



A review of randomized clinical studies on apatyakar ghrut in oligozoospermia

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ABSTRACT

According to Ayurveda, anatomical and physiological anomalies in the Shukra dhatu lead to male infertility; one of the most common reasons is oligospermia. Clinically, oligozoospermia appears as a reduction in sperm counts, which may cause erectile dysfunction, premature ejaculation and males without a sexual drive. Oligospermia, with beejoghata, kshayaj, and the ageing causes of the disease are the main reasons for the illness, is listed as Napunsakata (impotence). Some of the other triggers, such as Jara, Cinta, Shoka, and Krodha, are Ruksha, Tichta, Kashaya, Amla, and UzhnaAhara. Infertility is a global problem affecting about 8-12% of married couples all over the globe. According to current study, the prevalence of Oligozoospermia in India's metropolises and smaller towns is extremely high. In the present study, we have discussed the role of Apatyakar Ghrut in curing this disease. We have also analysed the effect of other Ayurvedic medicines on the same.

Key Word: Apatyakar ghrut, Ayurveda, oligozoospermia, Napunsakata,

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INTRODUCTION

Unprotected coitus is the inability to get pregnant after 1 year of unprotected coitus. Male infertility is less complex than female infertility, but nevertheless accounts for 30%-40% of all infertility cases across the globe. Around 30% to 40% of the causes were unclear and severe illnesses such as malnutrition were reported to have played an important role in the overwhelming majority of instances. Oligozoospermia is a seminal condition, which shows a sperm count of fewer than 20 million per millilitre. Shinag Shukra is featured in ShukraDushti's Acharya Susruta, meaning "shrine of KshinaShukra [21]."

In this case the Vata dosha and Pitta get vitiated and interrupt the usual consistency and amount of the Shukra Dhatu. Current medical research has proven that hormonal supplements and assisted reproductive techniques are helpful when it comes to infertility therapy. It has its own set of inconveniences and negative effects. More than one-third of its results were restricted to 30-40% of the population. It's all too expensive and regular Joe can't afford it [19]. Moreover, it would be difficult to fully accept more traditional Indian couples. In andrology research, identification of fertility agents from herbal and mineral products is an important goal. This would be a gift to the world's infertile people if the specific section of Ayurveda called Vajeekarana could help this problem. Acharya Charaka has discovered a range of treatments to cure Alpa, dushtaretas and the condition known as Alpashodhana. These drugs directly impact the characteristics of shukrajanana (spermatogenesis) and shukrashodhana (sperm production). Another is the Apatyakar Ghrut, which means "ghrut" in Hindi. Because Goghrut has special ability, namely Samsakaraya Anuvartanam, Vrushya which makes it the best of all JangamSnehas, it is the most powerful of all Jangamsnehas. The purpose of this study has been to examine the function of Apatyakar Ghrut in the treatment of infertility in men whose infertility has been Oligozoospermia

LITERATURE REVIEW

Total of 12 male patients in two groups. Basti was administered to patients in Group A using the conventional techniques, i.e. the Classical Basti Putak method, while Basti was used using the Enema Pot approach for patients in Group B. The Kala Basti (according to Ch.Si.1/47-48) regimen mentioned in texts was administered to both groups of patients. The Basti administration has been selected for Varsha and PravritRitu (rainy season). In each group, two 250 mg placebo capsules were administered twice a day with milk for 30 days to avoid the dropout of study (during the follow-up phase) [1, 2].

The Kala Basti are seventeen. Ten AnuvaBastis were supplied to both groups and six Asthapana Bastis were delivered to each of them with 100 ml of taila (ErandaTaila and SaindhavaLavana), which include 500 mL of Baladi Yapan Basti. Patients with Balataila and BaspaSveda were administered in both groups before the administration of Basti.

A clinical trial in which those with Male Infertility and/or Sexual Dysfunction received a dosage of 3 gm twice a day, while patients with KapikaccuBijaCurna received a dose of 3 gm 2 times a day with water (n=28). In Erandamula, the overall sperm count increased by 39.76%, in Kapikaccu the RLP motility increased by 30.68% and the viscosity of semen decreased by 21.07% while the overall sperm count increased by 21.5% (p<0.05) in Kapikaccu, the RLP mobility increased by 6.03% and semen viscosity decreased by 51.07%, respectively. According to the research, Erandamula was shown to improve seminal parameters and Kapikaccu to improve sexual parameters more effectively [4-8].

