Research Article

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Efficacy of *Pushpadhanva-Rasa* and *Svayamagupta-Ikshuraka Beeja Choorna* on *Ksheena-Shukraka* (*Oligozoospermia*)

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ABSTRACT

Progeny is a dream for every couple, childlessness affects couples psychological harmony, sexual life and social functioning too. Among total infertility cases male infertility is as chief cause in 26.2 – 46.6% and the most common reason for male infertility is Oligozoospermia. The condition resembles with *Ksheena Shukra* described in Ayurveda. *Vajeekarana*- one of specialty of Ayurveda deals with such problems and can contribute substantially to solve this problem. **Aim:** To study the efficacy of *Pushpadhanva-Rasa* and *Svayamagupta-Ikshuraka Beeja Choornaon* patients of *ologozoospermia*. **Materials and Methods:** Patients having complaints of oligozoospermia were selected and treated with either of the drugs. Patients of Group-PR were given Pushpadhanva-Rasa 250mg tablet, twice a day with Ghee, whereas patients of Group-SI were given *Svayamagupta-Ikshuraka Beeja Choorna* 3 gm powder twice a day. In both the groups sugar added milk was kept as Anupana. Duration for the treatment course was one month. **Result:** Both therapies provided good improvement in different seminal as well as sexual parameters. **Conclusion:** In quantitative abnormality and disturbance in sexual parameter *Pushpadhanva Rasa* is better while *Svayamagupta-Ikshuraka Beeja Choorna* showed better results to improve quality of semen and level of testosterone.

Keywords: *Oligozoospermia, Ksheena Shukra*, *Vajeekarana*.

INTRODUCTION

According to Indian Philosophy *Dharma*, *Artha, Kama* and *Moksha* are four tenets of life. One can't attain those without progeny. In today's era many countries are affected with population explosion while in other hand incidence of global infertility is around 16.7% and male factor alone contributes around 26.2 – 46.6%. Again 50% of infertility problems are reported only due inability to produce adequate number of healthy sperms in penile ejaculate i.e. Oligozoospermia. This resembles with *Ksheena-Shukra* in Ayurveda. *Ksheena-Shukra* is one of the major variety of *Shukra Dosha* [1] wherein, there will be diminished level of *Shukra* either in quality or in quantity, but ultimately either of these leads to unproductively.

Ksheena-Shukra is a major and common clinical condition, where it appears in three ways due to involvement of a number of etiological factors: Main pathology may be considered as generalized impairment in *Shukra*, which can be taken as hormonal imbalance, or some local problems like disturbances in sexual health of an individual or impaired quality or quantity of penile ejaculate ultimately lead to affect semen variable.

Now a day, to explore fertility enhancing agents from herbal and mineral source is of top priority in andrology research. Management of infertility in modern medical science has its limitations and adverse effects. Special branch of Ayurveda called *Vajeekarana* can contribute to solve this problem. In other hand in Ayurveda classics treatment of *Ksheena Shukra* has been mentioned according to their causative factors. [2] Combination of *Svamagupta-Ikshuraka* seed powder is mentioned as treatment of *Shukra Kshaya*,[3] as well as herbo-mineral compound *Pushpadhanva Rasa* is enumerated as *Veerya Vardhaka*. [4] Taking in to consideration the present study was planned with following aims.

Aims and Objectives

To study the effect of '*Pushpadhanva Rasa*' and '*Svayamagupta-Ikshuraka Beeja Choorna*' in the management of *Ksheena-Shukra* (Oligozoospermia).

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MATERIALS AND METHODS

Study design

Type of study : Iinterventional
No. of Group : 02
Masking : Open label
End point : Efficacy

Criteria for selection

Patients suffering from Infertility, fulfilling inclusion criteria and willing to participate in the study were registered.

Inclusion Criteria

1. Age – Between 21 years to 45 years
2. Patients with having primary or secondary infertility due to Oligozoospermia
3. Patients having total sperm count < 40 million/ ml of semen [5]

Exclusion Criteria

1. Age – Below 21 years and above 45 years
2. Patients of Azoospermia and/or Aspermia.
3. Patients of diseases like Varicocele, Accessory sex gland infection, Sexually Transmitted Diseases (STDs), severe systemic diseases like Diabetes Mellitus.
4. Having hereditary, congenital disease and genetic defects like Klinefelter's and Reifenstein's syndrome

Diagnostic Criteria

Diagnosis was based on Subjective as well as objective criteria of Ksheena-Shukra (general and sexual parameters) as well as laboratory investigation.

