European Journal of Molecular & Clinical Medicine
ISSN 2515-8260 Volume 7, Issue 10, 2020

ROLE OF APATYAKAR GHRUT IN THE MANAGEMENT OF OLIGOZOOSPERMIA

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Abstract:

Background: Infertility is an issue of global proportions, affecting 8-12% of couples globally on average. Latest studies have shown that the prevalence of oligozoospermia is exceedingly high in the metropolis as well as in smaller cities in India. Infertility is characterized as the failure to become pregnant after 1 year of unprotected coitus. Male infertility is marginally less complicated than female infertility, but can account for 30-40 per cent of infertility. Oligozoospermia is one of the key factors in male infertility and is characterized as a subnormal concentration of sperm in the penile ejaculate, i.e. less than 20 million per ml. The different drugs are mentioned to encourage fertility, and may be used to treat certain types of cases. Since the condition is still unresolved and there is no full cure available. Acharya Charaka has identified numerous drugs that are helpful in the treatment of Alpa, dushta retas that function directly on the properties of Shukra janana (spermatogenesis) and shukra shodhana. One of them is Apatyakar Ghrut. Go-ghrut is strongest of all the Jangam snehas because it has a special capacity to adopt, i.e. Samsakarysa Anuvartanam, and this is Vrushya. In this research, an attempt was made to investigate the role of Apatyakar Ghrut in the infertile male in which oligozoospermia is the cause of infertility. Apatyakar Ghrut is a poly herbal formulation stated to be useful for enhancing fertility. Aim: The purpose of this study was to determine the effectiveness of two months of oral administration of Apatyakar Ghrut. Materials and Methods: 30 eligible male participants between the ages of 21 and 50 years of age, with sperm count <20 million/ml, received Apatykar Ghrut at a dosage of 10ml orally twice daily before food containing lukewarm water as Anupana for a span of two months. Results: Apatykar Ghrut given an increase of 58.93% in overall sperm count, a 45.61% increase in sperm motility, a 14.45% increase in semen volume, a pH of 0.45% and a 14.51% decrease in liquefaction time. Conclusion: Administration of Apatykar Ghrut provided statistically significant improvement in desire, ejaculation, erection, orgasm, performance anxiety, sperm count, sperm motility, liquefaction period, volume of semen parameters relevant to male infertility, like oligozoospermia.

Keywords: Apatyakar Ghrut, Ksheen Shukra, Male Infertility, Oligozoospermia.

Introduction:

Infertility is an issue of global proportions, affecting on average 8-12% of couples worldwide.[1] Recent reports have shown that the incidence of oligozoospermia is exceedingly high in the metropolis as well as in smaller cities in India.[2] Infertility is characterized as the failure to achieve pregnancy after 1 year of unprotected coitus.[3] Male infertility is marginally less complicated than female infertility, but can account for 30-40% of infertility.[4] About 30-40% of the origin were unknown and, in the majority of the cases, critical disease, malnutrition, developmental disorders, pollution, side effects of some medications, hormones and

play a significant part.[5] Oligozoospermia is a seminal condition with a sperm count below 20 million/ml.[6] Acharya Susruta included Kshina Shukra under Shukra Dushti. Here, Vata dosha, along with Pitta, undergoes vitiation and creates a disruption in the normal consistency and quantity of Shukra Dhatu.[7]

Infertility treatment of contemporary medical research involves hormone supplementation and aided reproductive strategies. It also has its own drawbacks and adverse effects. More of their findings was limited to 30 to 40%. It's all pricey, but a common guy can't afford it. Moreover, Indian couples who are more orthodox cannot embrace it whole-heartedly. The discovery of fertility agents from herbal and mineral products is a high priority in the field of andrology science. If the unique division of Ayurveda named Vajeekarana will do anything to address this issue, it will be a blessing to the global population that is in deep despair due to infertility. Acharya Charaka has identified numerous drugs that are helpful in the treatment of Alpa, dushta retas that function directly on the properties of Shukra janana (spermatogenesis) and shukra shodhana. The Ghrut of Apatyakar is one of them.[8] Goghrut is strongest of all Jangam snehas[9] because it has a special capacity to adopt, i.e. Samsakarysa Anuvartanam, and this is Vrushya. In this research, an attempt was made to investigate the role of Apatyakar Ghrut in the infertile male in which oligozoospermia is the cause of infertility.

