors contributing infertility treatment

Additionally, Crohn's disease was cited as the cause of infertile women's treatment termination. A couple receiving medical care.(3)

Couples find it challenging to manage the infertility diagnosis and the ensuing treatment process, and women in particular require extra professional care and support. Healthcare providers who work directly with infertile couples receiving treatment are known as fertility nurses. In addition to creating treatment plans, sharing test results, instructing patients on how to use ovulation-inducing medications, keeping an eye on patients during tests, and educating women about the procedures involved in in vitro fertilization (OPU, ET, etc.), fertility nurses also provide patient care.

They extended their professional duty beyond physical treatment to offer infertile couples the emotional and spiritual assistance and infertility counseling they require. In addition, nurses have a special role in the treatment of infertility.(4)

Health promotion lifestyle and its influencing factors for women undergoing infertility treatment: -

The inability to conceive after a year or more of consistent, unprotected sexual activity is the hallmark of infertility, a disorder of the reproductive system. Millions of individuals worldwide suffer with infertility. Infertility is thought to affect 1 in 6 individuals of reproductive age globally at some point in their lives. Many factors, such as schooling, financial strains, and environmental changes, cause people to put off having children. Globally, both men and women are postponing having their first child, and those who marry later and have children later in life are contributing to the drop in birth rates.

Changing fertility-related factors, such the following, can raise birth rates:

• Anticipated age at birth, controlling weight
• The diet
• Physical activity

Stress on a psychological level

• Alcohol and smoking

Research on healthy lifestyle choices and associated factors that affect Taiwanese women receiving infertility treatment, however, is lacking. This study aims to analyze differences based on demographic variables and to understand the current state of healthy living habits and stress related to infertility treatment among infertile women. We also examine the distinctions between women who are pregnant and those who are not. to research the key elements that affect infertile women's healthy lifestyles.(5)

Psychological stress due to the diagnosis of infertility: -

Despite the fact that infertility is not a fatal illness, receiving an infertility diagnosis can be frightening. couples' experience. Both partners may experience psychological pain, emotional stress, and financial difficulties as a result of infertility. Anger, remorse, grief, depression, worry, and loss are among the emotions that couples may feel. self-assurance and confidence. Additionally, the cost of treating infertility will be much decreased. increases tension.

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In India, an IVF cycle typically costs between INR 1,00,000 and INR 3,50,000. with the additional expense of diagnostics and prescription drugs. Some couples may be unable to obtain treatment due to the high expense, which could result in hopelessness (Figure 2). In Indian society, having children is seen as essential. Existing stress may be exacerbated by this social pressure. Relationships may also suffer as a result. with friends, family, and your significant other. This could not include:

decreased social and familial relationships. Another possible clinical danger is psychological stress. factors that may lower the fertility of men. The contrary is true, as some writers have been able to show. Semen parameters and psychological stress are related. Stress may also have a negative impact on treatment outcomes. Figure 2 illustrates the variety of ways that infertility can be impacted.(6)