Subjective criteria: signs and symptoms of Ksheena-Sukra like, lack of Sexual Desire, erection problems, Daurbalya, Mukhashosha, performance anxiety etc.

Laboratory Investigations (Pre and Post treatment)

• Hematological: Hb, TC, DC, and ESR.
• Biochemical analysis: FBS, Lipid Profile, Liver function test, Renal function test
• Urine examination: Routine and Microscopic examination.
• Above investigation were carried out to rule out other pathological condition.
• **Semen analysis:** Sperm Count, Volume, Motility and Morphology of semen.
• **Bio-marker:** Serum Testosterone had been carried out as Bio-marker for this particular condition.

Intervention

• **PR group:** Pushapadhanva Rasa
Dose: 1 Tablet (250 mg.), twice in a day
Anupana: Honey + Ghee (in unequal quantity) with Sugar added lukewarm Milk
• **SI group:** Svayamagupta-Ikshuraka Beeja Choorna
Dose: 3 gm, twice in a day
Anupana : Sugar added lukewarm Milk
Duration: One month duration intervention was fixed for both the groups.

Criteria for Assessment

Assessment was carried out on the basis of improvement found on subjective as well as objective parameters.

Improvement in signs and symptoms of Ksheena – Shukra, sexual health parameters and general health parameters like Dehabala, Agnibala, and Chetasabala [6], [7] etc. have been assessed on the basis of specially prepared proforma and scoring pattern.

Assessment of Subjective Parameters

The scoring patterns for assessment of sexual parameters prepared by Mehra and Singh, 1995 have been adopted with little modification.

Scoring pattern for Agnibala, Dehabala, Chetasabala and other Srotodushti symptoms were also adopted.

Objective assessment: it was carried out on the basis of improvement in semen analysis and Biomarker S. Testosterone level.

Overall effect of Therapy

Overall assessment of the therapy was made on the basis of improvement in sexual and seminal parameters, along with general improvement in Agnibala, Dehabala and Chetasabala.

The obtained results were measured as mentioned below,

Result	***Criteria***
Complete relief	Attainment of 100% relief in parameters
Marked Improvement	Attainment of relief >75% < 100% in parameters
Moderate Improvement	Attainment of relief 50%-75% in parameters
Mild Improvement	Attainment of relief 25%-50% in parameters
Unchanged	Relief found less than 25%

Status of patients

Status	Group PR	Group SI
Registered	15	14
completed	11	12

Observations:

1. Maximum i.e. 34.29% patients were from age group 35-40 years, Hindu religion (91.43%) urban locality (88.57%), middle class (65.71%), graduates(40%), Businessmen (51.43%), physical work (51.43%).
2. Family history of infertility in siblings was observed in 11.43% patients and past history of recurrent cold (25.71%0, Mumps and Urogenital surgery (17.14% each), U.T.I. and Varicocele (11.43% each) were observed.
3. Dietary habit wise, maximum subjects were vegetarian (77.14%), *Lavana Rasa* dominance (65.71%), excess use of Alkali (71.43%), consumption of cotton seed oil (71.43%)., were taking Tea as supplementary diet (91.43%), addicted to tobacco smoking (62.86%), alcohol consumption (8.57%). *Vishamashana* (irregular time for meal) was observed in 68.57% patients.
4. Maximum subjects were having *Mandagni* (42.86%), *Madhyama Koshtha* (57.14%), *Vata-Pitta* dominant *Prakriti* (48.57%), *Madhyama Sara* (94.29%), *Madhyama Sattva* (91.43%). Anxiety was found in 28.57% patients. Whereas 25.71% patients were found underweight (BMI<20 Kg/m^2).

5. As far as chief complaints are concerned, primary infertility was observed in 77.14% followed by early ejaculation (54.29%), loss of rigidity (34.29%), less satisfaction of partner (40%). Maximum period of unprotected intercourse was observed ranging between 3 to 6 years.
6. Increased scrotal temperature more than 97^0 F was observed in 48.57% of patients, Maximum 65.71% and 11.43% subjects were wearing tight undergarments (65.71%) and synthetic undergarments (11.43).
7. 88.57% patients were using mobile phone and again out of those 40% were keeping it in lower pocket.
8. Semen volume in between 0.6-1ml was observed in 30.30%, followed by sperm count less than or equal to 8 mil/ml in 42.86% patients. 51.43% patients had non-motile sperms more than 50%, and S. Testosterone level was found below normal level in 11.43% patients.
9. *Shukravaha Srotodushti* symptoms like *Klaibya* and *Dhvajanutthane Ashakti* was observed each in 42.86% of patient, while *Rasavaha Srotodushti* symptoms like *Akale Palita* was observed in 77.14% patient followed by *Gaurava* in 40%, *Tandra, Angamarda, Tama* was observed 20% each.

