ABSTRACT

Introduction: PCOD is one of the most common endocrine disorders among women with reproductive age. *Artavakshaya* refers to irregularity of cycles in the form of oligomenorrhoea and hypomenorrhoea which are due to primary aggravation of *Vata*. *Anartava* is produced when *Vatamarga* is obstructed by *Kapha*. Due to this *Vatamargaavrodha*, there will be formation of *Granthi*. Based on this pathophysiology PCOD can be one of the leading cause for *Artavakshaya*. The present study included comparison between trial groups capsule *Kanashatahwadi Kashaya* and Capsule PCONIDD individually and combine for the management of *Artavakshaya* w.s.r to PCOD.

Methodology: This study was randomized open comparative clinical study. *Kanashatahwadi Kashaya* granules were prepared in Pharmacy of PIA, Waghodia,Vadodara and filled in Dhanvantari pharmacy, Anand, Gujarat. Capsule PCONIDD procured from Snehanatura Pharmacy, Karnataka. Drug standardization and authentication was done before the clinical trial.30 patients fulfilling the diagnostic criteria were selected and randomly allocated in 3 groups of 10 each. The study duration was 3 months. The responses to the treatment as recorded and therapeutic effects were evaluated by symptomatic relief and through USG, S.LH, S.FSH hormone levels.

Aim: To compare the effect of capsule *Kanashatahwadi Kashaya* and capsule PCONIDD and combine treatment protocol in PCOD.

Objectives:

1. Comprehensive study of *Artavakshaya* with special reference to PCOD.
2. Comprehensive study of capsule *Kanashatahwadi Kashaya* and capsule PCONIDD and its therapeutic evaluation in PCOD.

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3. To evaluate the effect of capsule *Kanashatahwadi Kashaya* and Capsule PCONIDD on reduction of cyst and decreasing ovarian volume.
4. To observe the effect of capsule *Kanashatahwadi Kashaya* and Capsule PCONIDD in regulation of menstrual cycle.

Result: Total thirty seven patients were enrolled in study. Seven patients dropped out of the study and thirty patients completed the treatment. Total 10 patients completed the treatment in group A out of which maximum i.e. 50% moderate improved, 30% patients markedly improved and 20% patients reported mild improvement. None of patient reported unchanged and complete cured. Total 10 patients completed the treatment in group B out of which maximum i.e. 60% markedly improved, 30% patients moderate improved, 10% unchanged .None of patients reported mild improved and complete cured. Total 10 patients completed the treatment in group C out of which maximum i.e. 50% unchanged, 30% patients moderate improved, 20% markedly improved. None of patients reported mild improved and complete cured.

Conclusion Today's lifestyle behavior like junk food habits, irregular dietary pattern and physical inactivity leads to menstrual irregularities related to PCOD especially in age group of 20-25 years. *Guru, Atimadhuraaharasevana, Vishamashana, Anashana, Adhyashana, Diwaswapna, Ratrijagarana and Avyayama leads to Agnidushti, Dhatudushti* and further *Artavahasrotodushti*.. *Capsule Kanashatahwadi Kashaya* individually was found statistically significant in normalizing duration (45.5%)and interval of menstrual cycle(63.7%), improving the quantity of menstruation(81.8%), relieving the pain during menstruation(59.1%) and in reducing ovarian volume(57.3%).Capsule PCONIDD individually was found statistically significant in regularizing menstrual cycle (44.8%), improving the quantity of

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menstruation (55.0%), relieving pain during menstruation (59.9%), reducing ovarian volume (53.8%) and number of cysts (61.7%).Both combine capsules has significant result in regularizing menstrual cycle (61.2%), reducing ovarian volume (50.1%) and number of cyst (55.4%).

Keywords: *Artavakshaya*, Capsule *Kanashatahwadi Kashaya*, Capsule PCONIDD, Poly cystic ovarian disease.

