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A CRITICAL REVIEW OF FEMALE INFERTILITY WITH SPECIAL REFERENCE TO POLYCYSTIC OVARY SYNDROME AND SHUKRA DHATU

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ABSTRACT

Female infertility is a complex disorder resulting from endocrine, metabolic, anatomical, genetic, and lifestyle-related factors. Among these, Polycystic Ovary Syndrome is the most common cause of anovulatory infertility. Ayurveda explains infertility through the concepts of Vandhyatva, Shukra Dhatu, Artava, Dosha imbalance, Agni dysfunction, and Srotorodha. The Shukra is created as part of a long chain of metabolic transformations. but nowadays due to modern lifestyle, junk food, late marriage, anxiety, depression etc leads to PCOS in female. so all the causes leads to Shukradushti, which is similar to hormonal imbalance which leads to PCOS (infertility). Female infertility is the major disorder which has altered the mankind for lack of conception and reproducibility, stressful world, excess radiation have resulted the female infertility. Infertility/ childlessness cause great personal suffering & distress. Most of this agony & misery is hidden from the public gaze. Infertility is in approximately 90% of couple. i.e. Male related problems account for about 30%, female related problem account for another 30%, in next 30% both are responsible.

KEYWORD: Infertility, PCOS, Shukra Dhatu.

INTRODUCTION

Infertility is one of the most significant reproductive health problems worldwide and has profound medical, psychological, social, and economic consequences. The inability to conceive often causes emotional distress, anxiety, depression, marital discord, and reduced quality of life. According to the World Health Organization (WHO), infertility is recognized as a disease of the male or female reproductive system characterized by the failure to achieve a clinical pregnancy after 12 months or more of regular, unprotected sexual intercourse.

Globally, approximately 10–15% of reproductive-aged couples experience infertility. Female factors account for nearly 30–40% of cases, male factors contribute another 30–40%, while the remaining cases result from combined male and female factors or remain unexplained. Among female causes, Polycystic Ovary Syndrome (PCOS) is the leading cause of anovulatory infertility.

Ayurveda considers reproduction an essential objective of life (Prajanana). The ability to conceive depends upon the proper functioning of the reproductive tissues (Shukra Dhatu in both sexes and Artava in females), balanced Doshas, healthy Agni, and normal Srotas. Disturbances in any of these physiological components may result in infertility (Vandhyatva).

Shukra means bright, pure, and radiant. Shukradhatu is produced by Posaka (unstable) Majjadhatu flows through the Shukravaha srota into the Shukradharakala and is digested by the Shukragni. In Ayurveda, the term has often been used to refer both the male semen and the female egg, as they contain the essence of all other dhatus (tissues) of the body. Shukra is the seventh and final dhatu in the dhatus formation cycle. A person who passes healthy Shukra has a brightness of confidence, with eyes and skin that seem to radiate light. Asensitive individual can perceive this light. Others may notice it as luster or may simply feel the strength and confidence of the one who possesses it. At times, two distinct terms are used to describe the male and female seed. Shukra universally applies to sperm, but can also apply to the entire makeup of semen.

In this study we compare the relation between Shukra and Hormone which causes infertility. according to some scientist, function of hormone which is related to infertility and function of shukra are same.

The rate of infertility is becoming fast a common phenomenon in today's hectic stressful life. Some of the common causes of infertility are Life style, occupation, lack of awareness about normal sexual life and family life, depression, sexually transmitted diseases, late marriages some unknown causes male infertility, female infertility, or infertility to both. Nowadays PCOS is a common endocrine disorder in a women of reproductive age group. It is found in about 70% of women who have ovulation difficulties leading to infertility.

CONCEPTUAL REVIEW

Definition of Infertility

Modern Definition

The World Health Organization defines infertility as.

"A disease of the male or female reproductive system defined by the failure to achieve pregnancy after 12 months or more of regular unprotected sexual intercourse."

Infertility is classified into.

Primary Infertility

A woman has never conceived despite one year of regular unprotected intercourse.

Secondary Infertility

A woman is unable to conceive again after having conceived previously, irrespective of the outcome of the earlier pregnancy.

Epidemiology of Female Infertility

Infertility is increasing worldwide due to changing lifestyles, environmental pollution, delayed childbearing, obesity, stress, endocrine disorders, and metabolic diseases.

Important epidemiological facts include.

- Approximately 48 million couples worldwide are affected by infertility.
- Nearly 186 million individuals experience infertility during their reproductive life.
- Female infertility contributes to approximately one-third of infertility cases.
- PCOS accounts for nearly 70–80% of anovulatory infertility.
- In India, the prevalence of PCOS varies from 3.7% to 22.5%, depending on the population studied and the diagnostic criteria used.
- Urbanization, sedentary lifestyle, obesity, and insulin resistance have significantly increased the prevalence of infertility among young women.

