

A CRITICAL REVIEW OF LITERATURE OF SHUKRALPATA (OLIGOSPERMIA)Shinde Deepak Tanaji¹, Salunke Dattatray Wamanrao² and Suse Swati Sandip^{3*}¹Assistant Professor, Dept. of Prasutitantra and Strirog, Yashwantrao Chavan Ayurvedic Medical College Aurangabad.²Professor, Dept. of Prasutitantra and Strirog, Yashwantrao Chavan Ayurvedic Medical College Aurangabad.³Assistant Professor, Dept. of Prasutitantra and Strirog, Yashwantrao Chavan Ayurvedic Medical College Aurangabad.***Corresponding Author: Suse Swati Sandip**

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Article Received on 22/07/2020

Article Revised on 12/08/2020

Article Accepted on 02/09/2020

Infertility is the inability of a person, animal or plant to reproduce by natural means. It is usually not the natural state of a healthy adult organism, except notably among certain eusocial species (mostly haplodiploid insects). In humans, infertility may describe a woman who is unable to conceive as well as being unable to carry a pregnancy to full term.

There are many biological and other causes of infertility, including some that medical intervention treat. 20-30% of infertility cases are due to male infertility, 20-35% are due to female infertility, and 25-40% are combined problem in both parts. In 10-20% of cases, no cause is found. WHO defines infertility is a disease of the reproductive system defined by the failure to achieve a clinical pregnancy after more than 12 months or more of regular unprotected sexual intercourse (and there is no other reason, such as breastfeeding or postpartum amenorrhea).

INTRODUCTION

Primary infertility is infertility in a couple who have never a child. Secondary infertility is failure to conceive following a previous pregnancy. Infertility may be caused by infection in the man or women. Male infertility is most commonly due to deficiencies in the semen and semen quality is used as a surrogate measure of male fecundity. Oligospermia, Asthenozoospermia, Azoospermia, Teratozoospermia. Oligospermia is one among the prime factor in the male infertility and it is defined as subnormal concentration of spermatozoa in the penile ejaculate. According to WHO the guidelines on semen analysis, Oligospermia is the condition where the sperm count is less than 20 million/ml.

According to Ayurveda, infertility exists when a healthy couple is unable to achieve a pregnancy after two or more years or fail to conceive for several years after the first delivery. To have an offspring is a dream of every married couple. Ayurveda is not only a medical science of life that gives guidelines for a successful healthy life. Arogya is described as the root for chaturvidh purushartha i.e. four main goals of life to be achieved by every person.

Ayurveda is one such approach, as it takes a holistic path to address both the mental and physiological aspects of infertility. For both men and women, reproductive health depends on the health of their reproductive tissues. In traditional ayurvedic medicine, experts use a combination of dravya to restore both physical and

emotional wellbeing in an effort to boost fertility levels by influencing reproductive hormones.

Semen is white, liquid, sweet in taste, look like colour of honey or oil. The treatment of oligospermia comprises of Vajikaran and Rasayan dravyas or medicines internally. Shodhan and Vajikaran therapies for detoxification and rejuvenation along with diet and lifestyle modification will not only help in better conception but also in producing healthy offspring.

Aims and objective

- A critical review of literature of Shukralpata (Oligospermia).
- To study the Shukralpata in details from Ayurveda Samhitas.
- To study the Oligospermia in details from Modern textbook.

Review of literature**Historical review (discription of shukra alpata)**

The discretion of Shukra alpata in various literatures in past i.e. Vedas, Charak Samhita, Sushrut Samhita, Ashtang Sangrah, Ashatang Hrudaya, Kasyap Samhita. To go ahead without any trouble, it is necessary to go a clear picture about past.

Vedas

In Vedas the word Shukra is used to indicate the male factor for Garbhotpatti (R.V. 6/58/12) Dipta (bright), Nirmala (pure), Shubhra (spotless), shweta and Shukla (white), are the qualities denoted for suhukra (R.V. 2/2/3,

2/2/7,166/12). The word retas is mean for reproduction (9R.V.9/86/39, 2/28/5). The virya is used for retas as synonym (R.V.1/7/8, a.v.9/15/23) papkarma is considered is a nidana of Retokshyaya (r.v.4/3/17).