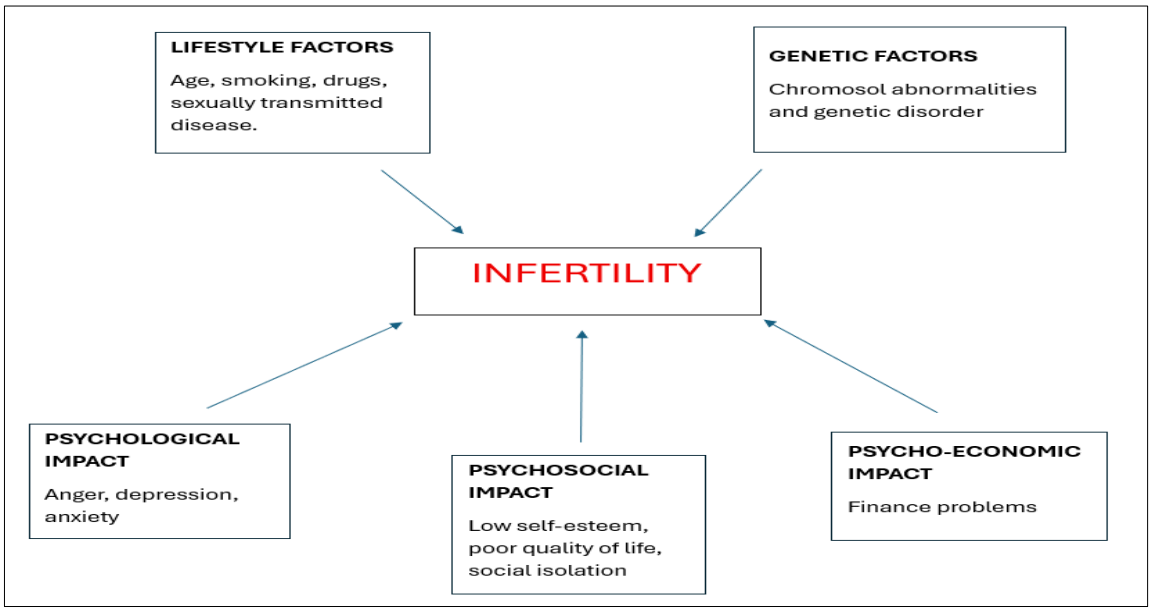

FIGURE 2: Various ways in which infertility can affect couples (6)

1. The Infertility Stress Questionnaire by Newton. Newton et al. created a multidimensional tool at the London Health Science Center in 1999. There are 46 items in this survey to assess. Individual concerns about infertility on five subscales: Ten questions about social issues, eight about sexual issues, ten about relationships, eight about rejecting a childless lifestyle, and eight about the necessity of having children. Ten questions about parenting. A Likert scale is used to record responses. The scale goes from 1 (strongly disagree) to 6 (strongly agree). Higher scores indicate better scores; total scores vary from 46 to 276. stress brought on by infertility. The validity and reliability of this device were examined in a study by Newton et al. (1999). The reliability and five subscales were tested using Postman's method of analysis. This query has been verified. According to Cronbach's alpha, all five scales and the composite total scale showed moderate to high reliability (internal consistency):

- social interest = 0.87;
- Sexual Concerns = 0.77, Relationship Anxiety = 0.82, Rejection
- childless lifestyle = 0.80, need for parenthood = 0.84, and world
- Stress = 0.93

A psychometric test was carried out by Alizadeh et al. Thirty infertile residents of Isfahan, Iran, participated in this poll.2005. Seven knowledgeable professors evaluated and approved studies that used translated questionnaires to evaluate bogus validity. field. Cronbach's alpha was used to assess the questionnaire's reliability. The results showed values of 0.78 for social issues, 0.77 for sex, 0.78 for relationships, 0.75 for lifestyle without children, 0.84 for the need to be a parent, and an overall score of 0.91(1)

2. The sample comprised 818 couples who underwent therapy at one of five clinics in Denmark and took part in the COMPI project's initial (period 1 [T1]) and 12-month follow-up assessments (period 2 [T2]). Men and women in the clinic were given 2,812

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questionnaires during the first evaluation data collection (see Figure 1). [24] for a thorough examination of the frequency and distribution of answers to T1 and T2 tests. 2,250 (80.0%) of them were released. There were 1,070 couples in this group. A 12-month follow-up questionnaire was mailed to each of these Period 1 couples; 888 (82.9%) of them returned it for both spouses, 79 (7.4%) for only one spouse, and 103 (9.6%) did not.

Only 818 of those who went back to both partners were kept for this study's final analysis. Couples whose kid was receiving infertility treatment at the time of enrollment were eliminated (1.8%, n = 16, including 5 couples who did not answer this question) in order to have the most homogeneous sample feasible. Similarly, couples who adopted during the 12-month research period were eliminated (2.0%, n = 18, including 7 who did not answer this question) in order to preserve biological outcome factors (i.e., pregnancy). One couple was eliminated because the reported number of treatments (i.e., 17) differed from the group median (i.e., 2), and another 14 couple (1.6%) were eliminated because they did not get therapy throughout the study period. Lastly, because spouses answered the Time 2 questionnaire both before and after significant life events like pregnancy and childbirth, 25 couples (2.8%) were eliminated. Because the presence of these events may have an impact on the estimations of marital and emotional factors, we eliminated these couples. Consequently, 92.1% of the initial sample of couples who finished the survey at Time 2 (n = 888) and 76.4% of the couples who took part at Time 1 (n = 1,070) made up the final sample (n = 818).

