

A CONCEPTUAL STUDY OF ENDOCRINOLOGICAL ASPECT OF KSHINSHUKRA (OLIGOZOOSPERMIA) AND ITS PROBABLE TREATMENT

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ABSTRACT

In today's fast life style sexual problems are the burning issue affected huge population. According to WHO, 60-80 million infertile couple are found worldwide while in india 10-15% in the productive age group are infertile in which 25% are male¹ In *Ayurveda* sperm is called as *Shukra* or *Pumbija* which considered as one of *Dhatu* of "*Saptawidhdhatu-Siddhant*". *Shuddha Shukradhatu* is necessary for healthy progeny so lot of literature regarding *Shukradhatu* available in *Ayurveda*. After whole study it is observed that there are two types of *Shukradhatu* i.e. *Sarvasharirasthita* and *Sthanika Shukradhatu*. *Sarvasharirasthita Shukradhatu* (Gonadotrophic Hormones i.e. FSH and LH) - production carried out by *Shukradhara Kala* While *Sthanika Shukradhatu* (Semen and spermatozoa) production carried out by *Vrishana* and *Shepha*. If any disturbance occur in this physiology leads to *Kshinshukra* (Oligospermia) So while treating *Kshinshukra* above physiology is important and those drugs (like *Shukrajanana Mahakashaya*) mentioned in *Ayurveda* literature works on brain level i.e. *Medhya* drugs which stimulate hypothalamus (connected with brain) to secrete Gonadotrophin Releasing Hormone (GnRH) leads to increase level of FSH and LH which repair Hypothalamo-Pituitary-Testes axis and process of spermatogenesis to produce healthy sperm. In modern science satisfactory treatment not available so *Ayurveda* is ray of hope for world suffered by oligozoospermia (*Kshinshukra*)

Keywords: *Saptawidhdhatu-Siddhant*, *Shuddha Shukradhatu*, *Sthanika Shukradhatu*, *Kshinshukra*.

INTRODUCTION

Infertility is a problem of global proportions, affecting on an average 8-12% of couples worldwide. Low sperm count (Oligozoospermia) is one of the main causes of male infertility and it is correlated with *Khinshukra*. Infertility is defined as the inability to achieve pregnancy after one year of unprotected coitus. Male infertility is considerably to be less complicated than female infertility, but can account for 30-40% of infertility. Except for some physical defects, low

sperm count (Oligozoospermia) and poor sperm quality are responsible for male infertility in more than 90% of the cases². Out of these, in about 30 to 40% the causes are unexplained, and in the rest of the cases critical illness, malnutrition, genetic abnormalities, pollution, side effects of some medicines, hormones (less Gonadotrophin Releasing Hormone) and chemicals play a major role.

More than 190 studies on *Vajikarana* (Aphrodisiac therapy) have

been carried out in various Ayurvedic Academic Institutes in India, at the PG and PhD level, where in, researchers have considered various aspects of the problem, like its etiology, pathogenesis, and complications of the diseases related to the reproductive system, in both Ayurvedic and Modern parlance. Out of 190 studies more than 50 studies have been carried out on Oligozoospermia. The term Oligozoospermia is correlated in the research studies with *Kshina Shukra* (23 studies); *Alpa Shukra* (1 study); *Shukra Dosha* (3 studies); *Shukra Dushti* (13 studies); *Shukra Kshaya* (11 studies); *Shukralpata* (3 studies); *Kshina Retas* (1 study); *Bijopaghata* (1 study), and *Shukradhatu Vikara* (3 studies). Acharya Susruta has included *Kshina Shukra* under *Shukra Dushti*. Here, *Vata dosha* along with *Pitta* undergo vitiation and create a disturbance in the normal qualities and quantity of the *Shukra Dhatu*. Oligozoospermia is a seminal disorder in which the sperm count is below 20 million/ml.

To decide some specific treatment protocol basic physiology and pathophysiology (*Samprapti*) of Ayurvedic concept *Khinshukra* (*Kshinshukra*) should be understood on the basis of modern view is necessary as Ayurvedic drugs also acts at different levels of pathology

MATERIAL AND METHOD:

Aims and objective:

1. To understand basic concept of *Shukradhatu*, *Khinshukra* (*Kshinshukra*) and its endocrinological relation.
2. To decide treatment protocol for *Kshinshukra* (Oligozoospermia)

Conceptual Study:

In Ayurvedic text *Shukradhatu* is produced by three ways:

-First as 7th *dhatu* produced by *Dhatu-poshana Nyaya* from *Rasarakta* previous *Dhatu*.

-Second way *Shukradhatu* produced from 7th *Shukradhara kala* which present in all lives and situated inside whole body. It produces *Sarvashariravyapi Shukradhatu*.

-*Shukradhatu* also produced from *Shukravaha Srotomula Vrishana* and *Shepha* we can call it as *Sthanika shukra*.