In Girish KJ [9], 65 Olygozoospermia participants were divided into two age groups. A number of Ksiravidari participants got Ksiravidari tablets in 6gm per day at a split dosage and 30 participants received BhrstaGodhumaCurna in capsule form [4 capsules per day (each 500 mg)] for Ksiravidari groups were assigned a combination of 35 participants. Both groups got 45 days of treatment that was equally divided between them. Ksiravidari raised the sperm count by 66.59 percent compared to baseline (milligrammes per millilitre) (p<0.05). During the next time, there was a significant rise in the sperm count and at end of the second and third months, respectively, 91.79 percent (p<0.05) and 31.47 percent (p<0.05). In comparison to the baseline, RLP motility dropped by 18.62% (p>0.05), SLP motility was reduced by 33.09%, and motility of NP decreased by 4.38%.

RESEARCH PROBLEM

Infertility is a global disease that affects 8-12% of the worldwide infertile pairs. In Indian metropolises, as well as in the smaller cities and rural areas, the oligozoospermia prevalence is extremely high, according to the present research. Unprotected coitus means that one year after unprotected coitus, we cannot become pregnant. Male infertility is less complex than female infertility, but 30-40% of all infertility cases are still occurring globally. It is said that oligozoospermia is present when the level of sperm in a man's penile ejaculate is lower than 20 million per millilitre of urine [19]. It is one of the most common causes for male infertility and accounts for 20% of all cases. Detailed descriptions of the many medications indicated to increase fertility and which may be used to deal with specific circumstances. This is because the problem has not been dealt with and no full solution is provided. Acharya Charaka has discovered a number of medicines that may be utilised for the treatment of alpeas, dushtaretas and Alpashodhana. These medicines directly impact the characteristics of Shukrajanana and Shukrashodhana (sperm production) [11, 14]. The JangamSnehas is the most powerful of all since it has a unique ability to adopt SamsakarysaAnuvartanam, Vrushya, making it the most potent snehas of all [16].

Male reproductive health is focused on the preservation and enhancement of the sexual power and conception of good offspring by a healthy man, the Vajikarana, Ayurvedic branch of the company, as well as the management of defective sperm, disrupted sexual power and sperm as well as seminal related disorders. According to the ancient beliefs, Vajikarana enhances the physical, psychological and social wellbeing, sexual capability and performance of a person.

In study they were all linked to Oligozoospermia, as were Bijopaghata and ShukradhatuVikaravikara, KshinaShukra, AlpaShukra, Shukradosa, ShukraKshayan, Shukralpata Kshina Retas, Bijopaghata, ShukradhatuVikaravikara. In the research they also connect to Oligozoospermia.

RESEARCH SOLUTION

One of the Purusharthas, kama (passion for sex), is related to sexual satisfaction, a delight in life and to the formation of a healthy progeny. As a consequence, fertility was from the beginning of time an essential need for human existence. Shukra needs a safe pregnancy and a healthy sex life in the ordinary amount and on an ongoing basis.

This abnormality of Shukra causes a miscarriage, loss of physical pleasure, and ultimately pain and sadness for the couple which interferes with their psychology, sex life and communal function. According to the American Society of Reproductive Medicine, men who are infertile represent nearly half of all infertile couples. Oligospermia that was linked to KsheenShukra is responsible for male infertility. ShukraVridhikara, ShukraSrutikara, and ShukraVridhhi-Srutikara, to mention a few, are some of the numerous types of vrishya medicine. The two types of ShukraVridhikar's medicines used to cure different conditions are Shukra Janaka and Schukra Pravartaka. The goal of oligospermia treatment should be to increase sperm count and sperm motility. Ghrut Apatyakar is produced by the mixture of the ghrut processed with ghrut and milk herbs Shatavari, Kapikachhu, Gokshura, Vidari and Black Gram (Shukla et al., 2020) . The following plants are: Madhura Rasa, Guru Guna, SheetaVirya (Masha,

Kapikachhu – UshnaVirya), Madhura Vipaka and Vrishya. It is owned by Madhura Rasa, which is sponsored and known by Shukra Vriddhi. In the creation of ShukraGuruGuna helps with growth of Shukra, that is built on Saamaanya Vissha Siddhanta. Shukra may promote its creation and also defend it from Pitta vitiation in cases when it is properly produced. The moniker ShukraVardhaka comes from Madhur Vipaka (Agnivesha et al., 2010). Apatyakar Ghrut enhances brimhana, bala, rasayan, vasthapana and vata pitta shamaka, resulting in enhanced sperm counting and motility because of its madhura rasa, sheet virya, snigdha, and guru guna characteristics. For men and women, Apatyakar Ghrut is helpful [16, 18].