The male was older (mean = 33.8 years, SD = 5.1 years) than his spouse (mean = 31.5 years, SD = 3.5 years), and both couples were in their 30s. Most men (92.4%, n = 756) and women (86.9%, n = 711) had jobs, and couples had been living together for over 8 years (mean = 7.6 years, standard deviation = 3.6 years). Most couples (75.1%, n = 614) did not have children from a prior relationship or did not have children together. With a variable range, the average length of infertility was 4.09 (2.12) years.(7)

II. Literature Review: -

Balkan Kuru and Aslan (2026): - studied how infertile people perceived patient-centered fertility care and treatment-related quality of life. According to the study, patients' contentment and general quality of life during infertility treatment are greatly enhanced by patient-centered care. The results highlight the significance of encouraging healthcare settings and efficient communication between medical staff and patients using reproductive treatments.

Ghorbani et al. (2025) A qualitative study was carried out to investigate factors related to infertility treatment discontinuation among women who had previously failed treatments. The researchers discovered that the main causes of treatment discontinuation were mental discomfort, financial hardship, a lack of social support, and repeated failed treatment attempts. In order to support women in continuing their therapy, the study emphasized the necessity of psychological counseling and supporting measures.

Chang et al. (2025) looked at influencing factors and health-promoting habits among women receiving infertility therapy. According to the study, women who continued to lead healthier lifestyles—such as eating a balanced diet, managing their stress, and engaging in regular physical activity—performed better psychologically following therapy. Health awareness, social support, and educational attainment were found to be important determinants of lifestyle choices.

In Western Iran, **Abdoli et al. (2025)** evaluated marital intimacy and stress associated with infertility in infertile couples receiving in vitro fertilization (IVF). According to their findings, spousal intimacy and relationship satisfaction are adversely affected by high levels of stress due to infertility. In order to lower stress and improve marital relationships during infertility treatment, the study highlighted the significance of psychological support programs.

Infertility can cause melancholy, anxiety, social stigma, and emotional discomfort in couples, according to earlier research by **Sharma and Shrivastava (2022)** that examined psychological issues related to infertility. The authors recommended that emotional support networks and psychological counseling be used in addition to medical treatment for infertility.

Cooper et al. (2007) also looked into the connection between felt stress linked to infertility and the results of in vitro fertilization. Higher stress levels were linked to worse IVF outcomes, according to their research, suggesting that psychological factors may affect the effectiveness of reproduction.

Infertility-related stress in both men and women can predict treatment outcomes a year later, according to a previous study by **Boivin and Schmidt (2005)**. The study demonstrated that psychological stress may have a detrimental impact on the success rates of reproductive treatments, underscoring the necessity of stress management strategies for couples receiving infertility treatments.

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Diagnosis: -

In Females –

The cause of infertility can be determined using a variety of testing. Antral follicle count, clomiphene citrate test, anti-Mullerian hormone (AMH), follicle-stimulating hormone (FSH), luteinizing hormone (LH), prolactin (PRL), thyroid-stimulating hormone (TSH), and steroid levels of estradiol and progesterone are all proven and medically required to diagnose infertility in women, according to United Healthcare guidelines. Hysterosalpingography (HSG), diagnostic hysteroscopy, and diagnostic laparoscopy with or without chromotubulation are further methods. Tests for uterine/endometrial sensitivity and inhibin B levels are regarded as dubious. There is not enough data to justify the use of these tests, and more investigation is required to substantiate reports of successful infertility treatments. There isn't a widely recognized "minimum diagnostic set" for infertility, according to the literature. The selection of diagnostic procedures for infertile couples is based only on broad guidelines. As previously said, the diagnosis process should involve taking a thorough medical history, paying particular emphasis to the woman's age, and then performing a thorough physical examination. Considering that the majority of infertility causes may be identified with a high likelihood using less intrusive techniques, more testing should be done. Cost-effectiveness should constantly be taken into account. Anovulation, reduced ovarian reserve, uterine or fallopian tube pathology, pelvic adhesions, endometriosis, and polycystic ovarian syndrome (PCOS) are the most frequent reasons of infertility in women.(8)

