



CONTRACEPTIVE IN AYURVEDA WITH EXPERIMENTAL AND CLINICAL EVIDENCE

Santosh Vishnoi¹, Neetu Singh²

P.G. Scholar¹, P.G. Scholar²

PG Department of Prasuti Tantra Evum Stri Roga, PGIA, Dr. Sarvepalli Radhakrishnan Rajasthan Ayurved University, Jodhpur, Rajasthan

Corresponding Author: santoshbishnoi0025@gmail.com

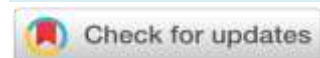
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ABSTRACT

Introduction The global population is growing considerably more quickly. Numerous socioeconomic conditions of people have had negative effects as well. There are several negative effects associated with current contraceptive methods. Controlling fertility is crucial for preserving acceptable living standards and improving existing ones in emerging nations. There are Single as well as Combination drugs mentioned in *Ayurveda*. Much *Ayurvedic* research done on *Garbhanirodhaka Dravyas* (Contraceptive drugs) in *Ayurveda*, and they are safe and have better results. **Material and Method-** Ancient classical, review of published articles, and research articles on the subjects related to contraception are undertaken. **Result & Discussion-** Numerous plants have been referenced in ancient literature, some of which have been confirmed to be effective contraceptives through animal testing and clinical trials, while others require further scientific investigation to establish their efficiency. **Conclusion-** Animal experiments were done on drugs like *Vidanga*, *Pippli*, *Japa Pushpa*, *Chitraka*, etc. have been found effective as antifertility. Clinical studies have been done and proven effective with pharmacological evidence but there is however some scope for improving the composition, dose, or period of treatment so as to achieve still better results.

Keywords: Herbal Contraceptive, Herbs, Reproductive health, Pharmacological evidence *Garbhanirodhaka Dravyas*.

INTRODUCTION

Contraception is the intentional avoidance of conception through the use of various tools, sexual behaviours, substances, medications, or surgical techniques. So, any method or action intended to prevent a woman from getting pregnant can be referred to as a contraceptive.[1] Today there is a pressing need for limiting the family size at a personal level and for the control of population at a national level with the increase in population, it is obvious that serious problems loom ahead unless the number of our progeny is controlled. The world population is increasing at a much faster rate. Fertility control is essential for maintaining satisfactory standards of living and for raising the existing standards in developing countries. In the current state of contemporary medicine, some effective contraceptive medications and methods have been examined, however, hormonal contraceptives cannot be taken for an extended period of time due to their severe adverse effects. In *Ayurveda*, many contraceptive drugs are explained. India has a long history of using contraceptives, dating back to the Vedic era. The Atharvaveda has a few allusions to the usage of contraceptives. The Upaveda of Atharvaveda, *Ayurveda*, is also more developed in this domain. Numerous oral and local *Garbhanirodhak Dravya* (Contraceptive preparations) have been documented in *Ayurvedic* texts.

Material and Method

This is a review (narrative) study, in which literature has been evaluated using electronic search in databases of PubMed, Google scholar, Science Direct, Research Gate, etc. Ancient classical, review of published articles and research articles on the subjects related to contraception is undertaken.

Result

Many herbs have been mentioned in ancient texts in which some of the drugs have been proven for their efficacy as contraceptives in animal experiments and clinical studies and some have to be scientifically tested to prove their efficacy.

GARBHANIRODHAKA DRAVYAS

Local Application

- Application of *Palashabeeja* (*Butea monosperma* Seeds) *Churna* with *Ghritha* (ghee) and *Madhu* (Honey) during *Ritukala* (Menstruating period).[2]
- *Nimba* (*Azadirachta indica*) wood should be fumigated in the vaginal canal after the *Ritukala* (Menstruating period).[3]
- *Dhathura* (*Datura metal*) root should be tied over the waste of women on the 14th day of 1st fortnight of Lunar Month.[3]
- Filling the vaginal canal with the powder of *Dhathura* (*Datura metal*) before coitus.[3]
- Moistened *Saindhava lavana* (Rock salt) with *Tila taila* (*Gingly oil*) is to be applied in the vaginal canal before the coitus.[3]

