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Review of Treatment Protocols in the management of *Vandhyatva* w.s.r. infertility due to Cervical Factor

Jasmina Acharya^{1*} and Foram Joshi²

¹Department of Stree Roga and Prasutitantra, JS Ayurved Mahavidhyalaya, Nadiad, Gujarat, India

²Department of Shalyatantra, JS Ayurved Mahavidhyalaya, Nadiad, Gujarat, India

ABSTRACT

BACKGROUND: *Vandhyatva* has been a long standing problem since ancient times. Many herbal and herbo-mineral formulations are mentioned as treatment of *Vandhyatva* in classical texts as per involvement of *Dosha* and *Dushyas*. Infertility is a relative state of lowered capacity to conceive within one or more year of regular unprotected coitus. Higher cost of surgical procedures, recurrence ratio, adverse effect and delayed effect are not fulfilling patient's aim of healthy reproductive system. *Ayurvedic* treatment for the same is having great potential in the management of infertility due to cervical factor. Till date many dissertation works on PG level and other clinical research works has been carried out for the management of infertility due to cervical factor but no any line of treatment is finalised yet. **AIMS & OBJECTIVES:** 1.To screen out optimum resulting medicine and procedure in the management of *Vandhyatva* (i.e., Infertility due to cervical factor). 2. To generate scientific data for formation of line of treatment for the management of *Vandhyatva* (i.e., Infertility due to cervical factor). **MATERIAL AND METHODS:** For this review work three theses work, carried out at IPGT & RA, Jamnagar are taken into. Related *Samhitas*, classical texts and commentaries, recent web data are studied critically to understand the etio-pathogenesis and mode of action of said particular treatment protocol. **RESULTS & DISCUSSION:** Optimum results-complete cure i.e. conception was obtained in study-3 group-A i.e., *Phalaghrita* oral administration. **CONCLUSION:** *Phalaghrita* oral and *Shatavari Ghreet Uttarbasti* has shown comparatively better results. These drugs should be used for further research work to establish the treatment protocol of infertility with special reference to cervical factor with adequate data.

KEYWORDS

Vandhyatva, Infertility, Cervical Factor, Line of Treatment



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INTRODUCTION

Vandhyatva has been a long standing problem. Many herbal and herbo-mineral formulations are mentioned in management of *Vandhyatva* in classical texts as per involvement of *Dosha* and *Dushya*¹. As per Acharya Sushruta, Healthy status of Ritu, Kshetra, Ambu, Bija are the four essential factors for fertility. Kshetraja and Ambu Dushti Janya *Vandhyatva* are being considered as infertility due to cervical factor. Medical preparations and procedures for the management of *Vandhyatva* in classical text are not clearly revealing regarding on which -factor it particularly works.

Infertility is a relative state of lowered capacity to conceive within one or more year of regular unprotected coitus². Infertility is a relative state of lowered capacity to conceive within one or more year of regular unprotected coitus. In the present scenario of the rapid advancement in technology, infertility is still a problem that has continued since ages. Many factors are responsible for female infertility, which is Tubal factor-40%, ovarian factor-05%, cervical factor-20% and uterine factor-10%. J.M Sims (1868) first identified cervical factor in infertility³.

The cervical mucus acts as filter allowing only functioning to penetrate cervical mucus. When this is hostile and unfavorable it reduces the quality or quantity of sperm, affect sperm viability and ultimately infertility. *Acharya Sushruta* has described the essential factors for conception i.e., *Ritu* (season or ovulatory period), *Kshetra* (field i.e., reproductive organs) and *Ambu* (water i.e., nutritive material & hormones) which are responsible to maintain the pregnancy and defect in either of these factors may result in to infertility.