RESULTS AND DISCUSSION

Effect of therapy

Effect of *Pushpadhanva rasa* on seminal parameter (Table 1) PR group showed significant improvement on semen liquefaction time and volume whereas rest of parameter improvement remained statistical insignificant.

Effect of *Svayamagupta-Ikshuraka Beeja Choorna* on seminal parameter (Table-2) SI group showed significant improvement on semen liquefaction time as well as sperm count. Rest of the parameter was also improved but remained insignificant statistically.

Effect of PR and SI group on Serum Testosterone level (Table 3)

At the end of the therapy SI group showed significant improvement on S. Testosterone level ($p<0.02$) whereas improvement found in PI group remained insignificant statistically.

Effect of PR and SI group on Subjective parameters (Table-4)

Effect *Pushpadhanvarasa* and *Svayamgupta-Ikshuraka beeja churna* on *Agnibala, Dehabala*, and *Satvabala* (Table-5)

Table 1: Effect of *Pushpadhanva rasa* on seminal parameter

Semen Analysis [n=11]	Mean (min) ± SEM			%	S.D.±	S.E.±	't'	'p'	Remark
	BT	AT	Diff.						
Liquefaction time (in min)	24.55	22.73	1.82	7.41↓	2.523	0.761	2.39	<0.05	S
Semen Volume (in ml)	1.164	1.909	0.745	64.06↑	0.832	0.25	2.97	<0.05	S
Sperm Count (*10^6/cmm)	8.27	9	0.73	8.79↑	2.15	0.65	1.12	>0.05	NS
Total Motility (in %)	38.18	40.00	1.82	4.76↑	18.88	5.69	0.32	>0.05	NS
Active Motility (in %)	30.45	32.739	2.27	7.46↑	22.95	6.92	0.33	>0.05	NS
Sluggish Motility (in %)	28.18	25.45	2.73	9.68↓	12.72	3.84	0.71	>0.05	NS
Non-Motile sperm (in %)	41.36	32.731	8.647	20.88↓	23.46	7.07	1.22	>0.05	NS
Abnormal forms of Sperm in %)	14.73	16	1.27	8.64↑	3.93	1.18	1.08	>0.05	NS

↓- Decrease; ↑- Increase S= Significant, NS= not-significant

Table 2: Effect of *Svayamagupta-Ikshuraka Beeja Choorna* on seminal parameter

Semen Analysis [n=12]	Mean ± SEM			% Change	S.D.±	S.E.±	't'	'p'	Remark
	BT	AT	Diff.						
Liquefaction time (in min)	24.55	22.73	1.82	7.41↓	3.37	1.02	1.79	<0.1	S
Semen Volume (in ml)	1.12	1.30	0.18	15.67↑	0.70	0.20	0.87	>0.05	NS
Sperm Count (*10^6/cmm)	13.33	16.71	3.38	25.31↑	4.98	1.44	2.35	<0.05	S
Total Motility (in %)	32.5	35	2.5	7.69↑	16.72	4.83	0.52	>0.05	NS
Active Motility (in %)	30.83	27.33	3.5	11.35↓	19.83	5.73	0.16	>0.05	NS
Sluggish Motility (in %)	19.17	21.25	2.08	10.87↑	7.22	2.08	1	>0.05	NS
Non-Motile sperm (in %)	33.33	35.58	2.25	6.75↑	18.46	5.33	0.42	>0.05	NS
Abnormal forms of Sperm (in%)	15.33	15.67	0.33	2.17↑	2.96	0.86	0.39	>0.05	NS

↓- Decrease; ↑- Increase S= Significant, NS= not-significant

Table 3: Effect of PR and SI group on Serum Testosterone level

Serum Testosterone	n	Mean ± SEM (ng/dl)			% Change	S.D.	S.E.	't'	'p'	Remarks
		BT (ng/dl)	AT (ng/dl)	Diff.						
PR Group	11	596.91	697.46	100.54	16.84↑	233.52	70.41	1.43	>0.05	NS
SI Group	12	331.39	578.99	247.6	42.77↑	310.01	89.49	2.77	<0.02	S

