INTRODUCTION

Infertility is generally defined as one year of unprotected intercourse without conception. Sub fertility to describe women or couples who are not sterile but exhibit decreased reproductive efficiency. According to the WHO report about 2-10% of couples worldwide are unable to conceive primarily and about 60-80% couples in the world are infertile. It is estimated that 10% of normally fertile couples fail to conceive within their first year of attempt. Further 10-25% couples experience secondary infertility. Among these couples, causative factors are found about 30-40% in females and 10-30% in males. Genetic factors, changed lifestyle, increased stress and environmental pollution are identified as factors contributing to the rise of infertility. It is a social stigma where the female partner is blamed leading to marital disharmony.

Charaka and Vagbhata have mentioned Vandhya under the description of Beejamsa dushti. According to Charaka abnormality of any one out of Shadbhavas (matraj, pitraj, atma, satwa, satmya, rasa) will cause the failure to conceive. Sushruta has mentioned Vandhya in vataja yoniroga. In Kashyap Samhita Vandhyattva is mentioned in eighty rogas of vata. Bhela says that due to abnormalities of bija of mother and father, non consumption of congenial rasas (malnutrition leading to improper formation of rasa dhatu and its updhatu ar-tava), and disorders of yoni, the women becomes infertile. Bhavprakash has mentioned Vandhya in yoniroghdhi and men-
Monika Chauhan and Gayathri Bhat: Uttar Basti in the Management of Female Infertility

mentioned Artavanasha as one among the 80 vatananatmaja vikara.8

Harita is the first who classified vandhyatva in detail. Harita has included childhood, garbhkoshbhanga, loss of dhatus and constriction of uterus and vulva due to coitus having been done with the girl before her menarche also in the causes of infertility. Harita Samhita mentions six types of vandhyatva like Kakavandhya (secondary infertility), Anapathya (primary infertility), Garbhasrahvi (repeated abortions), Mrta-vatsa (repeated still births), Balakshaya (Nutritional) and Vandhyatva due to injury to garbhashaya or bhaga.9

According to Ayurveda, important factors for conception are Rutu (fertile period), Kshetra (uterus & reproductive organs), Ambu (proper nutrient fluid), Bija (shukra-shonita) & normalcy of hridaya (psychology). Abnormality of properly functioning vayu and shadbhavas can cause infertility. Yoni pradosha refers to abnormalities of vagina, cervix, uterus, fallopian tubes which hinders fertilization.10

Management includes Daivavyapashraya and Satwavajaya Chikitsa which act through Psychic component. Yuktiyapashraya involves antah and bahi parimarjana (detoxification) and Shamana (palliative treatment). Depending upon the vitiation of the dosha and condition of the diseases, internal cleansing with internal oleation or intake of unctuous substances, vaginal application of pastes & uttar basiti are administered.11 Uttar basiti is a type of basiti upakrama, a mode of administration of drug. Uttar basiti has been well highlighted in the classics for the management of most of the gynecological disorders.12,13 Charaka recommends the use of basiti for repeated still births.14

Definition: Uttar basiti may be defined as a route of administration of drugs through vesicular/urethral or genital route in females.

Indications: Uttar Basiti is indicated in the following conditions.

Quantity & Frequency: Uttar basiti can be administered three times a day on 3 consecutive days. The quantity mentioned is ½ pala (20g).16 Uttar basiti is advised to be given during the ritukala (period of ovulation) when yoni mukha is open.17,18

Procedure: The physician should administer it to the women lying in supine position with knee flexed. Then introduce the nozzle into the vagina by pressing and squeezing the pouch.19 The process is repeated for 3–4 times after the previous dravya come out.20

The present review gives an overview of the potential use of Uttar Basiti in the treatment of female infertility including an evidenced based evaluation of its efficacy. A brief summary of these works have been presented below:

1. Kamayani Shukla (2010)21: This study was a randomized clinical trial. Patients of child bearing age having complaint of failure to conceive due to tubal factor selected. For group A, Yava Kshara Taila & for group B, Kumari Taila intra uterine Uttar basti (5ml, after cessation of menstruation 6 days with a gap of 3 days in between for 2 consecutive cycles) was given. Tubal block was open in 85.71% patients in group A & in 80% patients in group B.