Aims & Objectives:

1. To carry out a detailed literary work covering Ayurvedic classics, the new oligozoospermiamedicine system.

2. To research the impact of Apatyakar Ghrut on the management of oligozoospermia.**Material & Method:**

This research involves a sample size of 30 patients in and around Nanded Area. They were all made to recognize the analysis, and informed consent was received. They were only included in the analysis after receiving informed consent.

Inclusion Criteria

- Patients exhibiting the classic features of Ksheen-Shukra, with semen samplesindicative of Oligozoospermia, explained in the texts, were subject to this analysis.
- Patients aged 21 and 50 years of age.
- Sperm count < 20 million per ml
- Fresh and treated patients have been chosen

for the review.**Exclusion Criteria**

- Age less than 21 or more than 50 years of age
- Sperm count > 20 million per ml
- Azoospermia and aspermia patients
- Developmental abnormalities such as Klinefelter Syndrome
- Patients with varicocele disorder, sex gland evaluation, sexually transmitted disorders, systemic diseases such as diabetes mellitus (DM), hypertension (HTN) etc. were removed from the analysis.
- Patients of sexually transmitted infections.
- Post-traumatic

oligospermia. **Diagnostic**

Criteria

A comprehensive patient case format containing points of history, complaint filing, medical inspection and laboratory investigations has been prepared. It primarily stressed the signs and symptoms (subjective criteria and objective criteria) of oligozoospermia.

Local Examination

Male genitalia contain penis, scrotum, testes, epididymis and sperm cord. Genital and reproductive history naturally parallels the history of the urinary tract. Subjects were asked about penile discharge, discomfort or swelling of the testes and capacity to enjoy regular sexual intercourse. These questions offered a hint for a shy or inhibited patient to chat about sexual or genital issues.

Investigation

- Laboratory investigations – Hb%, TLC, DLC, ESR, Blood Sugar (FBS & PPBS), Urine [Routine (Albumin & Sugar) and Microscopic] testing were performed to null out other pathological conditions.
- Semen Study – As per WHO (1993) rules, i.e. Liquefaction time, Colour, Volume, Viscosity, Reaction (pH), Sperm count, Sperm motility and Morphology.

Collection of semen for Analysis

- Abstinence: a minimum of 3 days of ejaculate collection and a maximum of 5 days ofabstinence were followed.
- Method: The method of masturbation was chosen for the processing of the samples.
- Container: a dry, wide-mounted bottle was supplied by the laboratory.
- Place: The private space adjacent to the laboratory was used for the storage of semen.
- Time: Semen processing time was limited from 9.30 a.m. to 11.30 a.m.**Research Design**

This is a single blind randomized controlled trial study. Patients have been enrolled and chosen for research after receiving voluntary consent. Patients were allocated to a single group of 30 patients, excluding dropouts with pre, mid and post-test study design.

Apatyakar Ghrut Dose – 10 ml orally twice daily before meals, lukewarm water as Anupana for a period of two months.

Criteria for selection of Drug

Acharya Charaka has identified numerous drugs that are helpful in the treatment of Alpa, dushta retas that function directly on the properties of Shukra janana (spermatogenesis) and shukra shodhana. One of them is Apatyakar Ghrut. Shukrala and Vrishya Karma are made up of Apatyakara Ghrut ingredients (80%), while 60% of the ingredients have Balya properties. Go-ghrut is unique of all the Jangam snehas because it has a special capacity to adopt, i.e. Samsakarysa Anuvartanam, and this is Vrushya. In this research, an attempt was made to investigate the role of Apatyakara Ghrita in infertile men for whom Oligozoospermia was a cause of infertility.

