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: Phalaghrtia 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
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. 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 coitus. 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 infertility.

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

Table 1 Clinical Studies taken for Review

<table>
<thead>
<tr>
<th>No.</th>
<th>Researcher name</th>
<th>Posology group – A</th>
<th>Posology group-B</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.</td>
<td>Dr.Chetna Kodinaria (2007)</td>
<td>Shatavari Ghreet Uttarbasti 5ml 6 days with 3 days interval (consecutive 2 cycle – after cessation of menses)</td>
<td>Goghreet Uttarbasti 5 ml 6 days with 3 days interval (consecutive 2 cycle – after cessation of menses)</td>
</tr>
<tr>
<td>3.</td>
<td>Dr.Neha Pandya()</td>
<td>Phalaghreet orally 15 gm in bid dose For 2 months Anupana: warm milk</td>
<td>Phalaghreet 5 ml for each intra cervical Uttarabasti Route: intra cervical Duration: 6 days with 3 days interval After cessation of menses subsequently for two cycles</td>
</tr>
</tbody>
</table>

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

Table 2 Effect of Therapy in Cervical Factor

<table>
<thead>
<tr>
<th>Sr.n o.</th>
<th>Cervical factor</th>
<th>Study 1</th>
<th>Study 2</th>
<th>Study 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GROUP A</td>
<td>GROUP B</td>
<td>GROUP A</td>
<td>GROUP B</td>
</tr>
<tr>
<td>1.</td>
<td>Amount</td>
<td>81.53</td>
<td>76.86</td>
<td>60</td>
</tr>
<tr>
<td>2.</td>
<td>Viscosity</td>
<td>45.00</td>
<td>50</td>
<td>56</td>
</tr>
<tr>
<td>3.</td>
<td>Spinnbarkeit</td>
<td>53.09</td>
<td>49.81</td>
<td>38</td>
</tr>
<tr>
<td>4.</td>
<td>Cellularity</td>
<td>62.28</td>
<td>89.11</td>
<td>59</td>
</tr>
<tr>
<td>5.</td>
<td>Ferning</td>
<td>00</td>
<td>21.05</td>
<td>38</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Sr.no.</th>
<th>Cervical factor</th>
<th>Study 1</th>
<th>Study 1</th>
<th>Study 2</th>
<th>Study 2</th>
<th>Study 2</th>
<th>Study 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GROUP A</td>
<td>GROUP B</td>
<td>GROUP A</td>
<td>GROUP B</td>
<td>GROUP A</td>
<td>GROUP B</td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Sperm density</td>
<td>62</td>
<td>66.66</td>
<td>60</td>
<td>42</td>
<td>86</td>
<td>86</td>
</tr>
<tr>
<td>2.</td>
<td>Sperm motility</td>
<td>60.59</td>
<td>47.91</td>
<td>76</td>
<td>45</td>
<td>82</td>
<td>59</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Sr.no.</th>
<th>Cervical factor</th>
<th>p-A %</th>
<th>p-B %</th>
<th>C-A %</th>
<th>C-B %</th>
<th>N-A %</th>
<th>N-B %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Completely cured</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>14.29</td>
<td>28.57</td>
<td>16.66</td>
</tr>
<tr>
<td>2.</td>
<td>Markedly Improved</td>
<td>14.29</td>
<td>0</td>
<td>57.14</td>
<td>14.29</td>
<td>14.28</td>
<td>33.33</td>
</tr>
<tr>
<td>3.</td>
<td>Moderately Improved</td>
<td>28.57</td>
<td>57.14</td>
<td>42.86</td>
<td>57.14</td>
<td>42.85</td>
<td>50</td>
</tr>
<tr>
<td>4.</td>
<td>Improved</td>
<td>57.14</td>
<td>42.86</td>
<td>0</td>
<td>14.29</td>
<td>14.28</td>
<td>0</td>
</tr>
<tr>
<td>5.</td>
<td>Unchanged</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

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 requirements. 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 Bija. 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-oestrogen. 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 factor.

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 correctly.

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 female\textsuperscript{11}. 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 Snigdhata, Pittashamaka due to its Shaityata and Kaphashamaka due to its Sanskara\textsuperscript{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 increses\textsuperscript{13}.

**Viscosity and Spinnabarkeit:**

Shatavari contains Tikta rasa. Tikta Rasa decreases Pichchhilta of Kapha and increases liquicy of mucus. It leads reduction in viscosity and increase in pinna barkeit\textsuperscript{14}.

Density of sperm in cervical mucus and fern may be due to phytoesterogenic effect and estrogenic property of Yashtimadhu, Mishreya present in Phalahgreet\textsuperscript{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 Ghreeta 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 infection\textsuperscript{16}. 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 properties\textsuperscript{17}. This drug after metabolism enters into blood. In hypothalamus estradiol is converted in to catecholestrogen 2 hydroxylase enzymes. Catecholestrogen may induce release of GnRH, which regulate hypothalamus pituitary ovarian axis and regulate reproductive function\textsuperscript{18}.

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.
REFERENCES
4. Dr. Pallavi Parikh et al- Comparative study of Ashvagandha Ghrita and Phalaghrita in the management of Vandhyattva w.s.r to cervical factor.
5. Dr. Chetna Kodinariya et al-A comparative study of Shatavari Ghrita and Goghrita Uttarbasti in the management of Vandhyttva w.s.r to cervical factor.
6. Dr. Neha Pandya et al- Role of Phalaghrita and Uttarbasti in the management of Vandhyatva w.s.r to cervical factor.
10. Dr. Pallavi Parikh -Comparative study of Ashvagandha Ghrita and Phalaghrita in the management of Vandhyattva w.s.r to cervical factor.
13. Dr. Pallavi Parikh -Comparative study of Ashvagandha Ghrita and Phalaghrita in the management of Vandhyattva w.s.r to cervical factor
14. Dr. Chetna Kodinariya et al- A comparative study of Shatavari ghrita and goghrita Uttarbasti in the management of Vandhyttva w.s.r to cervical factor
15. Dr. Neha Pandya et al., Role of Phalaghrit and Uttar Basti in the
management of Vandhyatva W. S. R. to cervical factor

16 Shastry Ambikadatta, Ayurveda Tatva Sandipika, Sushruta Samhita–part 1 Sutrasthana 14/6, Chaukhambha Sankrita Sansthan, Varanasi, 2011, p.64


18 Dr. Pallavi Parikh et al.- Comparative study of Ashvagandha Ghrita and Phalaghrita in the management of Vandhyatva w.s.r to cervical factor.