Shatavari is a sperm substance and the quantity of sperm in the testicles has been shown to improve. As a result, this behaviour may lead to an increase in the number of sperm found in this sample. Kapikachhu seeds may help women by preventing oligospermia, an effect that impacts the generation of sperm, to increase sperm count and ovulation. It has a powerful aphrodisiac and nerve tonic effect. Spermatorrhoea treatment and genitourinary system anomalies are obtained with this medicine. Male infertility may benefit from *Mucuna pruriens*, since it improves both the sperm count and the levels of testosterone, LH, dopamine, adrenaline and noradrenaline [14]. The hypothalamus-pituitary-gonadal axis may have helped to achieve consistency and growth in the sperm of patients, as well as their impact on the axis of *M. Pruriens*. The psychological stress of patients probably has increased with *M. Pruriens*. An increase in seminal levels of lipid peroxide plasma, an increase in the sperm concentration and motility, as well as a reactivation of antioxidant defence mechanisms may have led to greater control over cortisol, better mental alertness, better equilibrium and improved semen performance.

Aphrodisiac and fertility-enhancing properties of Gokshura were investigated. The spermatogenesis and function of the Sertoli cells in rats were shown to be related to furostanol hi glycosides. As a result, luteinizing hormones are more synthesised (Shukla et al., 2020). The natural growth of testosterone also rises in combination with an increase in luteinizing hormone levels. In *Tribulus Terrestris*, saponin found that is thought to be responsible for testosterone levels and libido effects is protodioscin.

This therapy is able to raise the amount of testosterone, thereby improving the generation of sperm. Vidari is also thought to have anti-fertility effects, according to some, as well as being regarded as a treatment for sexual issues. Several scientific study has examined the impact on the hypothalamus hypophyseal gonadal axis and other organ systems of male rats' sexual orientation. The care showed that the testosterone levels and the sex behaviour characteristics were significantly increased (Shukla et al., 2020).

In addition, the concentrations of FSH serum and the level of serum testosterone in the *Pueraria tuberosa* therapy group were significantly increased. As evidenced by a rise in the weight of testicles, epididymias and seminal vesicles, the usage of herbs led to a significant increase. Spermatogenesis was also established and it was demonstrated that this process improves the histoarchitecture of the testicular segment. *Pueraria tuberosa* is also thought to be associated with elevated FSH and testosterone in the blood, which explains why secondary sex organ weight increases. Masha is an excellent therapy for male impotence and erectile dysfunction with his aphrodisiac qualities and the capacity to enhance male sexual appetite. Masha seems to increase sexual activity of male rats in a favourable manner, according to the research results. The serum testosterone levels have been shown to have increased considerably.

In presence in methane and chloroform extractions of phytoconstituents such alkaloids, saponins, steroids and flavonoids, the increase in sexual activity may be attributed to these elements. Milk has been shown to contain both oestrogen and testosterone. Milk and ghee are shown to improve sexual stamina and the quantity of sperm that people and other animals produce.

Table 1 Ingredient of Apatyakar Ghrut

S.No.	Drug name	Quantity	Part used
1.	Shatavari – <i>Asparagus racemosus</i> Linn.	30 Kg	Tuber
2.	Kapikacchu – <i>Mucuna prurita</i> Linn.	30 Kg	Seed
3.	Gokshura – <i>Tribulus terrestris</i> Linn	30 Kg	Seed
4.	Vidari – <i>Pueraria tuberosa</i> Linn.	30 Kg	Tuber
5.	Black Gram – <i>Phaseolus mungo</i> Linn.	30 Kg	Seed
6.	Ghrut – <i>Butryumdepartum</i> Linn.	30 Kg	
7.	Milk	240 lt.	

Researchers have reduced substantially the demand for long-term care services by using experimental



Figure 1 (a) Kapikacchu, (b) Gokshura

drugs Apatyakar Ghrut. The experimental medication seems to include a mental component based on this result. Due to its tight connection between Manas and Shareera, it is likely that the drug has given the body vigour and vitality as well as support for appropriate mental activities. Apatyakar Ghrut is believed to be helpful for the erection process, due to a sufficient blood flow into the arteries of the male genital organ, muscle development and regular male genital nerve activity. The Apana Vata dosha characteristic is shukraPravartana, commonly known as ejaculation. Ejaculation may be prevented if the Apana Vata in KsheenShukra is vitiated. Madhura rasa, a VataShamana, acts in both medications to assist the correct functioning of Apana Vata, to be dealt with by premature or late ejaculation in the cycle. In most instances, orgasm and ejaculation feelings occur simultaneously. This results in increased sexual pleasure (orgasm) when ejaculation improves. Because Kapikacchu includes a large quantity of L-Dopa, the medication may be used as an antidepressant. As a result, the woman's sadness disappeared after taking the medicine and had a normal orgasm. All yogic practises with characteristics that help with after performance tiredness and performance fear include Balya, brimhana, rasayan and vasthapanam. Due to its ghrut qualities, Pitta shamaka is good for mukhashosha. Medicines are included in the shuttle school Apatyakar Ghrut, which are also owned by Brimhana.