Oral Drugs

- Use of the root of *Tanduliyaka* (*Amaranthus aspera*) pasted with washings of rice for three consecutive days after menstruation makes women infertile.[4]
- *Haridra* (*Curcuma longa*) *Choorna* with *Sheeta Jala* (cold water) should be taken 3days during them *Ritukala* (Menstruating Period)
- *Vidanga* (*Embelia ribes*) *Choorna* with *Sheeta Jala* should be taken from the 5th day to the 15th day of menstruation.
- The menstruating women who use equal quantities of powdered *Pippali* (*Piper longum*), *Vidanga* (*Embelia ribes*), and *Tankana* (Borax) mixed with milk should be consumed at the time of conception.[5]
- *Japa Kusuma* (Flower of *Hibiscus rosa sinensis*) macerated with *Aranala* (rice-washed water) added with one *Musti* (40gms) of old *Guda* (jaggery) consumed during the menstrual period, such a woman does not become pregnant at all.[5]
- Equal quantity of *Talisa* (*Abieswebbiana*) and *Gairikachoorna* (Red Chalk Powder), with cold

water on the fourth day of her menstrual cycle, the woman will not conceive.[3]

- Paste of *Chitraka* (*Plumbago zeylanica*) root to be pasted with *Nirgundi* (*Vitex negundo*) juice one *Karsha* (12 gm) is to be given with honey.[3]
- Powders of *Dhatri* (*Embllica officinalis*), *Arjun* (*Terminalia arjuna*), and *Abhaya* (*Terminalia chebula*) along with water make the *Raja* (follicular development) ineffective.[6]
- *Patha* paste (*Cissampelos pareira*) on the day of the bath after the menstrual cycle (i.e., on the fourth day) is to be given. With this, women will not conceive.[6]

Considering the gravity of the issue in view, Central Council for Research in Ayurveda and Siddha has taken up a number of studies to evaluate the efficacy of Ayurvedic formulations like K Capsule, Ayush AC-IV, *Pippalyadi yoga* (in three different doses), Ayush AC II, *Talishadi yoga*, V yoga, etc.; which were proved as safe and effective in different clinical studies. Besides this, Council also tried the efficacy of *Nimba* Oil – as a local Contraceptive and found encouraging results. [7]

DISCUSSION

Experimental Studies

Vidanga -Anti-fertility Powdered seeds admixed in the diet of female rats prolonged disastrous phase and inhibited fertility in 62 % and prevented pregnancy in 75 % of animals. Petroleum ether and methanol extracts prevented pregnancy by interfering in the oestrous cycle in 75 % of the females. Benzene and chloroform extracts admixed to the diet showed 51 % and 37 % antifertility. Powdered berries given to bonnet monkeys at 100 mg/day for 3 months affected the quantity and quality of semen and reduced testosterone levels. It showed a 100 % antifertility effect in female rats at the same dose. 50 % alcoholic extract showed antifertility activity at 200 mg/kg in 66.6 % of animals and was spermicidal. Embelin and its derivatives from *E. ribes* were found to have an anti-fertility effect and exhibited anti-spermatogenic and anti-implantation activity in female rats. Anti-implantation Embelin given orally showed remarka-

ble anti-implantation activity in female rats. Embelin showed an anti-implantation effect in rats and rabbits. Embelin administered to immature female rats along with clinesterol showed a reduction in uterine weight in comparison to that of clinesterol only indicating an anti-implantation effect due to disturbance in oestrogen-progesterone levels and hence antioestrogenic in action.[8]

Pippali (*Piper longum*)- The benzene extract of *P. longum* in combination with the methanol extract of *Embelia ribes* berries lead to the inhibition of pregnancy in 80% of animals.[9] Piperine showed a marked increase in serum gonadotropins and a decrease in intratesticular testosterone concentration, despite normal serum testosterone titres. [10] The crude extract of *Piper longum* and its hexane fraction exhibited 100 and 86% efficacy respectively in female rats. The reproductive toxicity of piperine was studied in Swiss albino mice. Piperine increased the period of the disastrous phase, which seemed to result in decreased mating performance and fertility [11]

Japa Kusuma (Flower of Hibiscus rosa sinensis) – Phytochemical analysis of *Japakusuma* (*Hibiscus rosa sinensis*) has shown the presence of steroids, saponins, flavanoids, and tannins. Especially steroids and saponins are used as raw material for the preparation of medically useful steroids and sex hormones like progesterone, oestradiol, and testosterone. Thus steroids and saponins might have contributed to the contraceptive activity of the drugs.[12]