Charak samhita

Charak has given much importance to vajikaran in separate chapter in four padas in chikisthana.charak has mentioned Shukra dhatu kashay lakshana in Shukra shtana (cha. su.17/169) and its chikista in sharirshtana (cha. sha.6/11). He has indicated nidanas of Shukra kshyay in vajikaran adhyaya (cha.chi. 2-4/43). He has mentioned eight type of Reto doshas in shutra sthana and again mentioned in chikistha sthana under title of Shukradusti (cha. chi 30).

Sushrut samhita

Sushrut give the definition of vajikarn tantra, sushruta has used the word kshin retas (su.su.1/7) he attributed the properties of dhairyachyavana preeti to the sukradhatu (su.su.14/1-4). Different sukradusti lakshana and their treatments (su.su.2/4) are explained.the vitiation of vyana apana are responsible for the sukradosha (su.ni.1/20). He has considered sukra alpata as one type of sukra dusti. Here he has shown doshika involment in kshina – Shukra (su. Sha.2/4). Upachaya is the main treatment for sukra alpata (su.su.1/8).

Ashtang sangrah

Shukralpata sign and treatment have been described in sutrashtana (A.S.Su.19/6-10) vat and Pitta doshas are responsible for Shukralpata and complete elimination of Shukra is essential.

Ashtanga hridaya

Shukralpata signs and symptoms are described in sutrashtana (A.H.su.11/20),and the solution for the same is described in (A.H.Sha 1/14). Kshin retas occure due to vat and Pitta. (A. H. Sha 1/10) Various types of vajikar yogas have been mentioned in uttarsthana. (A.H.Ut.40)

Bhavprakash

Bhavprakash has explained seven types of klayibya and their chikitsa. He has also explained ejaculation process.

Haritsamhita

In Harit samhita there is mention of pathya apathy to be followed in Shukrakshay. (Ha. Sha.3/50)

Kashyapsamhita

There is mention of eight types of Shukradosha. (Ka.Su.27/55-56) In jatisutra sharir adhyay kashyap has mentioned Shukradoshas chikitsa. (Ka.Sha.Jatisutra A/10) Lasun is said to work as Shukrajanan dravya. (Ka.Kal. Lasunkalp.A/16-17)

Sharangdharsamhita

Sharangdhar described Shukral, Shukrauttpadak, Shukrapravartaka, Shukrarechana, Shukrastambhana, Shukrashoshana, and vajikaran drugs. (Sha.pu.14-17)

Bhelsamhita

Acharya Bhela has described seven types of Shukradosha. One anjali pramaan of Shukra has been mentioned. (Bhe.Sha.716).

Ayurvedic review

Shukradhatu: Shukra is considered as the terminal essence (sara) of all the tissue elements (dhatu).

Vyutpatti: Shukra is white pure excellent dhatu of all. **ORIGINE OF WORD SHUKRA** Origine of word Shukra in sanskrit is from root suk soce which means cleanliness.

Nirukti: Retas- the substance which comes out during coitus. According to ayurveda, Shukra dhatu is the terminal element of the body. Shukra dhatu is considered as the sara of all the dhatu.

Paryay: Retas, tejaha, veeryam, beejam, indriyam are the paryayas for Shukra dhatu. (amar-6/2/62)

Shukravaha strotas

Charak has mentioned that Shukravaha strotas shtan is vrushano and shephach. According to sushrut sthano and vrushno. according to sharangdhar viryavahishira and vrushn are the main sthan of Shukravaha strotas. In male two vrushan means testis, two adhvishanika means epididymis,two shukra vahini means vas deference,two Shukra prapika means seminal vesicles and medhra means penis to form the system of Shukravaha strotas.

Shukradhara kala and shukradhatu vyaktikaran

seven folds are formed and deposited on the rapidly transforming product of the combination of sukra (semen) and sonata (fertilized ovum) which have been thus charged the individual soul or self in the same manner as layers (of cream) are formed and deposited on the surface of (boiling)milk. The seventh kala is called sukradhara laka (semen-bearing), which extends throughout the entire body of all living creatures. Su sha.4/20 The fat like (sarpi) in the milk, or sugar in the expressed juice of sugarcane, the (seat) of semen is coextensive with the whole organism of a man (animal).

