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RESEARCH ARTICLE

PSYCHOLOGICAL STRESS IN COUPLES UNDERGOING INFERTILITY TREATMENT

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ABSTRACT

Objectives: Fertility is defined as ability to conceive and produce offspring while according to WHO, infertility is disease of female reproductive system defined by failure to achieve pregnancy after 12 months or more of regular unprotected sexual intercourse. It affects between 48 million couple and 186 million individual globally.It is associated with male and female factors or combination .Most of the time infertility is perceived very negatively by the couples and cause lots of psychological stress may be upto the extent of suicidal thoughts There is associated a social stigma.alongwith , specially in rural areas.For both of them environmental factors such as lifestyle, smoking, excessalcohol, obesity, environmental pollutants are associated with lower fertility rates. This study is done to analyse the effect of infertility on pscychological status of couples undergoing treatment. **Methods:** This systematic review comprises of databases from pubmed, Cochrane, googlescholar, medline. **Results:** A total of 20 articles from 2016-2021 were included .Infertility causes modification of both endocrine and immune system at both tissue and cellular level. **Conclusion:** We could find out negative impact of Infertility on psychologiacal status of couples undergoing treatment, which further affect their metabolic and endocrinal functioning adversely.

INTRODUCTION

According to WHO ,infertility is a disease of male and female reproductive system defined by failure to achieve pregnancy after 12 months or more of unprotected sexual intercourse(1).Infertility is a life crisis affecting couple from all around world. They experience tremendous emotional stress, depression.(2)It affects millions of people of reproductive age group, affecting 48 million couple and 186 million individual globally .Infertility can be primary or secondary. Primary infertility is when one have never conceived while secondary infertility is when one prior pregnancy has been achieved .In female reproductive system it is caused by range of abnormalities of ovary, uterus, fallopian tube and endocrine system, while in male reproductive system it is caused by ejection of sperm, absence or low level of sperm or abnormal morphology, mobility of sperm. (3) Female infertility includes factors like tubal factor like blocked fallopian tube,post-partum sepsis, uterine disorder like endometriosis, fibroid, septateuterus. Ovarian disorder like polycystic ovarian disease, disorder of endocrine system like imbalance of reproductive hormones .Male factors causing infertility are obstruction of reproductive tract or dysfunction in ejection of sperms. Hormonal disorders leading to abnormality in hormones produced by pituitary and hypothalamus and testicle, testicular failure, abnormal sperm function and quality causes abnormal morphology and motility (4,5,6).

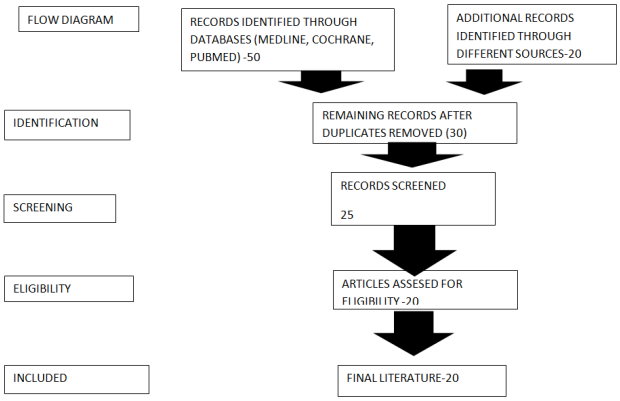
The hypothalamus and pituitary have been shown to have meditator of infertility causes secretion of corticotropic releasing hormones, ACTH, CORTISOL respectively. Changes in diurnal excretion pattern shown to accompany mental stress and mediate down regulation of HPG axis. Inhibitory mechanism at pituitary level reduce release of FSH and LH by Gnrh .Unexplained infertility is known as idiopathic infertility has role of mental stress .The first mediator travels from injured area to anterior pituitary causes ACTH release. ACTH along with other hormones stimulate adrenal cortex to discharge corticocoids. Mineralocorticoids stimulate the proliferative activity and reactivity of connective tissue, thus enhancing the inflammatory potential. The aim of this is to systematically analyse and evaluate the influence of male and female infertility on stress ,mental disorder, sleep, eating disorder.

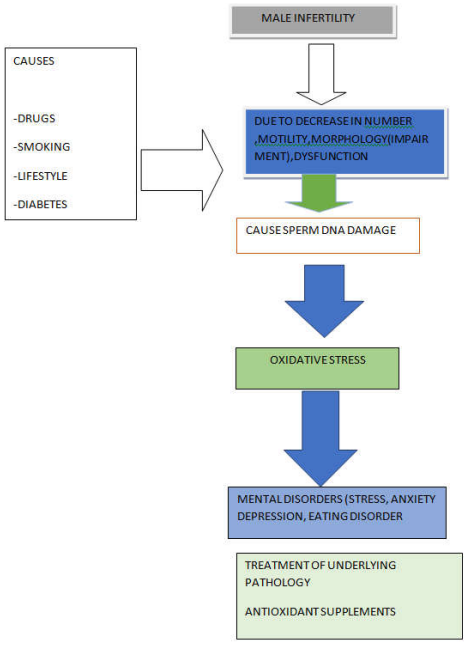
MATERIALS AND METHODS

This system review based analysis of available literature indexed in PubMed, medline, Cochrane, google scholar. Keywords used during search of title and abstract were combination of infertility and fertility, depression and stress or mental disorder, sleep disturbance, insomnia, anorexia nervosa, addiction.

RESULTS

A total of 50 articles from 2016 to 2021 were retrieved, duplicates were removed,30 articles were assessed for eligibility .final sample of 20 articles were chosen for inclusion into review .Infertility causes increase level of anxiety and depression, so it is clear that infertility causes stress.





