



Review Article

ROLE OF VRUSHYA DRAVYAS IN MALE INFERTILITY W.S.R. TO SHUKRADOSHA

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ABSTRACT

Infertility is defined as the inability to conceive after 12 months of unprotected sexual intercourse. Though population of the world is increasing day by day yet 20-30% population of the world are the victims of the infertility and about 30-40% of cases men alone are contributory. Cause of infertility is being impaired sperm production or its functions, impaired sperm delivery, due to vicious life style and environmental exposure. According to Ayurveda absence or production of less quantity of semen is the main feature of *Shukra kshaya* and explains 8 pathological entities which damages normal composition of semen. *Vajikarana* is one of the specialised branches of Ashtanga Ayurveda dealing with *Shukra dushti* and *Klaibya* (semen disorders and sexual dysfunction) with management of *Shukra dosha* and *Vandyatva*. Although extensive research in fertility regulation has been elucidated, many of the secrets of reproductive health and the search for drug to modulate this natural phenomenon continues. Ayurveda has its own system of classifying the drugs based on their certain characteristics and actions they perform on the human body. The drugs which possess *Madhura*, *Snigdha*, *Jivana*, *Brimhana*, *Guru* properties are called *Vrishya*. Few examples are *Amalaki*, *Kapikacchu*, *Shatavari*, *Shilajitu*. So present paper highlights on conceptual aspect of *Vrushya* drugs in male infertility wsr to *Shukra dosha*. It includes male infertility according to Ayurveda and modern science, comparison between *Shukra dosha* with semen parameters and some of the *Vrushya dravyas* with its chemical constituents, specially, reactive oxygen species and its mode of action on infertility. All the relevant materials are compiled from the Ayurvedic texts and research articles.

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INTRODUCTION

Not everyone has the goal of becoming a parent, but for those who do, being unable to conceive a child is an extremely painful reality.

Though population of the world is increasing day by day yet 20-30% population of the world are the victims of the infertility and about 30-40% of cases men alone are contributory.

According to WHO, Infertility is "A disease of the reproductive system defined by the failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse (and there is no other reason, such as breast feeding or postpartum amenorrhoea)".^[1]

Factors essential for conception ^[2]

- Healthy spermatozoa
- Spermatozoa undergo changes and acquire motility
- Should ascend through the cervix to uterine cavity and fallopian tube
- Ovulation
- Oocyte should be picked up from the fimbriated end
- Fertilization
- Embryo reach the uterine cavity
- Endometrium – receptive for implantation
- Corpus luteum should function properly

Male Infertility

- A male's inability to cause pregnancy in a fertile female. In humans it accounts for 40-50% of infertility.^[3]

Causes ^[4]

- Unknown causes 40-50%
- Gonadal disorder 30-40%
- Sperm transport disorder 10-20%
- Hypothalamus pituitary disorders 1-2%

Shukra Dhatu

- *Shukra* is the 7th *Dhatu* of *Sapta dhatus*.
- It is the ultimate tissue meant for procreation

Functions of Shukra^[5]: Functions are *Dhairya*, *Chyavana* (ejaculation), *Preeti* (pleasure of mind), *Dehabala*, *Harsha* (desire with enthusiasm), *Beejartha*. (Su Su15/7)

Qualities of Shuddha Shukra:^[6] The qualities are *Sphatikabha* (crystalline), liquid, *Snigdha*, *Madhura*, *Madhugandhi* (smelling of honey), colour of that of oil and honey. (Su Sha 2/13)

Special functions of Shukra ^[7]

Unvitiated *Shukra* reaching to *Yoni* and *Garbhashaya* and during *Rutukala* mixes with *Artava* in the presence of *Atma* leading to the formation of *Garbha*. (Cha Sha 3/3)

Shukra Dosha

Nidana ^[8]

Vata –*Pittavardhaka Ahara* and *Vihara Vegavarodha*

Ksheena dhatus (Cha.chi. 30/135-138)

Shukra doshas^[9] are *Phenila* (frothy) *Tanu* (thin), *Ruksha* (dry), *Vivarna* (discoloration), *Puti* (bad smell), *Picchila* (stickiness), *Anyadhutu Upasam-*

srishta (mixed with other *Dhatus*), *Avasadi* (sediment). (Cha. Chi.30/139-140)

Chikitsa sutra for Shukra doshas^[10]

- Vajikarana dravyas*
- Raktapitta* line of treatment
- Basti*
- Yonivyapath* line of treatment
- Jeevaniya gana dravya sidha Ghrita*
- Chyavanaprasha, Shilajitu* (Cha.Chi. 30/146-148)

Comparison between Shukra dosha lakshana and semen analysis ^[11]

- **Phenila**: Froth is formed when surface tension is reduced. Surfactants are responsible for lowering surface tension. It will destroy the sperm structural membrane
- **Tanu**: Thinness/thickness of the semen dependent on its sperm concentration. Greater the sperm count more the density.
- **Ruksha**: *Ruksha* acts like kerosene, alkalis, detergents etc., exerts high osmotic pressure, there by increases pH.
- **Vivarna**: Difference in colour like *Aruna*, *Krishna*, *Peeta*, *Shukla*.
- **Picchila**: Viscosity or stickiness of the semen sample.
- **Puti** : Considered as infected semen samples
- **Anya Dhatu samsrishta**: Presence of non spermatozoa cells (gelatinous bodies, mucous threads, macrophages, epithelial cells) can be considered as *Anya dhatu samsrishta*.
- **Avasadi**: is the property of sedimentation. Some liquefied or partially liquefied shows sedimentation.