Physical charecterstics of semen

Shukra is cool.(su.ssha.3/3).Sphatikabham- crystline, dravam- liquid, snigdhoily, madhuram-sweet in taste, madhugandhich-smell honey, Tailamkshaudramnibham-colour of oil or honey.(su.ssha.2/11) Picchiila- unctuous, bahal- thick, avisra- absence of bad smell, Shukla- white in colour (cha.chi.2-4/50) sara- mobile, Sandra-dense, ambasi kinchit majjati-which deep into water. Such semen is supposed to be fertile. Extreme unctuousness is its chief property of Shukradhatu, which is capable of offering strength to the body.

Principal functions of shukra

- Garbhotpadana- Reproduce
- Dhairyam- It gives courage to a person

- Chyavan- It gets ejaculates smoothly during intercourse
- Dehbalam- It gives strength to the body.
- Harsha- It arouses a man for reproduction.
- Preeti-It cretes softness in the mind.

Physiological measure of shukradhatu (praman)

Shukra dhatu measurs half Anjali (1/2). (Cha.Sha.7/14-15)

Charak mentions that oja, Kapha and Shukra dhatu measures same.

Shukra dushti

Causes of Shukra dushti are

- having sex in menstrual days.
- More frequency of having sex
- Injury to vas difference due to use of shatra, kshara and agnikarma.

Excessive coitus, exercise, improper dietary habits, untimely coitus, nonvaginal sex, strict abstinence. Excessive intake of dry, hot, astringent, bitter, salty, and sour food items. Ignorance about taste of woman, old age, anxiety, grief, suspicious attitude, injury to genital organs, fear, anger, emaciation caused by disease, suppression of urge, wound and morbid affection of dhatus are the reason of Shukra dushti.

Types of sukra dushti

Acharya charak in yonivyapad adhyay of chikitsasthana mentions that there are eight types of Shukra dushti. These are

- fenilam- frothy
- tanu- dilute
- Ruksha-dry
- Vivarno- discoloration
- Puti-bad smell
- Picchilam- unctuous
- Anyadhatu upsanshrushtam-mixed with blood or other dhatus.
- Avasaaditam- less mobile

Charaka mentioned these eight types in sutrasthana also but instead of Ruksha he mentioned Shushka, instead of vivarna- ashwet.

Shukra alpata

Means the reduction in the quality or quantity of the Shukradhatu or hampered production.

Those persons who are suffering from grief, anger, fear, excessive mental work, envy, curiosity, agitation, excessive use of dry foods and drugs specially by emaciated and debilitated persons, do suffer from lakshanas of Shukraalpta. Improper dietary habits leads to diminished formation of ras dhatu further leads to reduction in rakt dhatu thus ending in the reduccion of Shukra dhatu. In this state of reduced Shukra dhatu if a person goes on having excessive sex he may fell prey to some diseases like yakshma or even death. Hence one who desires good health should particularly protect Shukra.

In chikitsasthana, acharya Charak also mentions that Shukra get diminished by old age, anxiety, heavy work and excessive sexual indulgence.

The causes of Shukra dhatu kshay can be broadly described as

1. Being a Shukra dushti, Shukra dushtikar aaharas and viharas can be considered as the primary cause.
2. Shukra is sara of sapta dhatus, so the factors which make the kshay of dhatus can be considered in the hetus.
3. The factors which which leads to the Shukravaha strotas dushti palys an important role in producing kshin Shukra.
4. The doshas involved in shukraalpta are Vata and Pitta so the causes for vitiation of Vata and Pitta doshas can be taken into account.
5. The diseases such as sthauilya, prameha etc predispose to Shukraalpta. Thus, these types of nidanarthkar vyadhis are also included in the aetiology.
6. The consumption of drugs like kshara, lavana, etc can lead to Shukraalpta.

Samprati

There are two ways to explain the samprati of Shukrakshinta.

1. **Dhatukshinata-** the various types of hetu sevan reduces the quality or may cause an adverse effect on first and chief dhatu that is ras dhatu. It causes the diminishing of ras dhatu transforming into other dhatus and ending with Shukra leading to Shukrakshinata.
2. **Shukravah strotas dushti-** various hetu sevan leads to doshdushti. dushata dosh after reaching Shukravah strotas causes defet in Shukra and blocks the passage which further leads to defective spermatogenesis and Shukrasanhita occurs.