These actions may have helped grow and feed the sperm properly. Apana Vata is reduced and the motility of the sperm is diminished. The features of the VataShamana and Brimhana experimental drugs may restore this function.

RESEARCH DESIGN

This is a randomly controlled single-blind experiment with a single control group. After providing informed permission, the patients were contacted and selected for the study. Patients with a pre-, mid- and post-test study design were assigned to a single group of 30 patients, preventing drops.

Apatjakar Ghrut (Ghrut Apatyakar): We took 10 ml orally twice a day for the first two months before tapering with tidy water, and then stop using it.

Criteria for selection of Drug

Acharya Charaka has discovered a number of medicines that may be utilised for the treatment of alpeas, dushtaretas and Alpashodhana. These medicines directly impact the characteristics of Shukrajanana and Shukrashodhana (sperm production). One of these people is Apatyakar Ghrut.

About 80% of the Shukrala and Vrishya Karma components are obtained from Apatyakara Ghrut while 60% of the ingredients are derived from Balya. Vrishya has an unique ability to adopt, called SamsakarysaAnuvartanam, making it a type of snaas, which is different from the other Jangamsnahas. The function of ApatyakaraGhruta in infertile males diagnosed with Oligozoosperma was investigated by Apatyakara Ghruta for its infertility.

RESULTS AND DISCUSSION

In the study of Kulkarni *et al.*, [3], patients were divided into groups according to whether they were registered at present or not. 33 males were selected from a wide pool of individuals with Oligozoospermia for this research. Thirty patients have finished their clinical research and for a number of reasons, including family difficulties, and the failure to present in the outpatient department in the scheduled trial, three were terminated during the study. Some of the findings are as follows: A maximum of 70% of patients are aged between 31 and 40, the bulk of which are aged between 31 and 40 years. The percentage of married people was 93.33 percent. 93.33% of the total number of patients was represented

by the Hindu group. 36.67 percent of the total number of patients who worked for themselves. 66.67 percent of the total patient population was in patients with a bachelor's degree or above. Most of the patients had high-class and middle class origins. There were 43.33 per cent of the total population among patients with restricted appetite. In most instances, patients had a mixed diet (80 percent). Tea and coffee dependence affected 40% of the research participants. 63.33% of the total population of patients were patients with regular bowel habits. Patients reported sleeping well in 86.67 percent of cases. Vishamagni has been shown to be present in 60 percent of instances. In 66.67 percent of patients the presence of Madhyamakostha was found. In the poll, 33% of participants stated they had stress in their thoughts. 63% of patients reported being affected by psychological anguish. 40% of patients in this category were somewhat capable of working. A total of 43.33% of patients reported regular masturbations. 56.67% of patients showed the presence of premature ejaculation. The majority of patients reported 3-4 instances of coitus each week, with an incidence rate of 50 percent. Of the patients 80 percent were found to be erection, 80 percent were to be ejaculated, 80 percent were to be observed orgasm-filled, 56.67 percent to tiredness post-act, 66.67 percent to performance-anxiety, and 43.33 percent to mukhashosha.

Study of the sperm

Approx 60% of patients had a moderate number of sperm (22 of them), whereas 6% had a mild number of sperm, and 2% had a severe count of sperm. The majority (76.67%) of patients were moderately motile, followed by 5% (16.67%) who were moderately motile and two (6.67%) had severe grade of sperm motility, as reported by the results. In total, it has been discovered that the impact of Apatyakar Ghrit is considerable in 9 patients (30%), in 14 patients (46.67%) and in seven patients (23.33%) after the treatment. None was completely healed of his illness. There were nobody. After treatment, patients have substantially improved their fertility quality of life and their sperm count and motility. It has been found that no side effects were reported clinically significant during the whole trial by either patients or researchers.