Definition of Shukra Dhatu

The word Shukra is derived from the Sanskrit root "Śuc" meaning pure, bright, radiant, clear, and luminous. In Ayurveda, Shukra Dhatu is the seventh and final Dhatu (body tissue) formed during the sequential process of tissue metabolism (Dhatu Parinama). It is regarded as the most refined and vital tissue responsible for reproduction, vitality, strength, and continuation of the species.

Classical Ayurvedic texts describe Shukra as the reproductive essence present throughout the body. Although it is clinically expressed as semen in males, its physiological existence is considered universal in both sexes. Therefore, in females, Shukra Dhatu is interpreted as the reproductive tissue responsible for ovum formation, fertility, conception, and maintenance of reproductive health.

Acharya Charaka states that healthy Shukra is responsible for.

- Fertility (Prajanana)
- Sexual potency
- Reproductive capacity
- Strength (Bala)
- Vitality (Ojas)
- Happiness and enthusiasm
- Healthy offspring

Thus, Shukra Dhatu is not merely semen but represents the entire reproductive potential of an individual.

Shukra Dushti and Female Infertility

Ayurveda states that vitiation of Shukra Dhatu impairs reproductive function. Common causes include improper diet (Ahitakara Ahara), sedentary lifestyle, excessive stress, anxiety, obesity, disturbed sleep, excessive intake of processed foods, and impaired Agni. These factors lead to Dosha imbalance, particularly Kapha and Vata, resulting in defective nourishment of Shukra Dhatu.

Clinical manifestations of Shukra Dushti in women may include.

- Delayed conception
- Irregular menstruation
- Anovulation

- Poor ovarian reserve or poor-quality ovum
- Recurrent pregnancy loss
- Hormonal imbalance
- Infertility

Correlation with Polycystic Ovary Syndrome (PCOS)

Polycystic Ovary Syndrome is the most common endocrine cause of female infertility. It is characterized by chronic anovulation, hyperandrogenism, insulin resistance, and menstrual irregularities. From an Ayurvedic perspective, these pathological changes can be understood as Shukra Dushti associated with Kapha and Vata Dosha imbalance, impaired Agni, Ama formation, and obstruction of the Shukravaha Srotas.

Modern reproductive endocrinology attributes infertility in PCOS to disturbances in the Hypothalamic–Pituitary–Ovarian (HPO) axis, leading to abnormal secretion of Follicle-Stimulating Hormone (FSH), Luteinizing Hormone (LH), estrogen, progesterone, insulin, and androgens. These hormonal alterations interfere with follicular maturation and ovulation. Although Shukra Dhatu is not directly equivalent to any single hormone, its physiological functions closely resemble the integrated actions of the reproductive endocrine system responsible for ovulation, fertilization, and conception.

CAUSES OF INFERTILITY

According to Ayurveda infertility occurs when “Shukra dhatu” does not get the proper nutrition which can happen due to poor digestion, lack of balanced diet.

Few other causes which also can be a cause of infertility are:

1. Sexual overindulgence is also a cause of “Shukrakshya” (decrease of “Shukra dhatu”) and can sometimes lead to Klebya (impotency) .
2. Mental disturbances like anxiety, depression and insomnia can also be a cause of infertility.
3. Eating extra hot and spicy food increases the Pitta in our body and weakens the formation of “Shukra dhatu” inside our body which ultimately delay chances to conceive.
4. In female PCOS is main cause of infertility

Modern Hormonal Basis of Female Fertility

Female fertility depends upon coordinated hormonal regulation involving the Hypothalamic–Pituitary–Ovarian (HPO) axis.

Major hormones include.

Gonadotropin-Releasing Hormone (GnRH)

Stimulates pituitary secretion of.

- FSH
- LH

Follicle-Stimulating Hormone (FSH)

Functions.

- Follicular growth
- Oocyte maturation
- Estrogen production

Reduced FSH activity contributes to anovulation.

Luteinizing Hormone (LH)

Functions

- Ovulation
- Corpus luteum formation
- Progesterone secretion

In PCOS, elevated LH causes excessive androgen production.

Estrogen

Functions

- Endometrial proliferation
- Follicular development
- Cervical mucus production
- Menstrual regulation

Progesterone

Functions

- Preparation of endometrium
- Implantation
- Pregnancy maintenance

Anovulation results in progesterone deficiency.

Prolactin

Elevated prolactin suppresses ovulation.

Thyroid Hormones

Normal thyroid function is essential for

- Menstrual regularity
- Ovulation
- Pregnancy

Insulin

Insulin resistance increases androgen production and contributes significantly to PCOS-related infertility.