Lakshanas

Weakness, dryness of mouth, anemia, bodypain, exhaustion, impotence, delayed seminal ejaculation. Sushrut says Shukrakshay lakshanas include pain in penis, burning sensation in penile region, pricking sensation in scrotum during sexual intercourse or semen ejaculation with blood.

Samanya chikitsa

- **VAJIKARN:** In Shukra kshay we can do snehan, swedan and then only should give sneha mixed with food. Ghee, aphrodisiac and rasayan formulation, yapana basti should be used.
- In Shukra kshay vajikaran aushad formulation which are easy to use and beneficial, are used to treat raktaalpta and yonivyapad. In Vataj Shukra dushti-niruha and anuwasana basti are advised. In Pittaj dushti- rasayan formulation given in abhayaamlaki adhyay are recommended in Kaphaj Shukra dushti-

rasayan formulations of pippali, amrita and lohtriphala are used. Jivaniy ghruta, chyavanprash and use of shilajatu is also beneficial. The semen accompanied by other dhatus after examination should be treated properly for doshas as well as dhatu concerned according to morbidity. Ghee, milk, meat soup, Sali rice, barley, wheat and shashthika, particular use of basti is beneficial in Shukradushti.

Pathya- to do

Ahar vihar

- Snigdha madhur rasatmak
- Easy to digest
- High protein diet
- Swasthvrytta palan
- Bramhahvaryaa palan

Apathya- not to do

- Ruksah, katu and kashay rasatmak ahar should be avoided.
- Heavy diet
- Vegavrodha
- Exposure to heat radiation
- Prolonged sitting in hot baths
- Skin tight underwear
- Smoking, tobacco, alcohol, drug addiction.

Shukrakshaya or oligospermia

The Shukraalpata have different meanings. It may be undertaken as low volume of ejaculated or low sperm count. While describing about Shukra and artava, vaghatacharya explained Shukraalpata as the condition caused by vitiated Vata and Pitta 'alpatam maruta Pitta'. Oligospermia means the semen with a low concentration of sperm and is a common finding in male infertility. Often semen with decreased sperm concentration may also show significant abnormalities in sperm morphology and motility. WHO described in 1992 the condition as the one in which total sperm count will be less than 20 million/ml.

Diagnosis

The time-honoured method of evaluating male infertility has been the semen analysis extensive variation in normal semen values will be encountered both among individual and among individual samples taken from particular patients therefore, it is necessary to perform several semen studies before a definitive diagnosis is stated. Oligospermia should be confirmed only after investigation more than 2 occasions with a minimum of 2 weeks interval.

Causes of oligospermia

Several conditions and lifestyle factors can increase a man's risk for oligospermia.

Vericocele

Enlargement veins in a man's scrotum can disturb blood flow to the testicles. This can cause the temperature in the testicles to increase. Any increase in temperature

can negatively impact sperm production. about 40% of men with low sperm numbers or low sperm quality count have this common issue.

Infection

Sexually transmitted infections can reduce the sperm amount in semen infection like mumps, orchitis, syphilis, non-specific urethritis, after pubertal period, may permanently arrest spermatogenesis. Orchitis, mumps arrests maturation process and also arrests the androgenic function of leading cells. Systemic infection like bacterial also affect the sperm count. Chlamydia trachomatis or mycoplasma infection lead to defective spermatogenesis.

Thermal

The scrotal temperature should be less than 2°f from the core body temperature raised scrotal temperature may depress the spermatogenesis because it is sensitive process, which alters with alternations in temperature. Men working in hot environment such as near furnace, near large engines mines, cook also show impaired spermatogenesis. Tight wearing undergarments, frequent hot baths has an adverse effect.

Congenital

1. Cryptorchidism or congenital mal-position or undescended testis an incidence is one among the causes of poor semen quality. It causes permanent damage of testis. They are also hormonally defective. unilateral cryptorchidism even when corrected prior to puberty is associated with abnormal semen in many males (Harrison 1994).
2. Kartagener syndrome (autosomal disease) - There is loss of ciliary function and motility.
3. Hypospadias- Failure to deposit of sperm high vagina.