In Men –

Sperm assessment (spermogram) is the test for males that consistently correlates with pregnancy. Anti-sperm antibodies, genetic screening tests (cystic fibrosis gene mutations, karyotype analysis for chromosomal abnormalities, Y-chromosome microdeletion testing), hormone levels (LH, FSH, prolactin, testosterone (total and free), and white blood cell count) are among the proven and medically necessary tests or procedures to diagnose infertility in male patients, according to United Healthcare guidelines. Angiography, testicular biopsy, scrotal, testicular, or transrectal ultrasound, post-ejaculation urine analysis, and semen analysis as previously mentioned. Additionally, keep in mind that there is a huge number of tests that have not been validated and Computer-assisted sperm analysis (CASA), hyaluronan binding assay (HBA), postcoital cervical mucus penetration test, reactive oxygen species (ROS) test, sperm acrosome reaction test, and sperm DNA integrity/fragmentation tests (there are numerous tests, including sperm chromatin dispersion test, or SCD, and sperm DNA decondensation test, or SDD) are medically necessary for diagnosing infertility in male patients.

Lastly, it must be underlined that there is no assurance that pregnancy and the birth of a healthy child will result from all of these tried-and-true tests and counseling. When preparing for testicular sperm aspiration (TESA), spermogram analysis and FSH measurement have the most practical usefulness for treating infertility.(8)

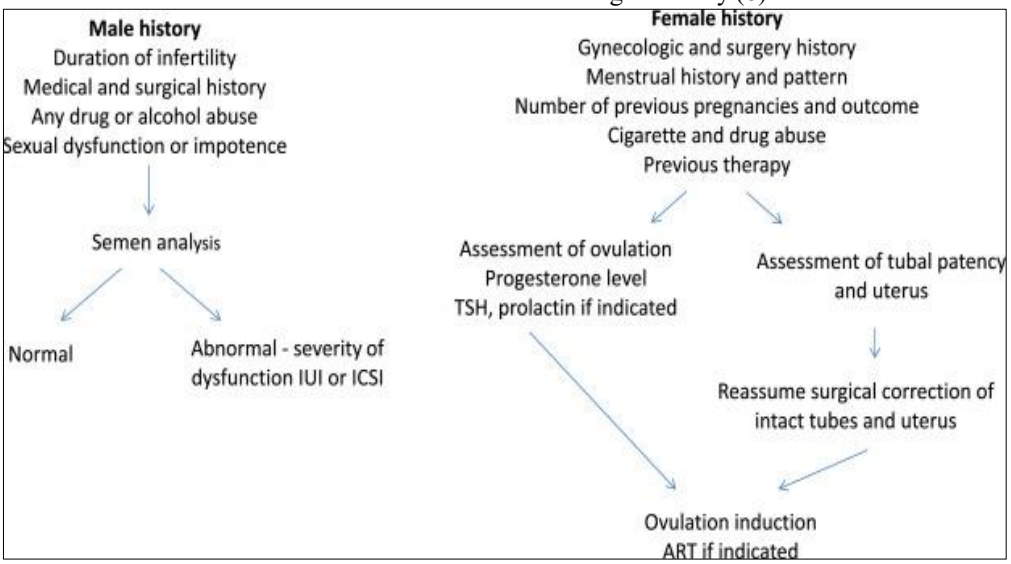

FIGURE 3: Infertility Evaluation(8)

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TREATMENTS: -
MEDICATION:
Supplements: -
1. Coenzyme Q10: - The most successful treatment for infertility issues is generally acknowledged to be assisted reproductive technology (ART).
The success rate of embryo transfer is still very low, despite recent considerable advancements in ART technology, making it challenging for infertile couples around the world (Vidal et al., 2025). Improving gamete quality is crucial to addressing poor ART success rates, and it may also increase clinical pregnancy rates. For example, contemporary research is heavily focused on coenzyme Q10 (CoQ10), which is renowned for its antioxidant properties and has demonstrated promise in improving oocyte quality and increasing conception rates (Alexandru et al., 2024). CoQ10 is a vital bioactive material that is present in many different organisms and has a variety of biochemical characteristics, such as significant functions in energy metabolism and antioxidant activity (Xu et al., 2025).
• The primary biochemical features of CoQ10 are as follows: 1. CoQ10 is engaged in oxidative phosphorylation and electron transport, and it is a crucial component of the mitochondrial respiratory chain in all cells (López-Sánchez et al., 2025). In the inner mitochondrial membrane, it serves as an electron carrier, boosting the flow of electrons from complexes I and II to complex III and encouraging the production of ATP. Since ATP is the main energy source for cells, CoQ10 is necessary for sustaining cellular energy metabolism (Rimle et al., 2025).
• CoQ10 functions as a potent antioxidant, efficiently scavenging oxygen free radicals in cells and shielding them from damage caused by oxidative stress (Ahmadi et al., 2025). By neutralizing free radicals and avoiding oxidative damage to proteins, lipids, and deoxyribonucleic acid (DNA), it preserves the structural and functional integrity of cells (Nesci et al., 2023). Given that oxidative stress plays a significant role in female infertility, this antioxidant characteristic is especially significant in the field of reproductive medicine.