Ingredients-

Sr.No.	Drug - Botanical name	Quantity	Part Used
1	Shatavari – Asparagus racemosus Linn.	30 kg	Tuber
2	Kapikacchu – Mucuna prurita Linn.	30 kg	Seed
3	Gokshura – Tribulus terrestris Linn.	30 kg	Seed
4	Vidari – Pueraria tuberose Linn.	30 kg	Tuber

5	Black Gram – Phaseolus mungo Linn.	30 kg	Seed
6	Ghrut – Butryum departum Linn.	30 kg	
7	Milk	240 lit.	

Procurement of drugs

The drugs of Apatyakar Ghrut (Ref. Charak Samhita) (An ISO 9001-2008 & GMP certifiedcompany Nagarjuna Pharmaceuticals Pvt. Ltd. Gujarat).

Criteria for Assessment

a) • Examination of signs and symptoms of Ksheena Shukra with change in sexual health parameters and general health parameters was done before, during and after therapy. Lakshana Srotodushti, Dehabala, Agnibala, Cetasabala, etc.

b) • The score pattern was developed based on the severity of the symptoms. **Scoring pattern for Chief Complaints and Association complaints**

Symptoms	**Scale**
Sexual Desire	
No desire at all	3
Lack of desire	2
Desire only in demand of partner	1
Self and partner normal desire	0
Erection	
No erection	5
Erection with artificial method	4
Very slight swelling but unable to penetrate	3
Some swelling, but able to penetrate	2
Erection with occasional failure	1
Full swelling whenever desire	0
Ejaculation	
On mere thoughts	5
During foreplay	4
Before penetration	3
During sexual intercourse<30 sec	2
During sexual intercourse<60 sec	1
During sexual intercourse?60 sec	0

Post act exhaustion	
After every sexual act	5
In 75% of all encounters	4
In 50% of all encounters	3
In 25% of all encounters	2
Slight exhaustion occasionally	1
No exhaustion at all	0
Performance Anxiety	
Anxiety that hampers almost all encounters	5
Anxiety that hampers 75% of encounters	4
Anxiety that hampers 50% of encounters	3
Anxiety that hampers 25% of encounters	2
Slight anxiety does not hamper sexual act	1
No anxiety at all	0
Mukhashosha	
Dryness not relieved by anything	2
Dryness relieved by anything putting in mouth	1
No dryness at all	0

b) **Laboratory Investigations**

Semen Analysis and other laboratory investigations were examined before and after treatment. After care, the results collected from the control groups were compared andstatistically analyzed using the significance and percentage relief test.

Sperm Count	
Severe (>0-7 million/ml)	3
Moderate (>7- <14 million/ml)	2
Mild (>14 – 20 million/ml)	1
Normal (>20 million/ml)	0
Sperm Motility	
Severe (<25%)	3
Moderate (>25 - <50%)	2
Mild (>50 - <75%)	1

Normal (>75%)	0

***c)* Fertility Quality of Life Questionnaire (FertiQoL)**[10]

Improvement in the Quality of Life of the patients was assessed on the basis of Fertility Quality of Questionnaire (FertiQoL).

Observations & Results:

Patients have been listed according to the status of enrollment. In the present study, 33 patients with Oligozoospermia were chosen. Out of 33 patients, 30 patients were completed and 3 patients were terminated during the clinical trial due to different factors, i.e. family problems, not attending the OPD during the planned trial. The observations were as follows- Maximum 70% patients belong to the age group between 31-40 years.

