

## INFERTILITY RESEARCH UPDATE – A REVIEW ARTICLE

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### ABSTRACT

This is an ancient saying “APUTRASYA GATIRNASTI” there is no salvation for a childless person. Infertility is major health problem. The rate of infertility is steadily increasing due to change in life style. High pollution, socio-economic cause, enormous amount of stress of today’s world. WHO defines infertility as failure to conceive despite two years of cohabitation and exposures to pregnancy. With the developing IT sectors the infertility rate is also increasing. One third of infertility can be attributed to female factors like anovulatory cycle, endometriosis, PCOS etc. Indian system of medicine. Deals with the topic of infertility described under the heading of vandhyatva.

**Keywords:** Infertility, Conceive, Anovulatory cycle, Endometriosis.

### INTRODUCTION

In Atharva veda, it has been mentioned that world is meaningless, if there is no child playing in the courtyard. There is a word “PURANDHATRI YOSHA” in Atharva veda which means that when men enters in Grihasthashram he prays that his wife should be ‘Purandhatri yosha’ i.e. she should have child. It has been mentioned that out of 4 Ashram’s there is Grihasthashram in which couple has duty to produce their progeny.

In various types of debts mentioned in our ancient literature one is PITRU RINA. This means that he or she will be free from this rina only when, they will produce their progeny. Sushruta has given reference saying that, To achieve pregnancy four essential factors rutu (fertile period ), kshetra ( healthy reproductive organs), ambu (proper nutrient fluid), beeja ( ovum/sperm).

Defect in any one of them can case vandhyatva<sup>1</sup>.

Vandhyatva (Infertility) is also an independent disease, rather a cardinal feature of so many diseases. Sushruta Samhita, deals with vandhyatva under twenty Yoni vyapada. Acharya Charaka and Vagabhata describe Vandhyatva due to abnormality of Beejamsa. Separate chapter has been allotted to vandhyatva by Harita. Infertility is defined as a disease or condition of the reproductive system often diagnosed after a couple had one year of unprotected, well-timed intercourse, or if the woman has suffered from multiple miscarriages. Infertility is a medical problem.

### Causes for infertility

Infertility is the most sensitive and cumbersome problem which haunt every childless couple. 30-20% of infertility is

because of female factors Major causes in infertility among these

1. Ovarian factors
2. Tubal factors
3. Uterine factors
4. Vaginal factors
5. Cervical factors<sup>2</sup>

#### Ovarian factors

- Vaindhyatva due to anovulation is vata-kapha pradhana vyadhi.
- In case of avaranatmaka samprapti it is vatta pitta pradhana vyadhi.
- In case of kshayatmak samprapti it is vikruti of vata dosha (i.e. apana vayu karmukatahani ) occurs.
- Hence the treatment has to be vata kaphanashak, agnidipan, pachan vatanuloman and brumhan<sup>3</sup>.

#### Tubal factors

Tubal blockage was considered as a vata-kapha dominated tridoshaja condition, as vata is responsible for samkocha, kapha for shopha, pitta for paka. So all tridosha are responsible for tubal block. Here sukshma, tikshna, usna , Lekhana, Vatakaphagna property drugs should be used<sup>4</sup>.

#### Uterine factors

**Endometriosis** - The inner lining of the Uterus is made up of specific cells called endometrial cells. These cells shed every month during menses. When these cells instead of complete evacuation attach to the tissue outside the uterus they are known as endometrial implants and lead to a debilitating condition called endometriosis.

**Uterine fibroid**, a noncancerous growth of the uterus that often appear during childbearing age of female and also known as fibromyomas, leiomyomas or myomas; is one such gynecological disorder which is

posing a major health problem. Pathogenesis of *Granthi* is propounded as morbid *Tridoshas*, vitiate *Rakta*(blood), *Mamsa* (fleshy/muscles ),and *Meda* (fat/adipose tissue) are admixed with *Kapha* produce rounded protruberant, knotty or glandular and hard swelling called *Granthi*. *Granthi* when present in yoni (female reproductive system) *Garbhashaya* (uterus) will lead to disturbed menstrual cycle-menorrhagia, metrorrhagia, dysmenorrhea, etc., along with infertility<sup>5</sup>.