• CoQ10 is a fat-soluble benzoquinone with a side chain of ten isoprene units and a quinone ring in its chemical structure. Its integration into the cellular and inner mitochondrial membranes is made easier by this structural arrangement, which guarantees electron transport and antioxidant functions (López-Sánchez et al., 2025).

• By increasing immune cell activity and function, CoQ10 enhances immunological responses (Roşian et al., 2025). In reproductive medicine, this characteristic may strengthen the immune system of infertile women (Nie et al., 2023). The primary source of CoQ10 is endogenous production. Benzoquinone ring formation and isoprenoid side chain assembly are important stages in this process. Human CoQ10 is characterized by side chain elongation up to 10 isoprene units, which is controlled by the rate-limiting enzyme 4-hydroxybenzoate polyprenyltransferase (Shi et al., 2025). It's crucial to remember that while the body can produce CoQ10, as people age, their ability to do so declines (Singh et al., 2007). Consequently, there are significant clinical ramifications to exogenous CoQ10 treatment.(9)
2. ANTIOXIDANTS: - These are chemical or biological substances that have the ability to scavenge free radicals and halt the series of events that eventually result in oxidative stress. Because they produce more ROS than fertile control males, infertile men are more likely to have aberrant semen ROS levels. There is much evidence supporting the use of antioxidants in male infertility, especially when it comes to basic sperm parameters. The association between antioxidant use and sperm quality measures has been extensively researched. There is insufficient data to support the involvement of some antioxidants (sodium, potassium, calcium, copper, magnesium, and manganese) in ROS-related infertility. In vitro supplement studies have demonstrated that inositol, another promising antioxidant, improves sperm parameters. Since the majority of the information on these antioxidants comes from in vitro research or descriptive literature, it is not included in this review. There is also no mention of vitamin A. The individual antioxidant effects of vitamin A on male fertility have not been sufficiently supported by clinical research. To reinforce their potential contribution to increased male fertility, more research on these antioxidants is required.(10)
DYDROBOON: - Adding a progestin is one of these treatments. Inadequate endometrial development and poor control of inflammatory mediators like interleukins are known to be linked to progesterone insufficiency. Consequently, progestogen support may aid in preventing miscarriage and establishing a suitable immunological response in the early stages of pregnancy. Dydrogesterone is an oral progestogen that has a strong affinity for progesterone receptors and shares a chemical structure like endogenous progesterone. Dydrogesterone does not have a

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masculine effect on the female fetus and does not generate androgenic side effects in the mother (hirsutism, acne, etc.), in contrast to many other synthetic progestins. Therefore, the goal of this study was to examine the efficacy of maintenance medication with either human chorionic gonadotropin (hCG) or dydrogesterone in women who experienced repeated, unexplained spontaneous miscarriages.(11)

MAJOR: -

Letrozole: -

Letrozole is 4,40-[(1H-1,2,4-triazol-1-yl)methylene]bisbenzonitrile. It has demonstrated great efficacy as an aromatase inhibitor both in vitro and in vivo in both people and animals. Letrozole's plasma half-life (2.5 mg once daily) is 41 to 48 hours after oral treatment, and its plasma kinetics are characterized by rapid and full absorption (t max = 1 h) (average absolute bioavailability 99.9%) and relatively slow excretion. The amount of letrozole absorption was unaffected by food consumption.