Bankatlal et al. (n.d.) describes that infertility is characterised as incapacity after one year of unprotected coitus. The American Society of Reproductive Medicine reports that men's infertility is significantly less complex than that of women, but nevertheless accounts for 30%-40% of all infertility cases. In more than 90% of cases male sperm counts (oligozoospermia) and poor Sperm quality are nearly usually the cause of male infertility, save for certain anatomic abnormalities. The precise cause of about 30 to 40 percent of these instances is unclear, while the remaining cases include serious diseases, malnutrition, genetic abnormalities, environmental toxins, pollution, bad drug effects, hormones and poisons. Among the many Ayurvedic species [13], Vajikarana focuses on the maintenance and improvement of the sexual strength and conception of the healthy progeny of a healthy man as well as the control of defective semen, sexual disturbance and spermatogenesis in men and on the treatment of seminal associated disorders in men. According to traditional beliefs, Vajikarana improve the physical, psychological, and social well-being of a person and their sexual ability [3].

The researchers have focused on many elements of the issue, including aetiology, pathogenesis and the consequences of illnesses affecting the reproductive system both in Ayurvedic and in contemporary language. The studies were done at different ayurvedic academic centres throughout the country. More than 30 initiatives out of 120 have been carried out in Oligozoospermia to far. KshinaSukra, AlpaSukra, SukraDusti, SukraKshaya, Sukralpata, Kshina Reta and SukradhatuVikara (KshinaSukra, AlpaSukraSukra, SukraSukra Dusti, Sukralpata, Sukra Dusti, SukraKshaya or Sukrala) were involved in investigations.

KshinaSukra is one of them that is often utilised in most of Oligozoospermia study papers. Twelve investigations on Oligozoospermia were conducted within the framework of M.D. and Ph.D. dissertations at Gujarat Ayurveda University Institute for Post Graduate Teaching and Research in Ayurveda. Few research were performed on the therapeutic effectiveness of individual herbs such as Kapikacchu, Vidarigandha, Pueraria tuberosa, Asvagandha, Kokilaksha (*Asteracantha longifolia*), Jatamamsi, Swetamusli, Sata, *Sparagus adscendens* [14].

In some research studies, we have examined the effectiveness of chemical therapies such as Vajikarana Yoga, Satavaryadi Yoga, KokilikshadiCurna, Amalaki Rasayana, BhallatakaPhalamajjadiAvaleha, Narasimha Curna and others, but other mineral formulations such as Svarnabhasma were investigated. In both instances Basti was equally beneficial with a number of research papers evaluating the effectiveness of Shodhana karma (two studies) in the treatment of Oligozoospermia.

Chouhan et al. [1] writes, that as per to the Ayurveda, the vitiation of pitta dosha and of the other conditions listed may lead to a considerable loss of shukra dhatu. Furthermore, Ayurveda emphasised Vajikarana tantra, which includes razayanas, vajikaradravyas and panchakarma, for the treatment of oligospermia (virilifying or aphrodisiac medicines) [16]. In order to develop healthy children, the implementation of better eating and living practises will assist. Some herbs are beneficial in the treatment

of male infertility, according to the findings [11] of an exploratory research. A variety of herbs, including Kapikacchu, Kokilaksha, Jatamamsi, Swetamusli, Satavari and KshiraVidari [5], which have been examined and are proven to be helpful in treating male infertility have been investigated and shown to be of assistance in male infertility.

CAUSES OF OLIGOZOOSPERMIA AS PER MODERN SCIENCE:

- Obstruction of the normal flow of sperm
- Infection and sexually transmitted diseases
- Hormonal disorders and diseases of the testicles
- Stress, smoking and alcohol consumption
- Malnutrition and obesity
- Adverse effects of some medications
- Irregular sexual intercourse
- Lack of physical activity and conduction of disturbed life style pattern
- Consumption of low protein and high fat diet Bitter, astringent and spicy foods, etc.

The findings of the study of Ambdas *et al.*, [2], are extremely promising and indicate that additional therapeutic benefits may be found. The properties of Ashwagandha Snigdha Guna (unctuity), Balya (tonicity) and VataSthapana (antiage) are strongly linked to Rasayana and vajikarana action according to Guna Karma. This causes the activation of SukshmaPachana karma (metabolism) in combination with Tikta Rasa (bitten) and Laghu Guna (light), leading to the formation of PrakrutaSapta Dhatus (seven primal matters), which will lead to the creation of a potent shukradhatu (governing the immune system). In traditional Indian medicine, asparagus (also known as shwetamusli) is utilised as an aphrodisiac. It is used mainly for the rejuvenation of the reproductive system and thus is referred to as Shweta Musli. Because it has high glycoside levels, impotence and low sperm numbers are beneficial. Dhatus's general health and vigour is contributing to Kawach'ssnigdha Guna, Balya (tonic), and Vata-features Sthapana's (anti-aging). Such a revitalising and restored tonic enhances physical performance and promotes a healthy and equilibrated lifestyle. Gokshura has many distinct traits such as Madhura rasasa (dessert), Guru and SnigdhaGuna (high quality and unctuous), SheetaVirya (cold in strength), Vrishya (aphrodisiac) and Vatapithara features [11]. By using Madhura Rasa, Snigdha and Guru Guna on the other hand, the quality and quantity of the Shukra Dhatu are enhanced. It affects the Shukra as with Apana Vata, and is regulated by Apana Vata in the same way as Shukr Visarga. Protodioscine, which is contained in Gokshura, is a good natural precursor to testosterone. It also increases testosterone and luteinizing hormone synthesis (LH).