INTRODUCTION

Stree being the root cause of progeny utmost care should be given to protect her from any ailments that affect her motherhood.PCOD is one of the conditions affecting this capacity of woman.Delayed or prolonged menses, scanty menses and pain in vagina seen in *Artvakshaya*[1, 2]. *Artavakshaya* refers to irregularity of cycles in the form of oligomenorrhoea and hypomenorrhoea whic0h are due to primary aggravation of *Vata*. *Anartava* is produced when *Vatamaraga* is obstructed by *Kapha*.[3, 4] Due to this *Vatamargaavrodha*, there will be formation of *Granthi*[5, 6]. Thus PCOD is one of the leading causes for *Artavakshay*.

Polycystic ovarian disease was described in 1935 by Stein and Leventhen. It is the most common endocrine disorder in women of reproductive age of 18 to 44 years. It is the syndrome manifested by amenorrhea, hirsutism and obesity associated with polycystic ovaries, which leads to hormone imbalance[7].

WHO estimates that it affects 116 million women worldwide as 2010 (3.4%women). USG finding of PCO are found in 8.25% of normal women. 14% women on oral contraceptive are found to have poly cystic ovaries .Now a days incidence of this disease is increasing because of sedentary lifestyle, pollution, excessive intake of junk food.[8]PCOD is one of the leading cause of infertility. A diagnosis of PCOD suggests an in increased risk of Type 2 diabetes, high blood pressure, obesity, depression, miscarriages and hirsutism. [9]

Conventional management of PCOD targets relief of symtoms like dysmenorrhoea, acne, hirsutism.But the side effects of this treatment are nausea, vomiting, weightgain, hypomenorrhea or amenorrhea, depression, hypertension and thromboembolic manifestations.[10]

Kanashatahwadikashaya contains *Vatakaphaharadravyas* which are also found to be *Artavajanya* and is indicated in *Rakta gulma*.[11]Capsule PCONIDD, one of

the indigenous formulations available in market also contains *Vatakaphaharadravyas* and found to be beneficial in relieving the signs and symptoms of PCOD.

IMPORATANCE OF PRESENT STUDY:

Numerous causes and treatment of menstrual irregulalrities has been given in *Ayurvedic* texts.But not single research has been carried out on this topic specially PCOD as one of the cause of *Artavakshya* i.e irregular menstrual cycle, hypomenorrhea, oligomenorrhea and pain during menstruation.This prometed to think about the drug which is useful in *Artavakshaya* related to PCOD. In Modern science PCOD is treated by hormonal therapy along with symptomatic treatment and last option is surgery and long term use of these drugs produces many side effects.So it is very necessary to find some effective Ayurvedic medicine for this condition.

PCOD being the most common diagnosis in gynecology O.P.D., there is a need for the development of more treatment protocols which are effective, safe, palaTABLE NO.and economical. With this intention the following study has been undertaken.

REVIEW OF LITERATURE:

Artavakshaya is irregular appearance of menstrual cycles, scanty menstruation and associated with pain in yoni pradesha. [12]The lady having *Artavakshaya* desires for *Katu, Amla, Lavan, Ushna, Vidahi, Guru PhalaShak and Paan.*[13]

When *Vatamarga* is obstructed by *Kapha* there will be absence of menstruation.[14]*Rajonash* (*Anartav*) is one among 80 *Vatavikaras.*[15]

Kanashatahwadikashaya is told as *Raktagulmahara* and contains *Ushnadrvayas* which are *Vata and Kaphahara*.[16]

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AIM & OBJECTIVES:

- To compare the effect of capsule *Kanashatahwadikashay* and capsule PCONIDD and combine treatment protocol.
- Comprehensive study of *Artavakshaya* with special reference to PCOD.
- Comprehensive study of capsule *Kanashatahwadikashay* and capsule PCONIDD and its therapeutic evalution in PCOD.
- To evaluate the effect of capsule *Kanashatahwadikashay* and capsule PCONIDD on reduction of cyst and decreasing ovarian volume.
- To observe the effect of capsule *Kanashatahwadikashay* and capsule PCONIDD in regulation of menstrual cycle.

HYPOTHESIS:

Null hypothesis

- Capsule *Kanashatahwadikashay* and PCONIDD capsule have no effect on poly cystic ovarian disease.

Alternative Hypothesis

- Capsule *Kanashatahwadikashay* has effect on poly cystic ovarian disease.
- Capsule PCONID has effect on polycystic ovarian disease.
- Both drugs have effect on polycystic ovarian disease.