THE PSYCHOLOGICAL IMPACT OF INFERTILITY ON STRESS, DEPRESSION, ANXIETY

Infertile couples experience a lot of stress, anxiety, and depression (7). Approximately 350 million people suffer from depression worldwide and many of those affected do not receive appropriate treatment, mainly due to a global shortage of psychiatrists, ineffective treatment, mental health system inefficiencies and stigma. (8)Often weeks or even months are needed to respond to antidepressant treatment. In addition, side effects such as withdrawal syndrome , sexual problems, weight gain and drug addiction are common. Problems with depression, stress and anxiety affect a lot of people who are infertile (9) Secretion of gonadotropin-releasing hormone (GnRH) pulses from the hypothalamus stimulates the pituitary gland to secrete luteinizing hormone (LH) and follicle-stimulating hormone (FSH).Pulse amplitude and frequency. GnRH is important for adequate secretion of gonadotropins. LH secretion is stimulated by high frequency GnRH pulses, while low frequency pulses stimulate FSH. During the follicular phase of the menstrual cycle, increased estrogen levels lead to an increased frequency of GnRH pulses. This leads to increased LH secretion and ovulation. Many reproductive disorders in women are associated with abnormalities in GnRH secretion and, among others, this group includes hypogonadotropic hypogonadism, hyperprolactinemia, and PCOS. The release of gonadotropin-releasing hormone (GnRH) pulses from the hypothalamus stimulates the pituitary gland to secrete luteinizing hormone (LH) and follicle-stimulating hormone (FSH). Pulse amplitude and frequency. GnRH is important for adequate secretion of gonadotropins. LH secretion is stimulated by high frequency GnRH pulses, while low frequency pulses stimulate FSH. During the follicular phase of the menstrual cycle, increased estrogen levels lead to an increased frequency of GnRH pulses. This leads to increased LH secretion and ovulation. Many reproductive disorders in women are associated with abnormalities in GnRH secretion, among others are hypogonadotropic hypogonadism, hyperprolactinaemia and PCOS.

Sleep disturbances are commonly known to be associated with a number of diseases affecting the cardiovascular, endocrine, and nervous systems (10) Polycystic ovary syndrome is characterized by hyperandrogenism, insulin resistance, and ovulation, and is one of the most common diseases of the endocrine system in women of childbearing age.(11) PCOS also reduces fertility and is a common cause of female infertility. Sleep disturbances coexist with circadian rhythm disturbances and activation of the hypothalamic-pituitary-adrenal axis, and these factors directly or indirectly influence inflammatory responses, melatonin levels, and hormone levels fertility and uterine receptivity. In addition, poor sleep quality, insomnia, and disrupted sleep induce inflammatory responses in the form of increases in tumor necrosis factor (TNF), interleukin (IL) 6, and creative proteins 61, 62, and 6, respectively. All of these factors are correlated with unexplained factors. TNFα is aninflammatory response regulatorinvolvedin inflammatory mechanisms involvedin implantation, placental abruption and pregnancy outcome. Obstetric complications from overproduction of TNF include recurrent miscarriage, early and severe preeclampsia, and recurrent implant failure.

Eating Disorders

Eating Disorders Anorexia nervosa is a seriousmental disorder characterized by extreme dissatisfaction with the size and/or shape of the patient's body or parts of the body. which eventually leads to the patient's fear of weight and aversion to food.(12)It is estimated that amenorrheaoccurs in about 75% of women with anorexia nervosa and amenorrhea in about 8% of women. Binge-eatingdisorder (BED) is characterized by episodes of binge eatingdisorder that lead toa feeling of lossof control, similar to bulimia(14). However, BED does not involve manydifferentprocesses to combat food ingestion. Like anorexia nervosa and bulimia(13), patients with BED also haveamenorrhea and amenorrhea. High insulin levels cause testosterone levels to rise, negatively affectingfertility (15,16,17)

Addiction: Substance addiction is a neuropsychiatric disorder characterized by a repeated desire to continue taking the substance despite adverse consequences (18).

It has a direct effect on fertility, mainlythrough through the effects of substanceabuse (19) In the case of women, acute alcohol consumption can increase estrogen levels leading to a decrease in FSH, eventuallyleadingto ovulation disorders. Inaddition, alcohol consumption has a negative effect on semen volume and morphology, and lower testosterone levelsinmen, and the differences between these factors were more significant when comparing daily versus occasional drinkers, rather than occasional versus non-regular drinkers do not drink. In addition, addiction is often associated with risky sexual behavior, such as frequent change of sex partners or unprotected sex with an unknown person. This leads to an increased risk of infection with other sexually transmitted diseases. STDs, if left untreated.(20)

MENTAL STRESS, SUICIDAL TENDENCY AND OTHER PSYCHOLOGICAL DISORDERS IN INFERTILE COUPLES

Women with infertility problems who undergo IVF may be at risk of suicide. Lack of children, depression, and non-positive reevaluation predict suicide risk. Suicide risk, depression assessment recommended for women undergoing IVF(21)The acquisition of strategies to regulate emotions and positive coping can be an advantage.(22)Women at risk of suicide were more likely to be childless or have fewer children and to have higher levels of depressive symptoms.

CONCLUSION

An analysis of the literature carried out during the present systematic review highlights the negative impact of infertility on stress, depression, sleep disorders, eating disorders, and addictions on both female and male. These disorders modify the functioning of endocrine glands and the immune system at both the tissue and cellular level, all of which may result in reduced fertility

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