The natural body's synthesis of testosterone rises when the LH levels are high (Kadam et al., 2020) . LH has historically been used to aid men fertile and alleviate impotence symptoms. LH has been used. This is a description of how vanga bhasma works. In conjunction with milk, vanga bhasma may help to balance pitta and vata. Ksheenashukra is caused because of a combination of vitiated vata and pitta. Those are the best medicines for ksheenashukra because both quality and quantity are increased. vanga bhasma and milk are thus the most effective [14].

Shilajit's antioxidant, anti-inflammatory qualities and adaptogenic and immunomodulative capabilities contain several positive advantages. It has antidyslipidemic and anti-inflammatory effects (Adenosine triphosphate). Shilajit has demonstrated improved sperm count, total sperm count, and motility of sperm among men. A clinical study compared with current treatments of oligozoospermia should also be conducted to compare the effectiveness of the ayurvedic medicines. Vangabhasma is the most effective medication for sexually impaired and impotence therapy, according to the Indian Metria Medicine. The objective of this study is specifically to examine the possible mechanism of action of vanga bhasma in the ksheenashukra (oligospermia). The pharmacodynamic properties listed below are those of Vanga Bhasma. In reduction of pitta caused by tikta rasa, kashayarasa, sheetavirya, laghuguna and rookshaguna, among others, Vangabhasma is beneficial. Due to the lavanarasa, ushnaGuna and Balyaguna, it has a soothing effect on vata. As a consequence of vata and pitta imbalance in the body, ksheenashukra is made. In the research under way on vanga bhasma, anupanas were used. Milk includes nutrients madhura rasa, snigdhaGuna, and sheet virya which help the vitiate vata and pitta doshas to restore balance. Four kinds of yoga may be classified: medhya, vrishya, rasayana and doshanashaka. Milk is a shukravardhaka, and according to Ayurvedic tradition, a pathy for a vatapittajavyadhi. Those are the best medicines for ksheenashukra because both quality and quantity are increased. vanga bhasma and milk are thus the most effective. KshinaSukra is categorised as Sukradusti, meaning "dust of the Sukra." When coupled with pitta, Vata dosha becomes vitiated, causing the characteristics and quantities of sukra dhatu to be interrupted. As a consequence, sukrahasrotas suffers from dusti which prevents an ordinary person from becoming pregnant with their spouse, which leads to the pair being infertile [18-22].

If one is treated with oligozoospermia, one should use KsineSukrakari Kriya as our primary treatment method, i.e. provide dravyas that have Sukrakara characteristics, e.g. Madhura rasa (sweet taste), Snigdha (unctuous), Guru (heavy quality), Jivana (fostering the quality of life), and Brmhana (fed). Yogas should be done in the manner of the Dosa concerned, i.e., we should execute VatajaPittaja SukradustiharaYogas if we have Ksinasukra. Current study shows that prevention, including the use of non-smoking, no excessive alcohol or caffeine, no recreational drugs, or nutritional diets that contain vitamin supplements, is the first step to cure Oligozoospermia. Human chorionic gonadotropin (hCG) drugs have shown to increase follicle stimulation levels of the hormone, while LH levels have been improved with vitamin B therapy. In order to maintain or increase LH levels, modest testosterone doses must be used. The usage of hCG and medicinal products such as Clomiphene, Metformin, Bromocriptine and Cabergoline, among others may relieve low testosterone, reduced semen motility, and volume abnormalities. For the creation of a child it is utilised in certain instances for intrauterine fertilisation (IVF).