PLAN OF STUDY

The study is divided into the following headings:

- Conceptual study
- Clinical study
- Discussiom
- Conclusion
- Summary

Conceptual study:

In this phase a critical review of Ayurvedic literatures, literature of allied science and contemporary text including website about PCOD will be reviewed and documented for intended study.This section also deals with the *Ayurvedic* point of view *Streesharira, Beeja, Beejagranthi, Artavvahasrotas* and as well modern point of view ovary and ovulation.

Disease review: As the disease having modern terminology, entire disease review of PCOD first modern and then comparative ayurvedic view is describe.The principle of management has also been discussed.

Drug review:In this section described compound drug study and individual drug study which include the entire description about the individual drug ,drug formulations,method of preparation, properties, pharmacognostic identification, pharmaceutical analysis, standardization and authentification has been disucussed.

Clinical study: A special research proforma is designed for present study.Scoring pattern is adopted for the assessment of clinical trial.The observation and result from the clinical study were analyzed statistically to evaluate the significane of curative properties of the therapies.

Discussion: Importanat finding of conceptual study and the result obtained from clinical study were critically analyzed to unravel the truth of efficacy of the selected drugs for the study.Results and observations of the study have been discussed and interpreted in this chapter.

Summary and Conclusion: The whole study has been summarized and possible conclusion based on obtained results and observations have been drawn,in this chapter.The summarized aspect of all the chapters of the present study has been given in summary section,effort had been made to draw some define conclusions on the basis of former chapters.

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LITERARY REVIEW

Ayurveda is a broad spectrum of medical science. All the modern diseases can be included under *Ayurvedic* terminologies. But, there are some diseases which are not found or not been correlated with any *Ayurvedic* terminology. So, for understanding them firstly they should be explained by modern concept and then effort should be made to find etiology – *Nidana* and pathogenesis – *Samprapti* as per ayurvedic terms. Thus in conceptual part of this thesis, here first modern concept of PCOD is described and regarding that, *Ayurvedic* concepts are been postulated; as *Charaka* said that all diseases are not been named, so *Vaidya* should mentioned their *samprapti* by finding the involved *Dosha-Dushya Samucchana*,*Srotovikara* & by examine the signs and symptoms[1].Here, before understanding the disease "PCOD", it is need to highlight the anatomy and physiology of ovary and the production of ovum by ayurvedic classics first and then with help of modern views. In PCOD, as name suggests, there is involvement of the ovary. In *Ayurveda* there is no any direct reference of ovary or any such organ that produces ovum or *Stree Beeja*. But some scattered references can be compiled for the concept of ovary or *Beejagranthi*.

BEEJA:-

ETYMOLOGY OF *BEEJA*:

बी + ज् = बीज्

"बी" means to hide, to keep secret, to keep out of sight or to conceal.

The meaning of ज् is to give birth. So, according to the *Vyutpatti* which gives birth to another object by remove its covering or secrecy is called "*Beeja*."[2]

DEFINITION OF *BEEJA*:-

References Showing *Beejarupa Artav*

जायन्ते बीजदोशषाच्च श्रृणु ताः पृथक् । (सु.सं.उ ३८।६)

The etiology of *Yonivyapad* contains *Mithyachara*, *Beejadosha*, *Pradushtaartav* and *Daiva*.[3]

दुष्टार्तवादपद्रव्यैर्बीजदोषेण दैवेतः।(अ.सं.उ ३८।३२)

The word *Beeja* is described as *Streebija* and *Artav* represents the female Hormones.[4]

शुक्रशोणित जीव संयोगे तु खलु कुक्षीगते गर्भ संग्ना भवति।(च.सं.शा ४।५)

While defining *Garbha Shonit* word used for *Steebeeja*.[5]

शोणिते गर्भाशयबीजभागः शोणिते गर्भाशयबीजभागावयव..(च.सं.शा ४।३०)

The congenital anomalies occurs from *Artav i.e. Streebeeja*[6]

बीज इति शुक्रशोणितगर्भाशया....(च.सं.शा ३।१७ चक्रटीका)

It clearly indicates *Sonita* as *Streebeeja*[7]

***BEEJA* NIRMANA[8]:-**

रसात् स्तन्यं ततो रक्तम्।(च.चि.१५।१७)

Rajas is the *Rakta* which formed from *Rasa*.