#### Vaginal factors

**Leucorrhoea (shwetapradara)** is a symptom not a disease, thus, etiopathogenesis of principle disease would be etiopathogenesis of this condition also. However, on the basis of clinical features it appears to be a disease of vitiation of kapha. Kapha, aggravated due to its own vitiating factors, influences or vitiates rasadhatu of reproductive system, already influenced by excessive coitus, abortions, improper mode of life and dietetics during menstruation and rutukala along with non-hygienic conditions produces white and painless vaginal discharges due to dominance of its liquid property<sup>6</sup>.

#### Cervical factors

**Cervical erosion** is defined as the development of red velvety area on the portio vaginalis around the external os. Pathologically, cervical erosion is a condition in which the squamous epithelium of the ectocervix is replaced by columnar epithelium which is continuous with the endocervix. Here the cervix is not eroded and there is no ulceration, the reason to make cervix look red and raw is that the columnar epithelium is much thinner than

the squamous epithelium and so the underlying blood vessels show more clearly, making it look red and raw. Karnini is one such disease told in Ayurvedic lexicon which resembles this condition. In cervical erosion the cervix becomes somewhat hypertrophied, congested and covered with small red projections resembling sprouts (described by Indu), this erosion is often associated with nabothian cysts which are small pea sized smooth nodular structures, thus due to presence of small sprouts the cervix assumes the shape of barbed wire or small brush and when associated with nabothian cysts then assumes the shape of pericarp of lotus<sup>7</sup>.

### Research works

#### Research work on ovarian factors

Shatapushpa taila and shatavari taila uttar basti (Khot Bhagyashri, Lad Meenal D, etc.) – Tikta rasa of shatapushpa causes rasraktashodhana, agnideepana and amapachan. Katurasa of it helps in rutupravartan, yonishukravishodhana. ushna virya of shatapushpa works as vatashamaka. Madhura rasa of shatapushpa acts as sthanik balya and pittashamana. Shatapushpa and Shatavari being phytoestrogens, exerts both estrogenic and antiestrogenic activity. It acts both in high oestrogenic and low oestrogenic conditions. Thus it increases the endometrial thickness.

**Herbal compound** -It also contains Shatapushpa (Anethum sowa), Shatavari (Aspergus racemosus), Trikatu (Zingiber officinale, Piper longum, Piper nigrum), Aswagandha (Withania somnifera), Jeerak (cumium cymium), Kanchnar (Bauhinia variegata), Gudmar (Gymnema sylvestris), Rason (Allium sativum) increases

the bioavailability of drug in body. Combination of drugs on virtue of its kashaya rasa & laghu, ruksha guna and katu vipaka affect kapha dosha. In anovulatory cases kapha is associated as avarana by vata. The ushna guna of drug also regulate vata and ovulation occurs. The drug by means of dipana, pachan guna does shaman of grathit kapha fight against agni dushti. The increased dhatvagni promote the formation of poshakansh of dhatu and updhatu (aartava) and it also suppress the increased formation of mala. Being ushna guna of dravyas they act on the derangement reduces the sheeta guna of kapha dosha and being snigdha and picchila increases these guna of kapha thereby increasing endometrial thickness<sup>3</sup>.

Nasya and Matra Basti with Narayana Taila on anovulatory factor (Donga Krupa, Donga Shilpa, Die laxmi P.) – *Narayana Taila Nasya* may stimulate olfactory nerves and limbic system, which in turn stimulates hypothalamus leading to stimulation of Gonadotropin Releasing Hormone (GnRH) neurons, regularizing GnRH pulsatile secretion, leading to ovulation. Phytoestrogenic or oestrogenic property of different components of *Narayana Taila* like, *Shatavari*, *Tila Taila* regulates neuropeptide Y activity, which in turn regulates the activity of gonadotropin secretion. *Matra Basti* given through *Guda* (rectal route) normalizes *Apana Vayu* leading to *Vatanulomana* and physiological functioning of *Vata*, which may help in turn, for the extrusion of ovum from the follicle and thus resulting in ovulation<sup>8</sup>.