Volume	Hypospermia	<i>Vataja shukra dushti</i>
Colour and turbidity	Red	<i>Raktadhatu upasrushta shukra dushti</i>
	Non liquefied streaks	<i>Kaphaja shukra dushti</i>
pH	less or more	<i>Pitta dushti</i>
Liquefaction	Excess time(>1 hr)	<i>Kapha dushti</i>
	Below 5 min	<i>Vata dushti</i>
Viscosity	Excessive	<i>Kaphaja/ Vata-kaphaja</i>
Sperm count	Oligospermia/ oligozoospermia	<i>Vata- pittaja dushti</i>
	Azoospermia	<i>Dushta vata</i>
Morphology		<i>Vata kapha dushti</i>
Motility	Asthenozoospermia/ oligoasthenospermia	<i>Vataja/ Vata- pittaja dushti</i>
other	Pus/ epithelial/ bacteria/RBC	<i>Anya dhatu samsrishta shukra</i>

Vrishya dravyas ^[12]

Qualities are *Madhura*, *Snigdha*, *Jeevana*, *Brimhana* and *Guru*. (cha chi 2)

Amalaki

It is mentioned among best *Vrishya dravyas* in *Bhavaprakasha*.^[13]

Amalaki churna, *Bhavana* with *Amalaki swarasa* for 21 times, 1/4th *Tola* with *Mishri* (*Kandasharkara*)

and *Madhu* daily morning and night followed by *Ksheera* make *Vridhdha* as *Yuva*.^[14](Su. Ut)

It is rich in Vit C- its activity like antioxidative effect against reactive O2 species (ROS).^[15]

Ashwagandha

It is mentioned among *Vrishya dravyas*.

Ashwagandha kalka+ Ashwagandha kwatha+ 4 parts of milk- Ghrita prepared from this acts as *vrishya*^[16] (chakradatta)

The active principles of *Withania somnifera*, sitoindosides VII-X and Withaferin A have antioxidant activity with major free radical scavenging enzymes.^[17]

Musali

It is mentioned as *Vrishya* in Priya Nighantu, and Raja Nighantu

Musali Churna mentioned in *Sharanagadhara Samhita* is *Kamavardhana*.^[18]

Studies showed increase in semen with seminal fluid, sperm and serum testosterone.

Possess aphrodisiac activity supported by increase in Spermatogenesis and metaxsexual behavior.^[19]

Contains saponins and zinc responsible for antioxidant property.

Shatavari

Shatavari rasa+ 10 parts milk- Ghrita prepared with this by adding *Sharkara, Pippali* and *Madhu* make the person as "*Ratimalla*"^[20] (vaidya manorama). It contains saponins, vitamins which help as antioxidants.

DPPH autography directed separation resulted in identification of a new antioxidant compound named racemofuran along with two known compounds asparagamine A and recemosol, possess antioxidant property.^[21]

Kapikacchu

It is mentioned as best in *Vajikara* in Bhavaprakasha And best in *Shukra vruddhi* in Shodhala nighantu.

Kapikacchu beeja+ wheat+ milk- cook and make it into a consistency of *Payasa* then cool it, add *Ghrita* and taking it daily followed by milk is *Vrishya*.^[22](Su.Chi. 26/30)

Studies showed its antioxidant property has the ability to scavenge DPPH radicals and reactive oxygen species.^[23](ROS)

Gokshura

It is mentioned as *Vrishya* in Raja Nighantu and Bhavaprakasha.

In Shodhala nighantu it is told that consuming *Gokshura ksheera* will make the person *Yuva*.

Studies showed that methnolic extract of *Tribulus terrestris* significantly increased weights of testes and seminal vesicle serum testosterone, sperm motility, count and viability and testicular antioxidant enzymes.^[24]

Role of Antioxidants in Infertility ^[25-28]

The principal cause of male infertility is an underlying pathological condition known as oxidative stress

Oxidative stress occurs when there is imbalance between the body's production of excessive reactive oxygen species (free radicals) and insufficiency of internal antioxidants to counter the adverse effect of these harmful molecules.

Relationship of oxidants and male reproductive health

Substantial evidences suggests that small amount of ROS are necessary for spermatozoa to acquire fertilizing capabilities.

Oxidants in human semen

Leukocytes and spermatozoa have been shown to be the two main sources of ROS

Lipid Peroxidation

Present in the sperm plasma membrane in the form of polyunsaturated fatty acids, it causes impaired sperm function, decreased sperm motility, and decreased sperm -oocyte fusion

Effect on motility

ROS decreases protein phosphorylation and thereby sperm immobilization.

DISCUSSION

All the *Vrishya* drugs are required to be properly screened for their exact site, nature and mode of action, so that selective administration of drugs can be made possible.

Drugs like *Ashwagandha, Musali, Shatavari, Kapikacchu, Amalaki* are known for *Shukra janana/Shukra Vardhana*. These can be utilized in case of oligospermia- *Vataja reto dushti*.

A threshold ROS level above which antioxidants could be used for male infertility should be determined. The dose and duration of these antioxidants should also be determined and standardized.

CONCLUSION

It is very important to examine the semen on the basis of *Shukra dosha*. This will help in the specific drug selection based on the *Doshas* involved in the pathogenesis this will result in the better outcome in the management of infertility.

The drugs can be used for the management of seminal morbidities according to *Dosha* dominance. The *Vrishya* drugs should be used after *Shodhana* therapy to improve the absorption of antioxidants, thus achieving better results.

The drugs having *Balya, Vrishya, Shukrajanana, Shukrala, Shukrashodhana, Vayasthapana* activities can be used in the management of seminal disorders.

The knowledge regarding oxidative stress has given rise to several new treatment modalities that are now being tried to improve male infertility.

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