In a thorough examination of 12 Oligozoospermia clinical trials conducted at the IPGT & RA University in Gujarat, it was shown that Ayurvedic medication in the treatment of Oligozoospermia was more effective than contemporary medicines. The major part of the medicine utilised in the research includes Madhura Rasa, Guru & Snigdha Guna, Sita Virya and VataPittahara activities. Svarna is the mineral of Snigdha-guna, Madhura-Vipaka, Sarvadoshagnata, and Brmhana, Vrsy, Medhia, and Pushtikara. Svarna is mineral drug. Svarna is a mineral medicinal product that has characteristics such as Snigdha, Madhura Vipaka and Sarvadoshagnata. Bhasmasm The vivardhana and the balakara, which are both Ojodhatuvivardhanas, are two characteristics of the Svarna Bhasmasma.

Medications also include characteristics of Vrsya and Vajikarana. These herbs have the properties of Madhura, Tikta Rasa, Guru, and Snigdha Guna, which create a brmhana impact in the body, and they are characteristics which are diametrically opposite to pitta and vata, so that the sampratpti from Kshinasukra may easily be disintegrated by the medicines (Samprapti Vighatanachikitsa). Most of the current scientific evidence has indicated that oxidative pressure has effectively been reduced by decreased levels of different oxidants and by higher levels of various antioxidants in the blood, for example in *Asvagandha* (*Withania somnifera*).

In addition, levels of testosterone and other hormones like LH, FSH and PRL, all of which are good sperm quality indicators, have increased. Kapikacchu (*Mucuna pruriens*) seeds have high L-DOPA levels and their metabolites, such neurotransmitters adrenaline and norepinephrine. This may not only boost sexual behaviour but also raise testosterone levels in the blood. As a result, dopamine levels in the brain may increase. Recent study has shown that L-DOPA and their metabolite dopamine stimulate the hypothalamus and forebrain, which cause the hormone to release gonadotropines (GnRH). An increased release from the anterior pituitary gland by the FSH and luteinizing hormone (LH) leads in an increased synthesis of testosterone by the Leydig testis as a result of the stimulation of the anterior pituitary gland. In addition, the hypothalamus and the previous hypophysis cooperate to manage the sperm production process. *Mucuna pruriens* have substantially decreased psychological and seminal plasma lipid peroxide levels and enhanced sperm counting and motility. In addition, in infertile men's seminal plasma the antioxidants SOD, catalase, GSH and ascorbic acid were considerably restored to normal levels.

Researchers utilised male albino rats to test this theory and discovered that the kokilaksha plant (*Asteracantha longifolia*) significantly increased the sperm count and amount of fructose in the seminal blood vesicles. The activity of two major antioxidant enzymes in rats was increased by the use of SvarnaBhasma: the superoxide dismutase (SOD) and the catalase. They protect sperm from damage and oxidative stress caused by ROS by preventing increased ROS concentration in seminal plasma. This helps to sustain a prolonged sperm motility. All these nutrients are important in steroid hormone production and feeding the entire body. In the majority of Vajikarana Bastis, amino acids, lipids, sugar, and enzymes are plentiful. Basti, on the other hand, stimulates gut hormone production and sends signals, including hypothalamus, to the central and peripheral regions of the brain [10-16].

The drugs used in these trials are designed to affect the Gonadal Hypothalamic Hypophysis axis, which enhances sperm quality and quantity and also reduces stress in subjects. Testosterone, FSH and LH were lacking in all 12 trials and one medication, Vidarigandha, had Gynecomastia in three men as a side effect in one of the trials [1, 5, 7].

In order to properly assess the Ayurvedic therapy of Oligozoospermia in a scientifically solid way, future research should include biomarkers and other cutting edge criteria on these findings. To get a better results in the treatment of Oligozoospermia, Deepana, Pachana, and Shodhana should be given before administration of Vrsya medications.

CONCLUSION AND FUTURE PERSPECTIVE

Apatyakar Ghrut has shown outstanding results both in subjective and objective aspects, according to the current clinical evaluation. Using Apatyakar Ghrut, it shows a higher total quantity of sperm produced, sperm motility, sperm form, and semen production, suggesting that it is effective for the treatment of Oligozoospermia. The sperm is generated more effectively. The establishment of a drug that has no negative repercussions for the treatment of Oligozoospermia is a safe, effective and enjoyable endeavour. Although this research has been conducted on a small number of patients for a short period of time, a broader database statistical analysis requires mass research programming.