Phala kalyanaka pichu and sahacharadi taila matra basti in anovulatory cycle (Bhaskaruni

Subbalakshmi) – All the patients were subjected to phala kalyana ghrutam pichu for five days followed by sahacharadi tailam matravasti for five days. Both procedures were done for three cycles. Bhumyamalaki (*Phyllanthus urinaria* Linn.) & Jyotishmati (*Celastrus panniculatus* Willd) were administered orally. Study also suggested proper pathyapathya, ahara (diet), vihara (behaviour) along with medication. Results were found to be very satisfactory. Gradual relief of symptoms was noticed. Study proved utilization of Sahacharadi taila matravasti, Phala kalyana ghruta pichu and oral administration of Bhumyamalaki & Jyotishmati were effective treatment options for the management of Vandhyatwa (infertility) with anovulatory cycles. This research proved that in anovulatory cycles these medicines help for follicular growth<sup>9</sup>. Clinical Efficacy of Ayurveda Treatment On Polycystic Ovarian Syndrome” (Khot Bhagyashri, Lad Meenal D, etc). The treatment was conducted in following way for duration of 3 months Patient were treated with 5 gm of powder comprising of Ashoka (*Saraka indica*), Manjistha, (*Rubia cordifolia*), Shalmali (*Bombax malbaricum*), Lodhra(*Symplocos racemosus*), Rasanjan (*Barberis chitra*), Sariva (*Hemidesmus indicus*), Gokshura (*Tribulus teristris*), Punarnava (*Boerrhavia diffusa*), Nagkeshar (*Mesua ferea*), Chandan (*Santalum albam*), Amalaki (*Embelica officinalis*), Haridra (*Curcuma longa*), Gudmar (*Gymnema Sylvestre*), Guduchi (*Tinospora cordifolia*) Methi (*Trigonella foenum*), Vijaysar (*Pterocarpus marsupium*), twice a day in the morning & evening at 6 pm. These herbs are also quite beneficial in curbing three

aggravated doshas. Before menses patients were treated with yog basti(dashmool kwatha & til tail) for three consecutive cycles. After cessation of menstruation uttarbasti (shatavari oil & sahachar oil) is given for 3 days, for three consecutive cycles. The properties of deepana & pachana of above drugs elevate the jatharagni, dhatwagni as well as artavagni. Powder of guduchi enhances the overall immunity & atibala has properties of prajasthapana, garbhashayyadaurbalyahara, balya brumhana & ojovardhana. There is also kapha reducing, insulin enhancing & hormone rebalancing,properties drugs helps to relieve the symptoms of PCOS. Basti the treatment principle is to clear obstruction in pelvis, normalize metabolism & regulate menstrual system (artava dhatu) uttarbasti is most effective treatment in gynecological disorders<sup>10</sup>.

#### **Research work on tubal block**

Apamarga Kshara taila utara basti is given in case of tubal block due to stenosis (R shivashankar A, M shweta, etc.) –Tila Taila act as Anti-inflammatory action due to its Vranashodhana, Vranapachana Karma, due to its Vyavayi and Sukshama Guna it spreads in minute channels and spreads easily. It pacifies Vata through its Snigdha property. The other contents in Apamarga Kshara Taila have Vatakaphagna, Lekhana usna ,tikshna, sukshma properties so it scrapes blockage from tube and also scrapes the inner lining of endometrium Antioxidant & healing properties of various contents also help it for the healing. Thus, the inner fibrosed layer is removed and endometrium has the capacity to regenerate. Analyzing the effect of Uttar Basti on tubal

blockage, the highly significant results show the potency of the drugs used and also the efficacy of Uttar Basti<sup>11</sup>.

Kumari taila uttar basti – Kamayani et al., studied effect of Kumari Taila Uttar Basti on fallopian tube blockage, Kumari Taila was selected for study due to its Vata Kapha Shamaka and Lekhana properties. Patients of the reproductive age group were investigated for the study. The study proved that tubal blockage cleared in 80% of the patients after the treatment and 40% of the patients had conceived within the follow-up period of two months. The results suggested Kumari Taila Uttar Basti as effective treatment option for the tubal blockage, with no apparent complications. It could remove the blockage by reaching up to the minute channels due to its usna, tikshna, sukshma, laghu, pramathi guna<sup>4</sup>