In healthy reproductive system, cervical receptors produce the cervical mucus in ovulation time. Both the hormone oestrogen and progesterone are responsible for maintenance of production and function of cervical mucus. Less quantity and poor quality of cervical mucus may be due to altered function of cervical receptors, which is one of the main causes of infertility due to cervical factor. Proper secretion of cervical mucus is a result of balanced *Tridosha* (three humors of body) *Prasada Rasa Dhatu* (essence plasma or nutrients), *Raktadhatu* (blood), *Mamsadhatu* (muscles, tissues) and *Sthanika Agni* (local metabolism at cellular level) according to *Ayurveda*, Functions of cervical mucus can be linked with the *Kledana Karma* (moisturizing action) of



Kapha. *Vata* vitiated due to *Ruksha Guna* (dry Property) and *Tikshna Guna* (penetrating or pungent property) is mainly responsible for reduction in cervical mucus. Treatment of *Vandhyatva* (infertility) is broadly classified into two groups i.e., *Taila* (oil) treated conditions or *Ghrita* treated conditions. The choice of *Taila* (oil) or *Ghrita* depends on the accompanying *Doshas* with *Vata*. If *Vata* is associated with *Kapha*, *Taila* has to be preferred, while in case of *Pitta* association, *Ghreet* has to be preferred. Considering this, concept for *Phalaghrita* was selected for the present trial. *Uttarbasti* is one type of *Basti* which is best for the disease of female. It tones up reproductive organs and improves the quality of *Ambu*. i.e cervical mucus. Thus by applying proper drug through *Uttarbasti*, disorders of female reproductive tract can be cured. Hence, this review clinical study was planned to evaluate the efficacy of *Uttarbasti* and on cervical factor responsible for infertility.

Now-a-days, it is the need of time to form a line of treatment by comparing various medicine and clinical therapeutic procedures in the management of infertility due to cervical factor.

AIMS & OBJECTIVES

1. To observe the optimum resulting medicine and procedure in the management of *Vandhyatva* (i.e., Infertility due to cervical factor).
2. To generate scientific data for the formation of line of treatment for the management of *Vandhyatva* (i.e., Infertility due to cervical factor).

MATERIALS AND METHODS

All the 3 theses were taken from Ayurvedic research database prepared by Institute for Post Graduate Teaching & Research in Ayurveda University, Jamnagar. Related textbooks, reference books, published articles and web data on infertility due to cervical factor were analysed, compared and studied critically to assess the optimum effect of therapy.

Method: Hand search

OBSERVATION

Maximum 81.53% improvement was found in cervical factor amount production in study-1 group-A *Ashwagandha Uttarbasti* along with oral *Ghreetpana*. Maximum 56% improvement was found in cervical factor Viscosity in study-2 Group-A *Shatavari Ghreet Uttarbasti*. Maximum 60%



improvement was found in study-2 group-B *Goghreet Uttarbasti*. Maximum 89.11% improvement was found in cervical factor cellularity in study-1 group-B *Phalaghrita Uttarbasti*. Maximum 73% improvement

was found in cervical factor ferning in study-3 group-A *Phalaghrit* oral as per shown in table no. 2.

Table 1 Clinical Studies taken for Review^{4,5,6}

No.	Researcher name	Posology group –A	Posology group-B
1.	Pallavi Parikh(2001)	<i>Ashwagandha Ghreet Uttar Basti Ghreetpan</i> Dose: 3 c.c. 15 gms. Route : Intra cervical orally Duration : 6 days / month Twice a day Subsequently 2 months for 2 months Anupan : -- with warm milk Follow up : minimum 2 months	<i>Phalaghrita</i> a) <i>Uttar Basti</i> b) <i>Ghreetpan</i> Dose: 3 c.c. 15 gms. Route : Intra cervical orally Duration : 6 days / month Twice a day Subsequently 2 months for 2 months Anupan : -- with warm milk Follow up: minimum 2 months.
2.	Dr.Chetna Kodinaria (2007)	<i>Shatavari Ghreet Uttarbasti</i> 5ml 6 days with 3 days interval (consecutive 2 cycle – after cessation of menses)	<i>Goghreet Uttarbasti</i> 5 ml 6 days with 3 days interval (consecutive 2 cycle – after cessation of menses)
3.	Dr.Neha Pandya()	<i>Phalaghreet</i> orally 15 gm in bid dose For 2 months <i>Anupana</i> : warm milk	<i>Phalaghreet</i> 5 ml for each intra cervical <i>Uttarabasti</i> Route: intra cervical Duration: 6 days with 3 days interval After cessation of menses subsequently for two cycles

Table 1 shows the brief introduction of clinical studies we have taken for critical review.