1. *Shukradhatu production by Dhatu-poshana Nyaya*³-

When we see these facts observed that when person affected by systemic illness like malaria, mump, varicocele or addictions like alcohol, smoking, drugs leads to *Strotogata Amotpatti* so *Rasarakta-Dhatuposhana* get hampered leads to *Kshinshukra*.

2. *Shukradhatu production by Shukradhara Kala*⁴-

While *Shukradhara Kala* (Su.Su.4/14) is situated inside all body it means something that situated all body also play important role in *Shukradhatu* production. Master endocrine gland (Spermatogenesis) secretes Gonadotrophins which secreted directly into blood that can be called as *Sarvasharirasthita Shukradhatu*. Gonadotrophins are of two types Follicle Stimulating Hormone (FSH) which in male targets sustentacular cells of testes and stimulates spermatogenesis (production of sperm) and Leutinizing Hormone (LH) in male causes secretion of testosterone and other androgens by the interstitial cells.

About *Sarvasharirasthita Shukradhatu* production mentioned by some example like juice present all over sugarcane or *sarpi* in daidhi or *tilataila in tila*, as like that *Shukradhatu* is also present all over body i.e. These are the gonadotrophic hormones secreted by pituitary gland and

present all over body and that's mainly secreted at puberty and expresses secondary sexual characters in male as well as female that's why *Acharyas* had mentioned *Shukradhatu* in female also. Means sex related hormones are that present all over body maintained by *Shukradhara kala*⁵.

Regarding *Shukradhatu* production given an example that buds doesn't have fragrance but there is fragrance when buds convert into flower means at particular age i.e. at puberty (At 12-16 years) this also indicate toward sex hormone production⁶.

Acharya Charaka has been mentioned site of production of *Sarvasharirasthita shukradhatu*. According to *Acharya Charaka Shukradhatu* secreted through a structure situated in *Asthi* having *Vayu-Akashmahabhuta* as like water secreted through small pores of soil pot. From this reference it can be concluded that *Shukra* i.e. gonadotrophin hormones (FSH and LH) and the structure situated in *Asthi* (hypophysial fossa of sphenoid bone) is pituitary gland which secretes hormones for stimulation of spermatozoa production⁷

So if FSH and LH level goes down leads to *Khinshukra (Oligospermia)*. This fact remains unhighlighted during treatment. Hypothalamus is part of Central Nervous System i.e. brain that control all endocrine system so called as **bandmaster of endocrine orchestra**. Keeping this fact in mind our great *Acharyas* had also used *Medhya* or other drugs that acts on brain or CNS to enhance function of Hypothalamus which secretes Gonadotrophin Releasing Hormone (GnRH) stimulates pituitary to increase level of Gonadotrophins and repair the pathology at endocrine level or those drugs having proved action on hormone level can be used.

3. *Shukradhatu* production by *Shukravaha strotasa*⁸-

Shukravaha strotasmula are two *Vrishana* i.e. Two testis (where sperm produced) and *Shepha* (penis) by which *Shukradhatu* get ejaculated. *Acharya Sushruta* mentioned two *Stana* (For female) and two *Vrishana* as *Strotomula*. *Vrishana* developed from *Mamsa, Rakta* and *Meda*, so in treatment of testes abnormality (hypogonadism) those drug act on *Mamsa, Rakta* and *Meda* can be used as *Shtanavishesha Chikitsa*.

Bellow two *Angula* of opening of urinary bladder there is passage of *Shukravahini* that bring *Shukradhatu* in urinary tract and also mixes prostate secretion, seminal vesicle and bulbourethral gland and ejaculated by penis⁹. It shows way of secretion of semen or sperm and network of other accessory glands i.e. Seminal vesicle, bulbourethral and prostate glands¹⁰. Obstruction in this path also leads to *Sangajanya-Khinshukra*.

According to modern science there are many causes for oligospermia including-

Pre-testicular factors (*Disturbed Dhatushoshanakra*) refer to conditions that impede adequate support of the testes and include situations of poor hormonal support and poor general health including, Hypogonadism (*Sarvasharirasthita shukradhatu dushti*) due to various causes, strenuous riding (bicycle riding, horseback riding) Medications, including androgens. Drugs, alcohol, smoking addiction.

Testicular factors (*Shukravaha Strotodushiti*) refer to conditions where the testes produces semen of poor quality despite adequate hormonal support and include, testicular factors refer to conditions where the testes produces semen of poor quality despite adequate hormonal support and include, Age (*jarajanya*), Genetic defects on the Y chromosome, Y chromosome micro-deletions, Abnormal set of chromosomes,

Klinefelter syndrome (*Bijadosha*), Neoplasm, e.g. seminoma, Cryptorchidism, Varicocele (14% in one study), Trauma (*Aghatajanya*).

Post-testicular factors decrease male fertility due to conditions that affect the male genital system after testicular sperm production and include defects of the genital tract as well as problems in ejaculation: Vas deferens obstruction (*Sanga*), Lack of Vas deferens, often related to genetic markers for Cystic Fibrosis, Infection, e.g. prostatitis, Ejaculatory duct obstruction

The diagnosis of oligozoospermia is based on one low count in a semen analysis performed on two occasions. For many decades' sperm concentrations of less than 20 million sperm/ml were considered low or oligospermic, recently, however, the WHO reassessed sperm criteria and established a lower reference point, less than 15 million sperm/ml, consistent with the 5th percentile for fertile men. Sperm concentrations fluctuate and oligospermia may be temporary or permanent.