#### **Research works on uterine factors**

Endometriosis- drug and Properties of – Chitrakadi ghritam used is as follows - Chitraka (Deepani, Pachani; Grahani vinasani, Krimihara), Sariba (grahi), Bala (Prajasthapni), Draksha (Vrushya, virechanopaga) Chitrphala, Indravaruni (Rechani), Pippali (Deepani), Madhuka (Rasayana, Vrushya, Jeevaneeya), Hareetaki (Anulomana, Brumhana rasayana) Amalaki (Vrushya), Ksheera (Rasayani), Ghrita (Vrushyagarbha sthapana, Ojo vardhaka) Tuguksheeri (Brumhana, Vrushya), Sarkara (Raktapittashamaka). The Chitrakadi ghrita was given in the dose of 10gm once in a day empty stomach at 6 am with 100ml of lukewarm water for the duration of 3 months. Deepan, pachana, virechana, rasayan, vrushya, brumhana, jivaneeya,

prajastapana, grahi combined effect observed in management of yoni dosha<sup>12</sup>.

Dhanvantari Taila for Infertility associated with Dysfunctional Uterine Bleeding (Kamidi vijaya kumari, et al). All patients were treated priorly with sneha bashti (Anuvasana basthi), next day with sodhana basthi (Asthapana basthi) on day 5<sup>th</sup> and 6<sup>th</sup> simultaneously after cessation of bleeding. After snehana and shodhan of their body, they are subjected to uttarbasthi with dhanvantari taila 2 -5 ml for 5 days i.e. till 12<sup>th</sup> day from last menstrual period. Dhanvantari tail is having efficacy over tridoshas with its ingredients like Balamula, Manjista, Tila tail, Vacha, Chandan, Triphala, Dashamula etc. These drugs with their vata pitta kapha saman kara bhavas the dhathus and upadhathus will be normalized. Arthava is upadhathu to rasadhathu therefore DUB is regularized<sup>13</sup>.

Effect of palash kshar on uterine fibroid (Meshram Manjusha R) – palash khar has its specific action on fibroid it is described that palash itself has ability to destroy uterine fibroid due to its prabhava and bhedana nature i.e. tumor resolving capacity. Because of its ushnaguna it allows the free flow of apana vayu. Palash kshar improves the digestive system and it stops the excessive flow of blood in blood vessel by its ruksha guna hence stops the further growth of fibroid<sup>14</sup>.

#### **Research works on vaginal factors**

Madhukadi choorna in shweta pradar (Poonam B. et al.) – it consists of choornas of haridra – 48 parts, yastimadhu – 48 parts, vanga bhasma - 1parts along with arka patra swarasa. 5gms oral administration for 30 days. Each drug

utilized in the preparation of the compound formulation madhukadi choorna holds good for its action as kaphahara, kanduhara, ushnagna and anti-exudative property<sup>6</sup>.

Panchavalkala kashaya yoni prakshalana in swetha pradara (Ramadevi G. et al) - The panchavalkala drugs are kashaya rasa pradan and kashaya rasa is nothing but the astringent. Astringents may be equated with tannins. The bark of all the 5 drugs contains tannins as the major chemical constituents. Tannins are non-nitrogenous characterized by astringent action upon mucous membranes. They precipitate proteins from the cells of the mucous membrane, thus exerts a protective action<sup>15</sup>. Astringent is a substance that “causes contraction of body tissues” they are topically anti-inflammatory, can be used for all inflammations of the skin and mucous topically. They also shrink any inflamed tissues, as tanning agents, they remove moisture from tissues.

#### **Research works on cervical factors**

Udumberadi tail in cervicitis (Singh Suneeta) – The drug present in Udumberaditail are Udumber phala, panchvalkal (bark of Vatt, Pipal. Pakar, Gular, Paras Pipal), leaves of patol, mali and neem, kalk of dhava pushpa, palash, shalmali bark and laksha, til tail. The Udumberadi tail Uttar vasti has shothahara, vranropana, stambhana, raktshodhana, krimighna, kandughna, shoolprashaman, Tridosahara properties. So the Udumberadi Tail applied as Uttar vasti helpful to remove sign and symptoms of chronic cervicitis<sup>16</sup>.

Apamarga Kshara and jathyadi tail pichu in Cervical Erosion (Pragya Gupta, Sushila Sharma) - In Ayurveda science looking into

the pathogenesis of this disease and ayurvedic treatment of karnini yonivyapad the kaphahara chikitsa with kshara which have property of lekhana, shodhana, ropana, stambhana, kaphghna etc and Jatyadi taila which have property of vatashamak, shlesmhara, mansapkarshana, shodhana and ropana and its base is Tilataila which has property of yonivishodhana. All these properties facilitate destruction of columnar epithelium and facilitate the growth of new healthy stratified squamous epithelium on ectocervix<sup>7</sup>.