93.33% were married. 93.33% patients were from hindu community. 36.67% patients were doing private job. 66.67% patients were graduate. 50% patients were of middle-higher class. 43.33% patients had moderate appetite. 80% patients were taking mixed type of diet. 40% patients were addicted to tea/coffee. 63.33% patients had regular bowel habit. 86.67% patients had sound sleep. 60% patients had Vishamagni. 66.67% patients had madhyama kostha. 33.33% patients had tensive psychological condition. 63.33% patients had moderate psychological distress. 40% patients were doing moderate work. 43.33% patients were doing occasional masturbation. Premature ejaculation was observed in 56.67% of the total cases. Majority of the patients were reported with 3-4 times of coitus in a week with an incidence of 50%. **Chief complaint-** Desire was observed in 90%, erection in 80%, ejaculation in 90%, orgasm in 80%, post act exhaustion in 56.67%, performance anxiety in 66.67% and mukha shosha were observed in 43.33% patients.

Semen Analysis- It is observed that majority of the patients were having the moderate grade i.e. 22 (73.33%) followed by 6 (20%) patients had mild grade and 2 (6.67%) patients had severe grade of sperm count. Majority of patients 34 (76.67%) had moderate grade followed by 5 (16.67%) patients had mild grade and 2 (6.67%) patients had severe grade of sperm motility.

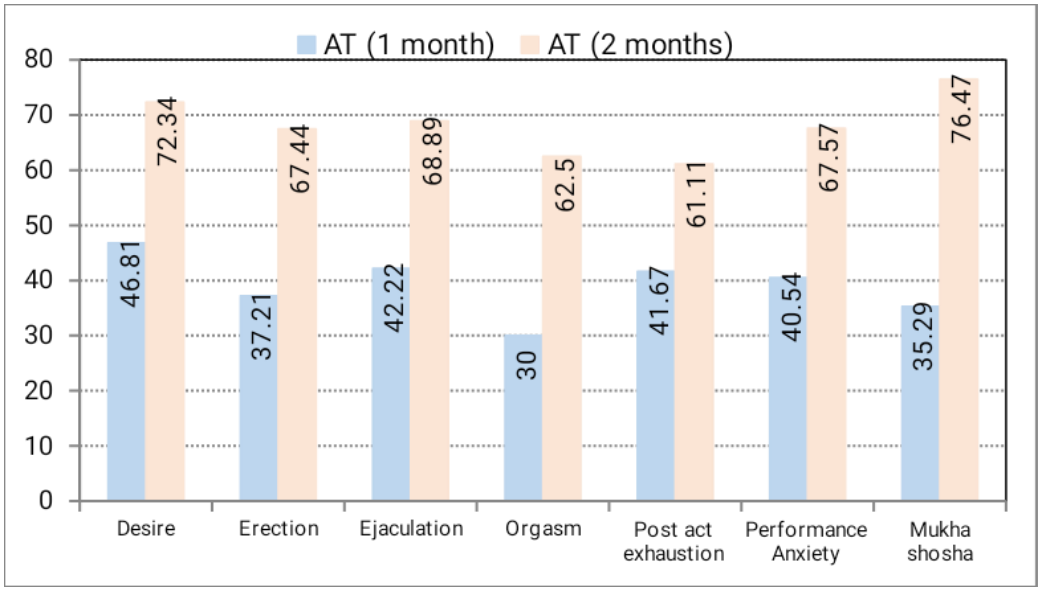
Result:

Relief Percentage of Symptoms in patients of Oligozoospermia

Symptoms	Score			Relief %	
	BT	AT (1 mon.)	AT (2 mon.)	AT (1 mon.)	AT (2 mon.)
Desire	47	25	13	46.81%	72.34%
Erection	43	27	14	37.21%	67.44%
Ejaculation	45	26	14	42.22%	68.89%
Orgasm	40	28	15	30.00%	62.5%
Post act exhaustion	36	21	14	41.67%	61.11%
Performance Anxiety	37	22	12	40.54%	67.57%

Mukha shosha	17	11	04	35.29%	76.47%

Relief Percentage of Symptoms



Relief Percentage of Objective criteria for Sperm Count & Sperm Motility

Objective Criteria	Group A		
	Score		Relief %
	BT	AT	
Sperm Count	56	23	58.93%
Sperm Motility	57	31	45.61%

Semen Analysis- The colour of semen was detected as white or whitish gray before and during treatment. Normal semen viscosity as Viscid was found in both patients before and after treatment. Out of 30 samples, only one patient had morphologically irregular sperm, i.e. large-headed sperm.