सुक्ष्मकेशप्रतिकाशा बीजरक्तवहाः सिराः।
गर्भाशयं तर्पयन्ति मासाद्वीजाय कल्पते॥(विश्वामित्र संहिता)

Hair like thin blood vessels fills the *Garbhashaya* to nourish the *Beeja*.

Rasa dhatu after being processed by *Dhatvagni* and *Pitta* attains *Agneyatva* Called *Artavrup Beeja*.

SWARUPA* OF *BEEJA*[9]*:

आर्तवं शोणितं त्वाग्नेयम्।(सु.सं.सु १४।७)

रक्त लक्षणमार्तवं गर्भकृच्च । (सु.सं.सु १५।५)

आर्तवमाग्नेयम्..(सु.सं.शा ३।३)

Artava is *Agney* has all characteristic of *Rakta*, responsible for the formation of *Garbha*.

***KALA* OF *BEEJA NIRMANA*[10]:**

The manifestation of *Artava* in a woman's life occurs within specified time period called the '*Kala'*. Various aspects regarding this are:

तद् वर्षाद् द्वादशादुध्वँ याति पच्चाशतः क्षयम्।(सु.सं.सु १४।६)

तद् वर्षाद् द्वादशात् काले वर्तमानमसृक् पुनः।

जरापक्वशरीराणां याति पच्चाशतः क्षयम्।(सु.सं.शा ३।११)

मासि मासि रजः स्त्रिणां रसजं स्त्रवतित्र्यहम्।

वत्सरासद् द्वादशादुध्वँ याति पच्चाशतः क्षयम्।(अ.ह्र.शा १।७)

The *Artava* becomes *Vyakta* in a female body from the age of twelve years and persists up to fifty. Thus it is physiologically absent before twelve years and after fifty years. *Kashyapa* mentions the age as 16 years and he further says that this age can be influenced by specific *Ahara* & *Arogya*.

***BEEJOTSARGA* & DIAGNOSIS OF *BEEJOTSARGA*[11]:-**

बीजोत्सर्गकाल इति ऋतुकाल ।

Rutukala can be taken as Ovulation.

गर्भग्रहण योग्यस्तु स एव समय स्मृतः॥(भा.प्र.पु ३।२)

This time is best time for conception.

ऋतुश्च निषिक्तस्य बीजस्य फल प्रसवानुगुणः कालः।(अ.सं.शा १।१०.इन्दु टीका)

Beeja deposites during *Rutukala* is sure to conceive.

Acharya have mentioned *Rutukala* as the right time for "*Garbhadharna*" means it is the time of ovulation. They have given signs and symptoms of *Rutukala* which are expressed by the woman called "*Rutumati Stree*"as-

पीन प्रसन्नवदनां प्रक्लिन्नात्ममुखद्विजाम्।

नरकामां प्रियकथां स्त्रस्तकुक्ष्यक्षिमुर्धजाम्॥

स्फुरद्भुजकुचश्रोणिनाभ्युरुजघनस्फिचाम्।

हर्षोत्सुक्यपराश्चापि विधाद्दतुमतीमिति॥ (सु.सं.शा ३।७-८)

क्षाम प्रसन्न वदनां स्फुरच्छोणिपयोधराम्।

स्त्रस्ताक्षिकुक्षं पुंस्कामां विधाद्दतुमतीं स्त्रियम्॥(अ.सं.शा. १।४१ एवं अ.ह्.शा १।२१)

she looks bright and healthy, her mouth and teeth are moist, she is anxious to hear love stories and have sexual relation, her flanks, eyes and hair are lax, she has twitching over arms, breasts, pelvis, umbilicus, thighs and hips and is happy and excited[12].