Endocrine

- Testicular failure due to gonadotrophin deficiency. (Kallmann's syndrome) is rare.
- FSH level is raised in idiopathic testicular failure with germ cell hypoplasia (Sertoli-cell-only-syndrome).
- Hyperprolactinaemia is associated with impotence.

Genetic

Common chromosomal abnormality in azoospermic male is Klinefelter's syndrome (47XXY). Gene deletion has been detected in the long arm of Y chromosome (Yq) for patients with severe oligospermia.

Nutrition

Nutrition is important in normal spermatogenesis. protein deficiency definitely results in impaired spermatogenesis.

Metabolic disorders

The main metabolic disorder disease is diabetes- it gives rise to oligospermia, retrograde ejaculation and impotency.

Iatrogenic

Radiation, cytotoxic drugs, nitrofurantoin, cimetidine, β blockers, antihypertensive, anticonvulsant and antidepressant drugs are likely to hinder spermatogenesis leads to oligospermia. Surgical operation, which have been done improperly urethral stricture or diverticulum, proctectomy may cause defective spermatogenesis.

Drugs affecting ejaculation

- **Alphablockers**- phenoxybenzamine, phentoalamine, prazosin, terazosin.
- **Ganglionic blockers**- guanethidine, methyl dopa, tserpine.

Addiction: Addictions like chronic alcoholism, tobacco chewers and smokers' multiple addicts decrease sperm production and they also have below normal sperm count.

Psychological: Sustain stressful conditions like continue unsecured jobs duties, family crises, low economic conditions also produce low quality sperms.

Treatment

In a number of situations direct medical or surgical intervention can improve the sperm concentration and, examples are use of FHS in men with pituitary hypogonadism, antibiotics in case of infections, or operative correction of a vas deference obstruction, varicocele or hydrocele. In most cases of oligospermia including its idiopathic form there is no direct medical or surgical intervention agreed to be effective. Empirically many medical approaches have been tried including tamoxifen, clomiphene citrate, FHS, HMG, HCG, testosterone, vitamin C, Vitamin E, Antioxidants, acetyl-L-carnitine, carnitine, zinc, high protein diets. clomiphene citrate has been used with modest success. The combination of tamoxifen plus testosterone was reported to improve the sperm count. The low dose of Oestrogen Testosterone Combination Therapy may improve sperm count and motility and severe oligospermia.

Other treatments

- IUI-Intrauterine inseminations are performed with success.
- IVF- In vitro fertilization has become an integral part of infertility therapy of male.
- ICSI- Intracytoplasmic sperm injection is now considered as the method of choice and would replace ineffective conventional therapies. Using microsurgical sperm aspiration MESA technique, spermatozoa can be collected from the epididymis and used for the assisted reproduction techniques.

- Genetic risk for couples undergoing IVF and ICSI are related to transmission of constitutional genetic abnormalities, genetic alterations is present only sperm.

DISCUSSION AND CONCLUSION

Infertility is a problem of global populations, affecting on average 8-12% of couple worldwide. recent study has indicated that the prevalence of oligospermia is extremely high in metro cities as well as in smaller towns of India. Infertility is defined as the inability to achieve pregnancy after one year of unprotected coitus. Male infertility is considerably less complicated than female infertility but can account for 30-40% of infertility. Except some physical defects, low sperm count(oligospermia) and poor sperm quality are responsible for male infertility is more than 90% of cases. out of these in about 30% to 40% the cause is unexplained, and in the rest of the cases critical illness,malnutrition,genetic abnormalities,pollution,side effects of some medicines,hormones and chemical play the major role.

Oligospermia is a main cause of male infertility, patients with low sperm counts are put on every treatment conceivable with little rational basis HMG, HCG, clomiphene citrate, testosterone, vitamin C, vitamin E and anti-oxidants are widely used. If the treatment fails patient then proceed to IUI, IVF and ICSI. Vericocele patients operated the corrected of sperm count and sperm motility in about 30% of patients. Pregnancy rates after vericocele repair alone are in range 15% increases. In modern view doctor's advice IUI treatment for men with low sperm count (oligospermia). The hopes seem to be that washing the sperm will help to doctors to achieve the best sperm and since only one sperm is needed to fertilise an ovum, then IUI will improve the chances of achieving a pregnancy.

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