Fertility Quality of Life on Health Rate - Maximum number of patients' views on the quality of life of fertility is either positive or bad before and after completion of therapy.

Satisfaction of Life- Maximum amount of patients' views on life satisfaction is neither pleased nor disappointed before and after completion of therapy.

Overall Effect of treatment –

Overall effect of Apatyakar Ghrut showed marked improvement in 9 (30%) patients, mild improvement in 14 (46.67%) and 7 (23.33%) patients after completion of therapy. No patient has had a complete cure. Patients' fertility quality of life, sperm count and sperm motility level increased following completion of therapy. No clinically

adverse effect reported by the patients nor observed by the researcher during the study.

Discussion:

Kama (desire of sex), one of the Purusharthas, is linked to sexual pleasure, which is one of the joys of life and the development of a healthy offspring. Fertility is thus an existential imperative from time immemorial. It is important to have a healthy offspring and enjoy the sexual life of Shukra in its usual quantity and consistency. Abnormality of this Shukra leads to miscarriage, loss of physical gratification and eventually ends up in sorrow and anguish, which affects the couple's psychological equilibrium, sexual life and social work. The prevalence of male infertility is nearly 50% of infertile couples. Among male infertility, Oligospermia is one of the major factors and can be associated with Ksheen Shukra. The drugs of Vrishya are graded as Shukra Vriddhikara, Shukra Srutikara and Shukra Vriddhi-Srutikara. Shukra Vriddhikara drugs can be subdivided into Shukra Janaka and Shukra Pravartaka. Oligospermia therapy should be directed at increasing sperm count and motility. The composition Apatyakar Ghrut is a mixture of Shatavari, Kapikachhu, Gokshura, Vidari, Black gram processed with ghrut and milk. Both herbs include Madhura Rasa, Guru Guna, Sheeta Virya (Masha and Kapikkachhu – Ushna Virya), Madhura Vipaka, and Vrishya. Madhura Rasa has the Shukra Vardhaka property, which is supported by Shukra Vriddhi. GuruGuna is helping to generate Shukra based on Saamaanya Visesha Siddanta. Sheeta Virya maycause the production of Shukra and may protect it from Pitta vitiation, where the proper production of Shukra has taken place. Madhur Vipaka is working as ShukraVardhaka. Apatyakar Ghrut, due to its madhura rasa, sheeta virya, snigdha, guru guna, leads to brimhana, balya, rasayan, vasthapana and vata-pitta shamaka properties, leading to increased sperm count and sperm motility.

Shatavari has been found to be a compound that increases spermatogenesis and semen volume. So, this behavior may have helped to increase sperm counts in this sample. Kapikachhu seeds are prophylactic against oligospermia and are useful for increasing sperm count ovulation in women.[11] It's a strong aphrodisiac, and it's also a nerve tonic. It is used in the treatment of spermatorrhoea and genitourinary system diseases.[12] Mucuna pruriens may have enhanced testosterone, LH, dopamine, adrenaline and noradrenaline levels in infertile males and increased sperm counts there. Steroidogenic properties and their function on the hypothalamus-pituitary-gonadal axis of the M. Pruriens may have increased the consistency and development of semen in patients. M. Pruriens may have raised psychological tension. Seminal levels of lipid peroxide plasma along with enhanced sperm concentration, motility, and reactivated antioxidant defense mechanisms may have led to cortisol regulation, improved mental alertness, and enhanced balance and semen efficiency. The aphrodisiac and fertility-enhancing function of Gokshura has been studied. Furostanol hi glycosides have been involved in stimulation of spermatogenesis and sertoli cell activity in rats.[13] This contributes to an increase in the production of luteinizing hormones. When the levels of luteinizing hormones increase, the normal development of testosterone also increases. Saponin in Tribulus Terrestris, considered to be responsible for its effect on testosterone levels and libido, is known as protodioscin. This treatment may have raised the level of testosterone and increased sperm output there. Vidari is known to be a cure for sexual problems, but on the other hand it is often regarded for its anti-fertility activity. Scientific experiments have been performed on the sexual orientation of male rats and their effect on the hypothalamic pituitary gonadal axis. Care substantially increased androgen and sexual behavioral parameters. There was also a rise in serum concentrations of FSH and a boost in serum