REFERENCES

1. Chouhan, B. S., Rajput, S. S., Dwivedi, R., & Singh, A. K. (2018). A review on ayurveda perspective and therapeutic consideration of oligozoospermia. *Journal of Drug Delivery and Therapeutics*, 8(5-s), 55-58.
2. Ambadas, S. R., Rajaram, T. P., & Sudhir, C. S. (2014). A review on management of oligozoospermia by ayurveda. *Nat J Res Ayur Sci*, 3, 1-10.
3. Kulkarni, D. P., & Deshpande, D. S. (2020). management of oligozoospermia by apatyakar ghrut: A case report. *Elementary Education Online*, 19(4), 2762-2765.
4. Deshpande, D. S., & Kulkarni, D. P. (2021). Role OF apatyakar ghrut in the management of oligozoospermia. *European Journal of Molecular & Clinical Medicine*, 7(10), 3594-3603.
5. Kadam, S. T., & Pawar, A. D. (2020). A review on CharakoktaShukrajananaMahakashaya. *Journal of Ayurveda and Integrated Medical Sciences*, 5(02), 185-193.
6. Biswas, T. K., Pandit, S., Mondal, S., Biswas, S. K., Jana, U., Ghosh, T& Auddy, B. (2010). Clinical evaluation of spermatogenic activity of processed Shilajit in oligospermia. *Andrologia*, 42(1), 48-56.
7. Mehta RH et al. (2006). Prevalence of Oligozoospermia and azoospermia in male partners of infertile couples from different parts of India. *Asian J Androl*; 8: 89-93
8. Revival of Vajikarana tantra: a ready recokner on theses titles of Ayurved related to Vajikarana tantra over past 45 years, (2007), *Journal of Ayurveda*, Vol I, Issue 1, Jan - Mar, pg 60 - 66.
9. Girish KJ, (2006), A Critical Study of Oligozoospermia in Ayurvedic Parlance and Role of Ksiravidari (Ipomea digitata, Linn.) in its Management, IPGT&RA, Gujarat Ayurved University, Jamnagar,.
10. Mohammad Eid Hammadeh et al, (2009), Reactive Oxygen Species and Antioxidant in Seminal Plasma and Their Impact on Male Fertility IJFS, Vol 3, No 3, NovDec, Pages: 87-110
11. Shaikh, J. G., Shrotriya, Y. O., Smita, D., & Jadhav, S. B. (2021). The Management of KshinaShukra Dhatu in Ayurveda wsr to Oligospermia. *International Journal of Ayurveda*, 15-19.
12. Ahmad MK et al, Withaniasomnifera improves semen quality by regulating reproductive hormone levels and oxidative stress in seminal plasma of infertile males, *Fertility and Sterility*, 2009 Jun 5.
13. Shukla KK et al, (2010), Mucuna pruriens Reduces Stress and Improves the Quality of Semen in Infertile Men, *eCAM*; 7 (1) 137-144.
14. Raval, M., Patel, M., Gamit, K., Patel, K., & Gupta, S. N. (2019). A Pilot Study on Evaluation of Standardized Ayurveda formulation Ashwagandhadilehya as Aphrodisiac and in treatment of Oligospermia. *Research Journal of Pharmacy and Technology*, 12(5), 2383-2390.
15. Chauhan NS et al, Effect of Asteracantha longifolia seeds on the sexual behaviour of male rats, *Nat. Prod. Res.*, 2009, Sep 14: 1-9.
16. Charak Samhita Chikitsasthan 30/134-139,page no.1035. Bramhanand Tripathi, ChaukhambaOrientalia, Varanasi, Editon2015.
17. Ambiye, V. R., Langade, D., Dongre, S., Aptikar, P., Kulkarni, M., & Dongre, A. (2013). Clinical evaluation of the spermatogenic activity of the root extract of Ashwagandha (Withaniasomnifera) in oligospermic males: a pilot study. *Evidence-Based Complementary and Alternative Medicine*, .
18. SushrutaSmhita Sutra sthan(2016), 1/16, page no-7. AmbikadattaShastri ,ChaukhambaOrientalia, Varanasi, Edition.
19. Agnivesha, Charaka Samhita Part 2, Chikitsasthan 2/4/43, Acharya Vidyadhar Shukla,Ravidatta Tripathhi,Varanasi,Chaukhamba Surbharati Prakashan, editionreprint 2010, Pg no .67
20. Boivin, J, Takefman, J, Braverman, A. (2011). Development and preliminary validation of the fertility quality of life (FertiQoL) tool. *Human Reproduction*, 26(8), 2084-2091.
21. Nadkarni KM, (2007),The Indian Materia Medica, Bombay Popular Prakashan,Mumbai, Vol.II.
22. Ubarhande, R. T., &Ubarhande, S. R. (2019). Role of VrushyaDravyas in the management of Oligospermia. *Journal of Ayurveda and Integrated Medical Sciences*, 4(05), 4-6.

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