#### **Ekamulika prayoga (Approach through single drug therapy)**

1. Adhesion –solanum verbacifolium clears adhesion by its chedan, sukshma guna.
2. In Hydrosalphingitis – Kutaja is drug of choice due to its upashoshan guna it do the rukshata
3. Shatavari - Research proved that this drug help in folliculogenesis and ovulation prepare womb for conception<sup>17</sup>.(International Journal of Innovative Research and Review)
4. Lodra – it acts as stimulent and increases the levels of reproductive hormones FSH and LH.
5. Atasi – which contains lignans balances the hormone within the body and regulates the reproductive cycle.
6. Shilajatu – its stimulating properties on oocytes ensures ovulation regularly.
7. Shatapuspa –It is a rich source of phytoestrogens. Phytoestrogens are believed to help reduce the cellular imbalance which leads to metabolic disturbances in PCOS
8. Guduchi. – It is a powerful anti-inflammatory herb. Chronic inflammation in

tissues is the root cause for insulin imbalance and ovarian cysts.

9. Kalamegha - (Lingtang Town Hospital of Gaoyou County. 1975. Treating vaginitis using *Andrographis paniculata*.) it act as antibacterial in vaginitis.

### **Life style to avoid infertility**

a) Ahara – Koshtashodhan, karshan ahaar, havishya anna, masha, matsya, vaatanulomaka anna during cycle are easily relieving apan vayu avarodha, arthava janaka, sthoulya hara, easy to digest, clears the bowel<sup>18</sup>.

b) Eat healthy meals that are high in vitamin A, vitamin B, vitamin C, and vitamin E. Some of the foods that can easily be included in this list are green leafy vegetables, carrots, tomatoes, broccoli, brussels sprouts, fresh fruits, and nuts. Legumes and whole wheat products are also ideal.

c) Vihara - Chankramana, vyayaama, to be done. Early to bed early to rise should be the life style, avoid being under stress.

### **DISCUSSION**

Healthy pelvic environment means healthy vagina, high vaginal secretions, healthy uterine cavity, fallopian tubes, and apt products of ova. These ova must reach to uterine tube to be fertilized by spermatozoon. Migration of fertilized ovum into uterus with secretary endometrium is necessary for the nidation, subsequent development etc. Thus these key factors are responsible for fertility. Ovarian, tubal, uterine, vaginal, cervical factors are the 5 major causes for infertility. In ovarian factors like anovulation, vata kapha doshas are responsible. In this condition select the drugs which possess vatakapshanashana,

deepana, pachana, vatanulomana like shatapushpa taila, shatavari taila, narayan taila etc. In the Category of tubal factors blockage should be cleared, for that, pramathi, teekshna, sukshma, sara drugs like apamarga kshara, kumari taila etc are to be recommended. Among uterine factors like fibroid in order to reduce the growth of the fibroid, lekhana drugs should be used like palasha kshara, chitrakadi vati etc. While tackling vaginal factors, foremost advice is to take care of health and hygiene. Here the drugs should possess krimigna, vrinaropan, kandugna properties. Examples are panchavalkala kashaya, madhukadi choorna etc. In Cervical factors like cervicitis, columnar cell layer has to be removed. Thus usage of lekhana and ropana property drugs like apamarga kshara taila and udumber taila are contributory. While dealing with vandyatva not only medical management but also life style corrections is one of at most important with regards to exercise, sleeping habits etc.

### **CONCLUSION**

“Na hi vatadrute yonirnarinam sampradushyati” For every yoni roga, vata is main cause so while treating yoniroga we have to bring vata to normal state. Manasika avasta is also having an important role here. If all factors are normal mano anavastita causes infertility so Acharya Charaka says “saumanasya garbhakaranam” the lady should be counseled to get peaceful mind in order to beget a good progeny. Many doshas are causing different pathologies responsible for infertility and there are many drugs to treat. One can pin point the problem, select optimum drug and treat infertility successfully.

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Source of support: Nil,  
Conflict of interest: None Declared

**Cite this article as**

Priyanka. P: Infertility Research Update – A  
Review Article  
ayurpub 2017;II(1):355-363