CYP450 isoenzymes' metabolism, which produces the inactive metabolite carbinol, is the primary pathway of elimination. Patients with hepatic impairment should exercise caution because letrozole's T1/2 may be markedly elevated. Letrozole decreases endogenous estrogen synthesis by 97–99% and aromatase activity by above 99%. Letrozole's mode of action in OI is still unknown. It may, however, work via both central and peripheral pathways, according to certain theories. Letrozole dramatically lowers estrogen levels centrally, stopping the hypothalamic-pituitary-gonadal (HPG) axis from producing negative feedback from estrogen. Transient intraovarian androgen buildup can raise FSH receptor gene expression and sensitize the follicles because peripheral conversion of androgen substrates to estrogens is hindered (15–18). Additionally, insulin-like growth factor 1 (IGF-1) and other endocriparacrine hormones are stimulated by androgen buildup within the follicle. These substances may interact with FSH to enhance folliculogenesis.

For OI, letrozole can be taken either by itself or in conjunction with exogenous FSH; however, the ideal dosage and schedule are still unknown. Letrozole is used in OI according to a procedure that is similar to that of clomiphene citrate (CC). Depending on the presence of follicles measuring 6 to 8 mm, letrozole is often administered at a dose of 2.5 to 7.5 mg daily on days 3 to 7 of menstruation throughout a 5-day period. The 6 mm diameter follicle has a large number of androgen receptors, and a rise in androgen at this period encourages granulosa cell mitosis and FSH receptor production.(12)

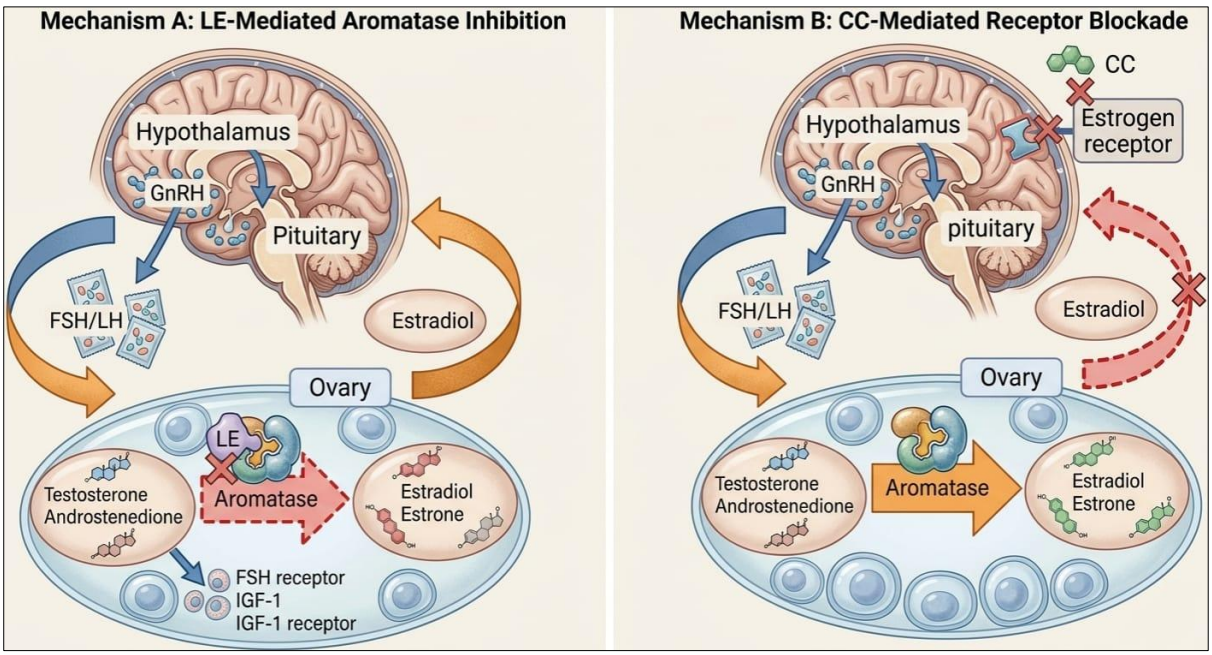

FIGURE 4: The mechanism of action of letrozole for ovulation induction(12)

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Follicular study: -

The female reproductive system is both directly and indirectly impacted by psychological stress brought on by unpleasant life experiences. The production of cortisol, a stress hormone, can be directly triggered by negative life events. This hormone suppresses the manufacturing of estradiol in follicle cells, which lowers the quantity and quality of the resultant eggs. By altering lifestyle choices like drinking alcohol and smoking, which can produce reactive oxygen species (ROS), this may have an indirect effect on reproductive health.