2. Anitha S. (2009)22: In this open clinical trial 30 well established tubal block cases in the age group of 20-35yrs were included in the study. Narayan taila Uttar Basiti was given for 7 days in the dose of 5ml after the
cessation of menstrual cycle. It shows efficacy in 70% cases and 53% cases conceived within 3-12 months period after treatment.

3. **Sushila Sharma (2008)**: This is a case study of a patient with secondary infertility due to anovulation being treated with Pushpadhanwa rasa and Ojaswani vati 1 tablet twice daily for 3 months along with Panchitkta ghritta + Nimba taila utara basti (5 ml). Uttar basti was started on 6th day of menstrual cycle and continued alternatively till 12th day for 3 cycles. After 5 months patient got conceived.

4. **Chetna M Kodinariya (2008)**: In this clinical trial, 14 patients having cervical cause for infertility were selected in 2 groups to evaluate the efficacy of drugs like Shatavari ghritta and Goghritha uttar basti (5 ml) on 10th, 11th, 12th day after menstruation for 3 consecutive cycles. For diagnosis of cervical cause, cervical mucus test and post coital test were done before and after treatment. Significant results were found in both the groups but shatavari ghritta showed better results.

5. **R. Meera (2007)**: In this clinical trial Mahanarayan taila was administered among 33 patients with anovulatory cycles in the form of Nasya and Uttar basti. They were classified into 3 groups; in group B 5ml Mahanarayan taila was administered in form of Uttar basti, for consecutive 2 cycles, for 3 days after cessation of menstruation. Ovulation occurred in 57% patients in Uttar basti group.

6. **Pratibha CK (2006)**: In this clinical trial 20 patients with anovulatory menstrual cycles were selected. Group A treated with Tila taila as intrauterine uttar basti (5 ml for 3 days in a month for 3 cycles). Group B was treated with Lashuna taila intrauterine Uttar Basti (10 ml for 3 days in a month for 3 cycles). Lashuna taila uttar basti is effective in improving the size of the follicle and endometrial thickness where as Tila taila uttar basti is effective in reducing the cellularity of cervical mucus. Out of 20 patients taken up for the study only 2 patients ovulated.

7. **Savaliya Hetal (2005)**: In this clinical trial 46 patients with anovulatory cycles were selected. Group A, Uttar basti with Shatpushpadi taila 5ml intrauterine and Shatpushpa Churna 2g thrice a day orally. Group B, Shatpushpa Churna orally and Group C, Placebo drug for 2 months was given. In group A, 13 patients (81.25%) were completely cured (ovulation occurred).

8. **Mishra Gayathri (2003)**: This is an open clinical study to evaluate the efficacy of Shatavari taila and Garbhaprada compound on 55 patients. Shatavari taila uttar basti (5ml for 4 days after cessation of menstruation for 2 consecutive cycles and Garbhaprada compound (2 capsules of 500mg thrice daily given 4th day to 12th day of menstruation) on Vandhyatva w.s.r. to ovulation was carried out. Various relevant information regarding the presentation and demographics of the patients of infertility with special reference to anovulation, clinical approach of Ayurvedic regime was obtained in study. All the patients (100%) shown increment in follicular size and improvement in cervical mucus qualities. While 5 patients (72%) shown ovulation.

9. **SP Otta (2002)**: In this controlled single blind clinical trial confined to female infertility, 30 cases were administered with phala ghritta (5ml) in the form of Uttar Basti in therapeutic dose for 3 consecutive days in each cycle for 3 successive cycles. It was found to be significantly effective in
tubal blockage. Tubal block was open in 75.21% patients.

10. **Shwati Jadhava (2002)**: This is an open clinical study to evaluate the efficacy of *Prajasthanagana siddha ghritha* and *Prajasthanagana siddha vati* on 40 patients. *Prajasthanagana siddha ghritha uttar basti* (3 ml for 3 days for 2 consecutive cycles) and *Prajasthanagana siddha vati uttar basti* (5g BD for 2 months) on *Vandhyatva* w.s.r to ovulation was carried out. The overall clinical improvement was better in group A (93%) than group B (91%).