↓- Decrease; ↑- Increase p<0.05= Significant p>0.05= not significant

Table 4: Effect of PR and SI group on Subjective parameters

Subjective Parameters	PR Group		SI Group	
	No. of Pts.	% improvement	No. of Pts.	% improvement
Sexual Desire	1	100	2	100
Erection	5	100	2	100
Ejaculation	4	71.43	8	78.57
Less self-Satisfaction	4	57.14	8	33.33
Performance Anxiety	4	100	5	50
Post Act Exhaustion	6	100	10	56.25
Less Satisfaction of Partner	3	40	6	100
Daurbalya	2	80	4	62.5
Mukhashosha	5	40	2	50

Table 2 : Effect *Pushpadhanvarasa* and *Svayamgupta-Ikshuraka beeja churna* on *Agnibala, Dehabala*, and *Satvabala*

AGNIBALA	Group A		Group B	
	No. of Pts.	% of improvement	No. of Pts.	% of improvement
Abhyavaharana Shakti	3	75	4	83.33
Jarana Shakti	3	71.43	8	80
Ruci Hi Ahara Kale	3	100	6	81.82
Vatamootrapurisha Retasam Mukti	8	57.14	8	45.45
DEHABALA				
BalaVriddhi	2	50	7	100
Svaravarna Yoga	7	50	11	75
ShareeraUpachaya	2	00	2	100
SATTVABALA				
Nidra Labho Yatha Kalam	1	100	3	100
Sukhena Cha Pratibodhanam	6	83.33	7	87.5
Vaikarika Svapna Adarshana	3	100	6	75
Mano Buddhi Indriya Avyapatti	4	20	4	50

Chi Square test: While making comparison between these two groups, no statistically significant difference observed. Both the therapy has given parallel effect on disease according to statistical analysis.

Probable mode of action

1) **Effect of *Pushpadhanva Rasa:***

Chief ingredients of *Pushpadhanva* rasa having property like *Yogavahi*, *Dhatu vriddhikara,*, *Virya vardhana*, *Agni diptikara* etc. The herbs used for trituration purpose like *Dhatura*, *Bhlanga*, *Ngavalli* etc. are having stimulant effect over Neuro-endocrinal system. These may have effect on systemic as well as locally to the testes and accessory sex glands resulted to improve quality and quantity of semen like volume, count and motility. [8] *Bringhana* property of chief ingredients like *Vrishya, Rasayana, Balya, Pushtikara* as well as Vrishya Prabhava of triturating drugs may lead to general body strength improvement in satisfaction, exhaustion, weakness, etc. This adapto – immune –endocrine-modulator property of the drug may act on nerve impulses and hence decrease the level of anxiety that further result in to improvement of sexual drive like erection, satisfaction etc. These strengthen and stimulative effects ultimately improve metamorphosis of all Dhatu and result in improvement in nutrition may lead to improvement in general health status.

2) **Effect of *Svayamagupta-Ikshuraka Beeja Choorna:***

Tikta rasa and *Ushna* veerya property of *Swayamgupta* may improves metamorphosis of Ahara Rasa and finally nourish all the Dhatus. *Madhura*, *Shita*, *Snigdha* property of *Ikshurasa* and *Balya*, *Bringhana* and *Vata-Pitta Shamaka* action of *Swayamgupta* may enhance nutrition of all *Dhatus* and by this process ultimately it will improve the level of *SukraDhatu*. Special property of both the herbs like *Sukra Shodhana* and *Sukra* Janiana may directly affect the process of spermatogenesis and result to improve the quality and quantity of *Sukra*.

Overall effect of therapy:

PR Group: maximum 63.64% of the patients showed moderate improvement followed by mild improvement (27.27%) and unchanged (9.09%). Whereas in SI Group 75% patients showed moderate improvement, followed by mild improvement (16.67%), and unchanged (8.33%).

CONCLUSION

Ksheena-Shukra seems to be analogous with term oligozoospermia. *Pushpadhanva Rasa*and *SwayamguptaIkshuraka* seed powder both the therapy provides good improvement in all seminal as well as sexual parameters. Again, *Svayamagupta-Ikshuraka* seed powder provides better improvement in generalized manifestation of *Ksheena-Shukra* (testosterone level) along with sperm count whereas *Pushpadhanva Rasa* provides better improvement in sperm count, semen volume and other sexual parameters.

No any adverse drug reaction (ADR) was found during and after treatment of the study.

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