Chitraka (Plumbago zeylanica)- Edwin and co-workers assessed the antifertility potential of extracts of *Plumbago zeylanica* L. leaves. They studied the effect of petroleum ether, chloroform, acetone, ethanol, and aqueous extracts on the estrous cycle of rats at doses of 200 and 400 mg/kg. The acetone and ethanol extracts were found to be more promising in interrupting the estrous cycle of the rats. It was observed that the anti-ovulatory activity reversed on discontinuation of treatment.[13] In another study, Vishnukanta and Rana evaluated anti implantation activity of hydroalcoholic extract of *Plumbago zeylanica* L. leaves. The estrogenic/antiestrogenic activity of the extract was studied on immature ovari-

ectomized female wistar rats for 1–7 days of post-coitum. Significant anti-implantation activity was noted at the dose of 200 mg/kg. The extract showed antiestrogenic activity and caused overall structural and functional changes in the uterus.[14]

Talisa (*Abies webbiana*) -Benzene and alcoholic extracts of the *Talisa* leaf produced 51% anti-implantation activity. The extracts did not affect the post-implantation period, oestrus cycle, and teratogenicity.[15]

Nimba- *Nimba* oil is considered as the best contraceptive drug. *Nimba* oil has also been shown to work well both before and after sex while some purified extracts only worked before sex as a preventative. When tested against human sperm *Nimba* extract (sodium nimbidinate) at 1000 mg was able to kill all sperm in just 5 minutes and required only 30 minutes at a 250 mg level. This *Nimba* has sperm static, and spermicidal and inhibits spermatogenesis and inhibits ovulation and hence control births act as herbal contraceptive. [16]

Clinical studies

Central Council for Research in Ayurveda and Siddha has taken up a number of studies to evaluate the efficacy of Ayurvedic formulations like K Capsule, Ayush AC-IV, *Pippalyadi yoga* (in three different doses), Ayush AC II, *Talishadi yoga*, V yoga, etc.

Ayush AC-IV [17]- Clinical study has been done on this compound which consists of 4 drugs. 1. *Vidanga* (*Embelia ribes*) 2. *Aśoka* (*Saraka indic*) 3. *Lakṣā* (*Laccardia ed lacca*) 4. *Kramuka* (*Areca catchu*) in equal parts. The drug is to be taken for 15 days from the 4th day of the menstrual cycle to the 18th day (taking the day on which menstruation commences as the first day) in the dosage of 1 gm/day in 2 divided doses after food, the total dosage being 30 tablets for one man- strual cycle. There was no other medication for the rest of the cycle. It is seen that the incidence of pregnancy due to drug failure is greater within 10 cycles. Treatment has given a moderately encouraging result. There is, however, some scope for improving the composition, dose, or period of treatment so as to achieve still better results. *Laksha* (*Laccardia lacca*) another ayurvedic drug, administrated orally

(100 Total mg/kg) was found to prevent implantation in almost all the animals" when it was administered from day 1st to 5th, post-coital. *Kramuka* (*Areca catechu Linn*) is another ayurvedic drug found to have anti- fertility activity. The alcoholic extract of the nuts exerted a distinct oxytocic effect on the isolated rat uterus. The petroleum ether and aqueous extract from nuts were found to have encouraging anti-fertility activity in rats.

Pippalyadi Yoga - Contraceptive The *Pippalyadi Yoga* a combination of *Pippali* (*Piper longum Linn.-fruit*) *Vidanga* (*Emblia ribes Burm.f.-fruit*) and *Tankana* (*Borax*), has been extensively studied by the Council in fertile female volunteers in last two decades through its centres at Central Research Institute for *Ayurveda*, Kolkata and Research Scheme for Screening of Contraceptive Agents, Ahmedabad. Criteria for Selection These trials were conducted on fertile female volunteers in the age group of 20-34 years having a menstrual cycle between 26-30 days (with 3-5 days menstruation period) and with the inter-pregnancy period between 13-24 months. Type of study: Open Trial Results Dose schedule was 500 mg./BD from the 5th day to the last day of the cycle and consecutively for three cycles. Significant improvement in the efficacy of the drug was observed with successive modifications. Further study of this drug with the dose of 500 mg./BD from day one to the last day of the cycle, consecutively for three cycles, had shown 100% efficacy of the drug since no pregnancy was reported due to drug failure in this study. [18]

CONCLUSION

Ayurveda, like other aspects of health, is advanced in the practice of contraception in reproductive health. References to the practice of contraception are available since the period of Vedas. An animal experiment done on drugs like *Vidanga*, *Pippli*, *Japa Pushpa*, *Chitraka*, etc. has found effective antifertility. Clinical studies have been done and proven effective with pharmacological evidence but there is, however, some scope for improving the composition, dose, or period of treatment so as to achieve still better results.

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