Table 2 Effect of Therapy in Cervical Factor

Sr.n o.	Cervical factor	STUDY 1		STUDY 2		STUDY 3	
		GROUP A	GROUP B	GROUP A	GROUP B	GROUP A	GROUP B
1.	Amount	81.53	76.86	60	42	62	68
2.	Viscosity	45.00	50	56	53	52	53
3..	Spinnbarkeit	53.09	49.81	38	60	30	18
4.	Cellularity	62.28	89.11	59	65	56	46
5.	Ferning	00	21.05	38	28	73	50

Table 3 Effects of therapy in sperm density and sperm motility.

Sr.no.	Cervical factor	Study 1 Group-A	Study 1 Group-B	Study 2 Group-A	Study 2- Group-B	Study 3 Group-A	Study 3 Group-B
1.	Sperm density	62	66.66	60	42	86	86
2.	Sperm motility	60.59	47.91	76	45	82	59

Maximum 86% improvement was found in sperm density in study-3 group –A & group-B. Maximum 82% improvement was found in sperm motility in study-3 group-A *Phalaghreet*.

**Table 4** Overall all effect of therapy

Sr.no.	Cervical factor	p-A %	p-B %	C-A %	C-B %	N-A %	N-B %
1.	Completely cured	0	0	0	14.29	28.57	16.66
2.	Markedly Improved	14.29	0	57.14	14.29	14.28	33.33
3..	Moderately Improved	28.57	57.14	42.86	57.14	42.85	50
4.	Improved	57.14	42.86	0	14.29	14.28	0
5.	Unchanged	00	0	0	0	0	0

Maximum 28.57% was completely cured in study-3 group A.

DISCUSSION

As per Ayurveda, for achievement of conception, normal viability and proper functioning of Rutu, Kshetra, Ambu and Bija are essential requirements⁷. Normal psychology, healthy and proper functioning female reproductive system, healthy sperm and ovum, well prepared uterus are essential factors.

Acharya Sushruta has described four essential factors for conception i.e Rutu, Kshetra, Ambu and Beej. Rutu means period of ovulation. Kshetra means all the reproductive organs in healthy and normal condition. Ambu means proper nutrition (hormones and maternal nutrition both). Beeja means healthy ovum and spermatozoa.

It is obvious that abnormality related to any of these four factors results into *Vandhyatva*. The cervical cause of infertility can be considered under *Kshetra* and *Ambudushti*. As mentioned earlier, specific etiology or pathology of *Vandhyatva* has not been given

in classics. So, here an effort has been made to understand aetiology of cervical factor. The term "*Artava*" also denotes ovarian hormone-oestrogen⁸. Less production of cervical mucus, poor quality of cervical mucus in appropriate time due to inadequate hormonal level is the main symptom of *Vandhyatva* caused by cervical factor. Cervical mucus is produced as the part of *Prasada Rasa* and *Rakta Dhatu* by proper *Sthanika Agni* and secreted by *Anuloma Gati* of *Apana Vayu*. *Ruksha Guna* of *Vata* and *Ushna - Tikshna Guna* of *Pitta* are the two main etiological factors of the cervical factor⁹.

Post coital test is the most important one to diagnose the cervical cause of infertility. With newer and more accurate diagnostic tests available, this test is slowly getting out mode. But it can give valuable information about cervical mucus sperm interaction when it is performed correctly¹⁰.

CHIKITSA SIDDHANTA REGARDING VANDHYATVA:



Yoni does not spoil without *Vata*. So first of all, *Vata Samana* treatment must be done and then the treatment of other *Doshas*.