Sources usually classify oligospermia in 3 classes:

- Mild: concentrations 10 million – 20 million sperm/ml
- Moderate: concentrations 5 million – 10 million sperm/ml
- Severe: concentrations less than 5 million sperm/ml

Investigations- Routine hematological, Semen analysis, FSH, LH Level, Serum testosterone level, USG gonads are necessary to find out exact cause behind oligospermia¹¹.

DISCUSSION

Acharyas has mentioned many types of *Khinshukra* in *Samhitas* of which *Kshinshukra* is important one that contrib-

ute to most of male infertility causes so to decide treatment protocol considering its endocrinological aspect is need of hour.

Dietetic factors are described as *Shukravaha Srotodushtikara Nidanas*, particularly *Anasana* (Fasting), *Alpa-Pramitaasana* (Inadequate diet), and *Visamaasana* (Irregular diet), which can impede the *agni* and may produce *Khinshukra*, which ultimately leads to impaired fertility. Deprived sustenance may alter the metabolism, which may result in *dhatu kshaya*. *Shukra* is the essence of all the former *dhatu*s. Thus, any disturbances in the digestive process may lead to defective formation of *Shukra*, that is, *Majjakshaya* leads to *Alpa Shukra*. Very low caloric or protein deficiency causes hypogonadism and decreases the function of the Leydig cell and further leads to infertility. *Kshara* (Alkali), *lavana* (Salt), and *Amla* (Sour) may cover the drugs of chemicals/pesticides described in modern medicine. The factors can be listed as *Khavaigunyakara* for *Shukravaha srotas*.

Viharaja Nidanas like excessive coitus (*Ati maithuna*), untimely coitus (*Akala maithuna*), coitus in other than vagina (*Ayuvana maithuna*), abstinence, intercourse with unaroused partner, coitus in old age (*Jaraya Gamana*), excessive exercise (*Ati Vyayama*), excessive exposure to heat (*Ati-Ushna sevana*), and suppression of ejaculation (*Shukravega Nigrahaha*) are said to be responsible for the *Shukravaha sroto dushti*, which leads to *Kshina Shukra*. So first step to treat *Khinshukra* should be *Nidana parivarjana*.

The psychological causative factors are *Chinta* (worry), *Bhaya* (fear), *Krodha* (anger), *Shoka* (depression), and so on, and unhealthy sexual/coital practices. Iatrogenic causative factors include improper

Kshara (Alkali), Agni (cauterization), and Sastra Karma (surgical procedures), anti-psychotic drugs such as Cyproterone, Ketoconazole, and the like, disease-Induced factors include — diseases such as Hemorrhoids, Varicocele and so on, and other factors like smoking and caffeine are also known causative factors of oligozoospermia. So first step to treat Khinshukra should be *Nidana parivarjana* .

Dhatuposhananakrama abnormality should be treated with *Agnidipana*, *pachana chikitsa* like *Panchakol churna* so that healthy *Shukradhatu* should be obtained from previous *Rasaraktadi dhatu*. If there is problem in *sarvasharirasthita Shukra* (Sex Hormones) production then *Medhya* drugs¹² (*Shankhapushpi, mandukaparni, yashtimadhu, Guduchi*) or those act on brain level (*Jatamansi, Bramhi*) or those directly increase sex hormone level (*Ashwagandha, Shatawari*) should be used in treating Khinshukra. Acharyas may also know this fact –if we see content of *Shukrajanan Mahakashaya* of *Charaka* containing – *Jatamansi* that may act on pituitary through CNS same .These drug probably act at hormonal level which stimulate Hypothalamus to secrete Gonadotrophin Releasing Hormone (GnRH) that enhance secretion of Gonadotrophins i.e. FSH and LH which help to increase sperm count. So repair Hypthalamo-Pitutary-Testes axis, hence it is necessary to add this type of drug during treating *Khinshukra* (Oligospermia)

If *Shukravaha strotodushti* leads to *Sthanika Khinshukra* so drugs like *Kapikachhu, Kshira, Vanari gutika* and different *Kalpa* preparation by *Acharyas* in *Vajikaran Prakarana* can be used. *Shukra-shodhana Mahakashaya* can be used which containing *ikshu* containing fructose thats necessary for healthy sperm produc-

tion in process of spermatogenesis also containing *Samudraphena* having *lekhana* property so can relieve obstructive pathology.

CONCLUSION

Ksheenashukra (Oligospermia) is burning issue in today's practice so its main cause deficiency secretion of sex hormone should be considered as key factor in treatment. So it is concluded that, Some specific drugs like *medha, sangyasthapana* or having proved action on Hypothalamo-pituitary-testes axis should be given with routine Ayurvedic treatment.

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