Correlation Between Ayurveda and Modern Medicine.

Ayurvedic Concept	Modern Correlation
Vandhyatva	Female infertility
Beeja	Ovum
Artava	Menstrual and ovarian function
Shukra Dhatu	Reproductive potential
Agni	Cellular metabolism
Ama	Metabolic dysfunction and chronic inflammation
Kapha Dushti	Obesity and insulin resistance
Vata Vikriti	Ovulatory dysfunction
Shukra Dushti	Hormonal imbalance and poor gamete quality
Srotorodha	Tubal obstruction and impaired ovarian function

PCOS

- ❖ The polycystic ovary syndrome is the most common metabolic abnormality of reproductive age.
- ❖ Most common cause of infertility in women.
- ❖ Studies of PCOS in India reported a prevalence of 3.7% to 22.5%. And up to 36% prevalence in adolescents

A CLINICAL PRESENTATION OF WOMEN WITH PCOS

- REPRODUCTIVE
- Menstrual irregularities, miscarriages
- Acne, hirusuitism, endometrial hyperplasia
- Insulin resistance
- Hyper androgenism
- Ovulatory dysfunction

- Metabolic
- Pre-diabetes, cancer, obesity
- Diabetes, CV risk

PCOS AND INFERTILITY

- Approx. 85-90% women with oligomenorrhea have PCOS
- 30-40% of women with amenorrhea
- Spontaneous abortion is seen more frequently in PCOS with incidences ranging from 42-73 %
- Hirsuitism occur in up to 70% of women with PCOS

FUNCTIONS:- IN FEMALES

Ovaries: Oestrogens helps stimulate the growth of an egg follicle.

Vagina: It also stimulates the growth of the vagina to its adult size, the thickening of the vaginal wall, and an increase in vaginal acidity that reduces bacterial infections.

Fallopian tubes: Oestrogens is responsible for the growth of a thick, muscular wall in the fallopian tubes, and for the contractions that transport the egg and sperm cells.

Uterus: Oestrogens enhances and maintains the mucous membrane that lines the uterus

WHAT IS OESTROGENS?

Source- ovary placenta, testis (Oestrogens is hormones found In female and low level in male)

Normal range – 1) Men- 30 to 200 pmol/l

2) Female – 15TO 350 pmol/l

Cervix: Oestrogens is thought to regulate the flow and thickness of uterine mucous secretions. This enhances the movement of a sperm cell to an egg and enables fertilization.

Mammary glands: Oestrogens forms unique relationships with other hormones in the breast. They are responsible for the growth of the breasts during adolescence.

WHAT IS PROGESTERONE

SOURCES:-Corpus luteum

Placenta

Adrenal cortex

FUNCTION:- Progesterone is essential for the maintenance of pregnancy and various factor associated with it. It also takes part in it.

-It essential for the formation of placenta

DISCUSSION AND CONCLUSION

Polycystic Ovary Syndrome (PCOS) is one of the leading causes of female infertility and is characterized by ovulatory dysfunction, hyperandrogenism, insulin resistance, and metabolic disturbances. These abnormalities disrupt follicular development, ovulation, and hormonal balance, thereby reducing fertility. From an Ayurvedic perspective, PCOS can be understood as a disorder involving Kapha and Vata Dosha vitiation, impaired Agni, Ama formation, obstruction of the Srotas, and consequent Shukra Dushti. Such pathological changes impair the quality and function of Shukra Dhatu, ultimately leading to infertility.

Although Shukra Dhatu is not directly equivalent to any single reproductive hormone, its physiological functions closely parallel the integrated actions of the hypothalamic–pituitary–ovarian axis and reproductive hormones such as FSH, LH, estrogen, and progesterone. Therefore, Shukra Dushti may be considered an Ayurvedic representation of reproductive and endocrine dysfunction rather than a simple hormonal deficiency.

Reproductive health, in both men and women, depends on the health of the reproductive tissue or Shukra dhatu. In women, Shukra creates the ovum as part of the monthly cycle, and in men the semen is formed due to sexual stimulation. The Shukra is created as part of a long chain of metabolic transformations. but nowadays due to modern lifestyle, junk food, late marriage, anxiety, depression etc leads to PCOS in female. so all the cause leads to Shukradushti, which is similar to hormonal imbalance which leads to PCOS (infertillity). Thus the Ayurveda provides a truly comprehensive and balanced approach about shukra and infertility.

Ayurveda addresses the internal balances and external influences contributing to the problem by building the Ojas, improving the overall health of the individual, stimulating the hypothalamus and pituitary glands thereby indirectly inducing the ovaries to ripen and release eggs.

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