As mentioned earlier, *Ruksha Guna* of *Vata* and *Ushna - Tikshana Guna* of *Pitta* are two main etiological factors of the cervical cause of infertility. So, *Ghreet* has been selected for the in study no.1 because it is the best *Shamana* drug for *Vata Pitta Dushti*. *Basti Chikitsa* is considered as the serving remedy in case of women who are not able to conceive despite unprotected coitus due to *Vata*. *Uttarbasti* is one type of *basti* which is all time best treatment for the diseases of female¹¹. It also tones up the seat of foetus i.e., *Garbhashaya* and thus by applying proper drug through *Uttarbasti*, it can subside the *Kshetraja Dushti* directly. Simultaneously, it can improve the quality of *Ambu* i.e., cervical mucus.

PROBABLE MODE OF ACTION OF DRUGS:

Cervical Amount: In *Charaka Samhita*, *Yadavaji Trikamaji Acharya* has mentioned that *Ghreet* is *Vatashamaka* due to its *Snigdhatata*, *Pittashamaka* due to its *Shaityata* and *Kaphashamaka* due to its *Sanskara*¹². *Madhura Rasa* and *Madhur Vipaka* = Nourishour of *Rasa dhatu*, *Mamsa Dhatu* and *Shukra Dhatu* and give them strength. It increases secretions *Madhura Rasa* and

Madhur Vipaka Nourishour of *Rasa Dhatu*, *Mamsa Dhatu* and *Shukra Dhatu* and give them strength. Anabolic action of *Ashwagandha Ghreeta*, increases more numbers of secretory units in endocervix which enhances the function of cervical receptors and ultimately cervical amount production increases¹³.

Viscosity and Spinnbarkeit:

Shatavari contains *Tikta* rasa. *Tikta Rasa* decreases *Pichchhilita* of *Kapha* and increases liquidity of mucus. It leads reduction in viscosity and increase in *pinna barkeit*¹⁴.

Density of sperm in cervical mucus and fern may be due to phytoestrogenic effect and estrogenic property of *Yashtimadhu*, *Mishreya* present in *Phalaghreet*¹⁵. *Dipana* and *Anulomana Karma* of *Phalaghreet* elevates the *Sthanika Agni* (cellular *Agni*) and causes *Pachana Karma*. Proper fern pattern of cervical mucus is due to *Pachana Karma*.

Cellularity: Pus cells and leukocytes are decreased by anti infective properties of drugs and also anabolic properties of *Ashwagandha Ghreet* may be effecting in reduction of debris. *Tikta* rasa has antehalmenthatic, bactericidal and antitoxic properties. *Katu Rasa* helps in the radical removed of toxic substances form the



tissues. So, *Tikta* and *Katu* both rasa helps in preventing infection¹⁶.

Phalaghreet contains mainly *Tikta*, *Madhura* and *Katu Rasa*. *Laghu*, *Snigdha Guna*, both *Katu* and *Madhura Vipaka* and also *Ushna* and *Sheeta Virya*. It also has *Dipana*, *Pachana*, *Anulomana*, *Shothahara*, *Krimighna* and *Prajasthapana* properties¹⁷.

This drug after metabolism enters into blood. In hypothalamus estradiol is converted in to catacholestrogen 2 hydroxylase enzymes. Catecholestrogen may induce release of GnRH, which regulate hypothalamus pituitary ovarian axis and regulate reproductive function¹⁸.

CONCLUSION

This study reveals that optimum result is obtained in study-3 group-A i.e., *Phalaghreet* oral in the management of infertility due to cervical factor. Study-2 group-A *Shatavari Ghreet Uttarbasti* has shown markedly improved but not completely cure results. Study-1 group-B *Phalaghreet* oral and *Uttarbasti* has shown moderate improvement in the management of infertility due to cervical factor.

As the numbers of patients are less comparatively, statistically sufficient data is not generated to establish treatment protocol. As per review work it can be

conclude that *Phalaghreet* oral and *Shatavari Ghreet Uttarbasti* is to be used for further research work and to establish the treatment protocol of infertility with special reference to cervical factor with adequate data.



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