11. **B. Syamala (1991)**: A case report is discussed with the tubal blockage with hydrosalpinx. *Uttar basti* was given with *Dhanvantaram tailam* 5 ml for 7 days from 10th day of menses. Tubal patency test was found positive in the 3rd month after the commencement of the treatment.

12. **Donga SB**: In this work *Shamimashavattha ghritha* was administered to 24 patients with anovulatory cycles. Group A treated with *Shamimashavattha ghritha* as intrauterine *Uttara basti* (5ml for 3 days in a month for 2 cycles) along with *Shamimashavatthaghritha* 10g orally before meal in morning for 2 months. Group B was treated with *Gogritha* (5ml for 3 days in a month for 2 cycles) intrauterine *Uttar Basti* and with *Shamimashavatthaghritha* 10g orally. It was observed that overall clinical improvement (ovulation) was better in group A (65%) than group B.

13. **Dr. K. Bharathi, Dr. K. Gopakumar, Dr. M. V. Acharya**: In this open clinical trial 32 well established tubal block cases in the age group of 20-35yrs were included in the study. *Uttar Basti* with *Ksheerbala tailam* 10 ml for 3 days for 3 consecutive cycles given. Majority of the good and fair response cases were seen under 20-25 yrs (75%) & 25-30 yrs age group respectively.

**DISCUSSION**

Management of infertility involves specific identifiable cause and its correction along with counseling to both the partners. There are many factors responsible for female infertility like anovulatory factor, tubal factor and cervical factor. Ovulation disorder is the most common female infertility factor. Another commonest cause of infertility is Salpingitis, where the lumen of the tube becomes adherent and the passage between the uterus and abdominal cavity is blocked. The cervical factors (altered pH of cervix) are responsible for 5% cases of infertility. Endometriosis and chronic ill health are the other causes of infertility.

In condition of anovulation, *Uttar Basti* removes the *srotosangha* and corrects the *artavagni* which regulates the menstrual cycle, thus resulting in ovulation. Ovaries contain receptors which receive hormones secreted by hypothalamus and pituitary gland. The drug stimulates these receptors, so that proper ovulation occurs in each cycle.

*Uttar Basti* is an ideal local treatment in tubal block and can be adopted for all sorts of problems of infertility as well as reproductive tract disorder. In tubal blockage the drug is reaching in bulk to the site of pathology. Hence *Uttar Basti* relieves tubal block by lysis of adhesions and relieves obstruction.

In cervical factor, drug administered locally in the cervix and absorbed by cervical epithelium due to *sukshma* property of drug. The lipid soluble drug is passively diffused across the membrane in the direction of its concentration gradient. The rate of transport is proportional to lipid: water parti-
tion coefficient of the drug. The more lipid soluble, higher is the concentration and quicker diffusion. In this way altered cervical pH can be corrected by Uttar Basti.$^{24}$

*Uttar Basti* helps in endometrial conditions by improving thickness of endometrium, improves the quality of endometrium, helps in curing endometriosis, absorption is very fast gives quicker result.$^{34}$

The above mentioned drugs could be regulating the Gonadotropin Releasing Hormone to induce ovulation and improving uterus blood flow, menstrual changes of endometrium. They are useful in infertility resulting from anovulation, cervical factors, tubal factors and immunological disorders. Strict aseptic measures should be adopted to avoid complications.$^{3}$

**CONCLUSION**

This review summarizes and evaluates the evidence underlying the use of *Uttar basti* for female infertility. Effective studies are necessary to explore the possible mechanism i.e. effective dose, side effect and safety of Ayurvedic medicine in the treatment of infertility. *Uttar Basti* has a lot of therapeutic potential. Proper selection of drug and time of administration is very essential for getting the desired results. *Uttar Basti* has benefit of increasing *ojus*, replenishing the hormonal system and promoting fertility.

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