testosterone levels in the Pueraria tuberose treatment population. Herb administration demonstrated substantial androgen enhancement as indicated by an improvement in the weights of the testis, epididymis, and seminal vesicles. Spermatogenesis has also been developed and has been shown to increase the histoarchitecture of the testicular segment. It may also be suggested that Pueraria tuberose associates weight gain in secondary sexual organs with elevated serum FSH and testosterone levels. Masha increases sexual appetite in men, which in turn helps control sexual dysfunction due to its aphrodisiac properties. The findings of the research study indicate that Masha stimulates sexual behavior in male rats. There was a large rise in the concentration of serum testosterone. This increase in sexual activity may be attributed to the existence of phytoconstituents such as alkaloids, saponins, steroids and flavonoids present in masha seed extracts of methane and chloroform. Studies have shown that testosterone and estrogen are found in milk. Milk and ghee are found to encourage sexual endurance and semen amount.

The trial drug Apatyakar Ghrut showed a major effect on enhancing long-term care desire. This finding indicates that the trial drug even works on a mental basis. The medication may have provided power as well as vigor to the body, and it automatically helps to execute proper mental functions as Manas and Shareera are closely linked to each other Apatyakar Ghrut aids in erection, which may be due to the proper movement of blood into the arteries in the male genital organ, muscle building, and the proper functioning of the male genital nerve. Ejaculation or Shukra Pravartana is an Apana Vata feature. As Apana Vata is vitiated in Ksheen Shukra, ejaculation may be disrupted. Both medicines have madhura rasa, which functions as Vata Shamana can contribute to the proper functioning of Apana Vata, which could eventually be resolved by premature ejaculation and late ejaculation. Ejaculation and orgasm are typically at the same time. So that as the ejaculation becomes proper, the sexual satisfaction orgasm becomes proper as well. The drug can serve as an anti-depressant, as Kapikachhu contains a high amount of L-Dopa in the trial drug. So, after the ingestion of the medication, the depression was eased and the woman felt the orgasm properly. The properties of balya, brimhana, rasayan and vasthapana aid in post-acting fatigue and performance anxiety. It helps in mukha shosha, which may be attributed to pitta shamaka's ghrut properties. Apatyakar Ghrut includes Shukra Vardhaka drugs and the drugs also have the property of Brimhana. These behaviors may have contributed to the proper development of the sperm and the nutrition of the sperm. Due to the vitiated Apana Vata the motility of the sperm reduces, the Vata Shamana property and the Brimhana property of the trial drug can be corrected.

Conclusion: From the present clinical review, it can be inferred that Apatyakar Ghrut has provided an important result in subjective parameters and objective parameters. Apatyakar Ghrut offers better results in overall sperm count, sperm motility, sperm morphology, semen volume indicating that it is successful in the management of Oligozoospermia. It is safe, effective and pleasant to develop a medication that has no side effect and no adverse effect on the treatment of Oligozoospermia. While this research was performed in small patients for a limited period of time, the programming of the mass study is required for a more broad database statistical study.

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