Elevated ROS levels cause apoptosis, which lowers the quality of oocytes. Changes in lifestyle and the production of ROS in women might result from a number of other reasons. Maintaining oocyte quality and, consequently, female reproductive health depends on the generation of ROS and its elimination by enzymatic and non-enzymatic antioxidants.

During folliculogenesis, oocyte maturation, and embryogenesis, physiological ROS levels are advantageous. Research conducted in our lab has demonstrated that ROS levels below 60 ng/oocyte are physiological ROS levels that facilitate diplotene termination in follicular oocytes. After stopping diprotene, the production of moderate amounts of ROS (60–80 ng/oocyte) may cause meiosis to resume. The finding that the addition of antioxidants can impede the maturation process of rat oocytes produced in vitro provides additional evidence for the positive effect of physiological ROS levels. Stress, however, can cause ROS generation to surpass physiological thresholds (80 ng/oocyte), which can result in follicle-oocyte death and cell cycle halt.(13)

Some injections for egg rupture: -

One of the most significant developments in the history of in vitro fertilization is the discovery of intracytoplasmic sperm injection (ICSI), which has greatly increased conception rates even in the most severe cases of male infertility (Palermo et al. Citation 1992). Giampiero Palermo created ICSI in the 1990s. He was investigating the strip insemination (SUZI) technique for oocyte fertilization in Belgium at the time (Niederberger et al. Citation2018). During this time, he discovered that fertilization rates were comparatively high and realized that he had unintentionally injured the oolemma, the oocyte's plasma membrane, during an ultrasound exam.

The first reports of pregnancy following ICSI were made in 1992 (Palermo et al., referenced in 1992), and it was later discovered that the rate of ICSI was higher than that of ultrasonography. Even men with the most severe types of male infertility can become parents because to ongoing technological advancements. A sperm is inserted straight into the egg during ICSI. To put it briefly, an ICSI pipette is used to micromanipulate a single immobilized sperm. A holding pipette with a first polar body at either 12 or 6 o'clock holds the oocyte in place. The injection pipette is positioned at three o'clock. After entering the pellucid zone, the ICSI pipette is forced up against the oolemma. A tiny amount of ooplasm is pulled into the ICSI pipette to aid in oocyte activation, and the membrane is torn by being withdrawn into the pipette under mild negative pressure. The sperm is then forced out of the pipette toward the center of the oocyte. ICSI is recommended in cases of severe male infertility or a history of poor or unsuccessful fertilization. It can achieve fertilization rates of 70–80% (Palermo et al. Citation 2009). For ICSI, sperm can be extracted directly from the testes, epididymis, or semen. The use of ICSI raises the difficulty and expense of IVF because it necessitates more laboratory knowledge, resources, and time (American College of Reproductive Medicine and Assisted Reproductive Technology Society Practice Committee, referenced 2020).(14)

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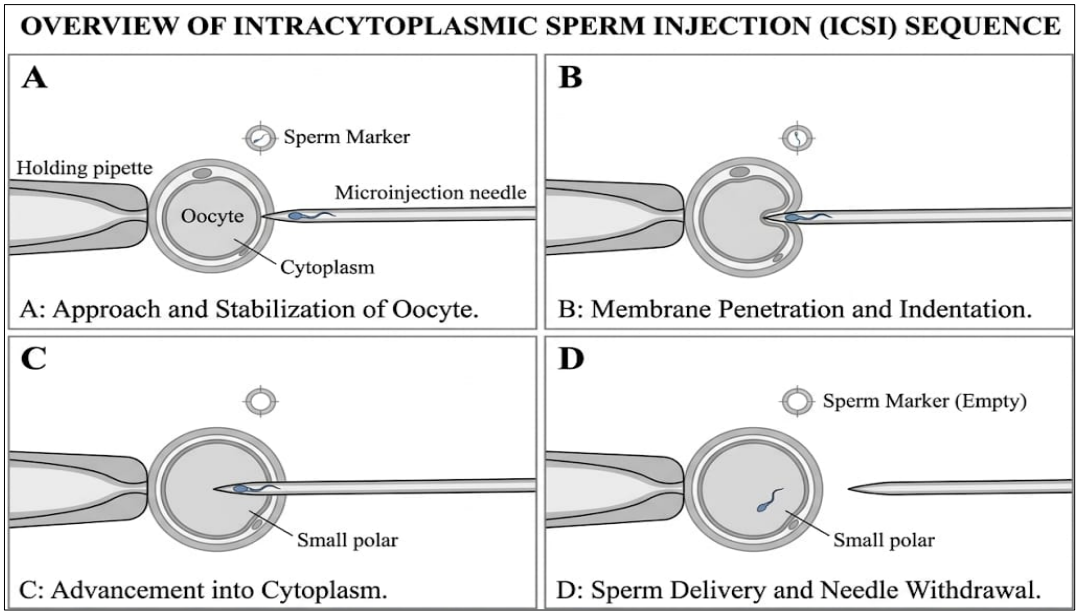

FIGURE 5: Intracytoplasmic sperm injection (ICSI)(14)

Progesterone medications: -

Since the 1980s, it has been widely acknowledged that the luteal phase following IVF cycles in the absence of exogenous hormonal assistance is marked by early luteolysis, which is followed by an early drop in progesterone and estrogen levels. IVF treatment success rates are significantly reduced as a result of these anomalies' detrimental effects on endometrial receptivity and embryo implantation. These alterations in endocrine dynamics are caused by multiple pathogenetic processes. One theory concerned the detrimental effects of granulosa cell aspiration during egg retrieval, which would result in fewer luteal cells and less efficient hormone release by the corpus luteum. The finding that retrieval of oocytes from spontaneous cycles had no effect on luteal phase features, however, disproved this theory.

For ovulation induction regimens in ART, gonadotropins are frequently used with gonadotropin-releasing hormone (GnRH) agonists. Thus, it has been proposed that the long-term pituitary function suppression brought about by these medications may be connected to luteal malfunction. On the other hand, a distinct hormonal profile may arise from GnRH antagonist suppression. Pituitary function is reported to recover quickly when these medications take effect. This could enable luteal function to return to normal and luteinizing hormone output to recover quickly.(15)

Route of Administration	Formulation	Recommended Regimens
Oral	Micronized progesterone capsules 100–200 mg	200–600 mg/day (no longer used)
Intramuscular	Natural progesterone in oil ampoules of 100 mg	25–100 mg/day
Vaginal	Micronized progesterone cps 100–200 mg vaginal tablets 100 mg Single use, disposable, vaginal applicator containing 90 mg of bio adhesive progesterone gel Vaginal ring releasing progesterone (11 mg/day)	600–800 mg/day 90 mg once or twice a day Not yet available for clinical use

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Subcutaneous	Water-soluble progesterone-hydroxypropyl-β-cyclodextrin complex ampoules of 25 mg	25 mg/day

TABLE 1 : Pharmaceutical form and routes of administration of progesterone available for clinical use(15)

III. Conclusion: -

Infertility therapy has evolved into a complex specialty that involves more than simply medical care. This review demonstrates how three sets of factors—medical, psychological, and socioeconomic—have a significant impact on the path to conception.

- Advances in Diagnosis and Treatment: We are now better equipped to address physiological obstacles to fertility thanks to new diagnostic instruments and medications like Letrozole and Coenzyme Q10. With 70–80% fertilization rates, ICSI is still a crucial component of treating severe male infertility.
- The Impact of Stress: Psychological stress can lead to infertility and exacerbate it by producing reactive oxygen species (ROS), which negatively impact women's oocyte quality and men's semen parameters.
- Therapy Barriers: People quit receiving therapy mostly because they cannot afford it, particularly in areas where costly treatments like IVF aren't always accessible.
- Holistic Care: In order to provide patients with the emotional and spiritual support they require to get through the difficult aspects of therapy, fertility nurses and patient-centered care are crucial.

We need more than simply medical accuracy to improve reproductive outcomes. In addition to medical procedures, we require a multidisciplinary strategy that lowers social stigma, modifies lifestyle choices, and offers robust psychological support networks.

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