ऋतौव्यतीते नार्यास्तु योनिः सव्रियते तथा ।(सु.सं.शा ३।९)

ऋतावतीते योनिः सा शुक्रं नान्तः प्रतीच्छति।(अ.सं.शा १।४२)

योनिर्बीजं न ग्रहणाति, गर्भाशयं न प्रापयतीत्यर्थ।(अ.सं.शा १।४२ इन्दुटीका)

Acharyas have also given the changes which occurred in female genital organs during *Rutukala* as- after the cessation of *Rutukala* (*Rutuvyatitkala)*, it is said that the Yoni contracts or closes *(Sankochayati*

or *Samvriyate*) which restricts the beeja pravesha. Thus we can conclude that the yoni is open in *Rutukala* (i.e. *Vivrutamukha*) which facilitates *Beeja Pravesh*. Thus, vagina is ready to allow the entry of sperms, the uterus is ready for nidation, ovum is ready for fertilization i.e. the period is the maximum fertile period, *Rutukala*.[13]

***ARTAVAVAHA SROTAS*:**

आर्तववहे द्वे तयोर्मुलं गर्भाशय आर्तववाहिन्यश्च धमन्यः।

तत्र विद्धायां वन्ध्यात्वं मैथुनासहिष्णुत्वमार्तवनाशश्च॥(सु.शा.९।१२)

Artavavaha Dhamanis are two in number, basic organ being *Garbhashaya* and *Artavvaha Dhamani*. Vitiation in artavavha *Srotas* leads to *Vandhyatvya, Maithun Asahinshnuta* & *Artavnasha*.[14]

The pathology of three clinical entities can not be limited to single organ of female geniatal system or simple pathology. *Vandhyatava* and *Artavanasha* are complications of *Yonivyapadas* associated with *Artavadosha* representing both organic and functional dysfunction and may be due to *Beeja Dosha* i.e congenital or genetic problems. *Maithun Asahishnuta* is due to local pathology of organs related to female genital tract i.e Retroverted uterus, PID, ovarian cyst. There may be poly ovarian cysts as it is manifestation of Beejdosa leads to functional dysfunction of hormones, secreted from H-P-O axis .This pathological condition includes *Krodha, Kama, Chinta* which involves C.N.S and operate H.P.O axis.

OVARIAN FUNCTIONS[15, 16]

The ovaries have two functions:

1. Oogenesis
2. Steroidogrnesis

1. OOGENESIS:

The process involved in the development of mature ovum is called oogenesis.The primitive germ cells take their origin from the yolk sac at about the end of 3rd week and their migration to the developing gonadal ridge is completed around about the end of 4th week. In the female gonads the germ cells undergo a number of rapid mitotic division and differentiate in to oogonia. The number of oogonia reaches its maximum at 20th weeks, numbering about 7 million. While majority of oogonia continue to devide, some enter in to the prophase of the first meotic division and are called primary oocytes. These are surrounded by flat cells and are called primordial follicles and are present in the cortex of ovary. Total number of primary oocyte at birth s estimated to about 2 million. The primary oocytes do not the first meotic division until puberty is reached.

The primary oocyte undergoes first meiotic division giving rise to secondary oocyte and one polar body.The two of unequal size but both contains haploid number of chromosomes (23, X).Ovulation occurs soon after the formation of the secondary oocyte. The secondary oocyte completes the second meotic division only after fertilization.In the absence of fertilization the secondary oocyte does not complete the secondary meotic division and degerates.

Ovarian Cycle: The development and maturation of a follicles, ovulation and formation of corpus luteum and its degeneration constitute an ovarian cycle.

- Recruitment of groups of follicles
- Selection of dominant follicle and its maturation
- Ovulation

- Corpus luteum formation
- Demise of corpus luteum

Recruitment of groups of follicles: The initial recruitment and growth of primordial follicles are not under the control of any hormones.After certain stage i.e 2-5mm in size the growth and differentiation of primordial follicles are under the control of **FSH.** Unless the follicles are rescued by FSH this stage, they undergo atresia.The oocyte is surrounded by an acellular barrier of glycoprotein produced by the follicular cells and is called Zona pellucida. The flattened outer single layer pregranulosa cells become cuboidal and multilayered called granulosa cells.There is noticeable beginning of differentiation of the theca layer of ovarian stroma surrounding the follicles.The granulose cells acquired FSH receptors.

Selection of dominant follicle and its maturation: The development of graffian follicle depends on FSH.As early as day 5-7 one of follicles out of so many becomes dominant and undergoes further maturation. One with highest antral concentration of estrogen and lowest androgen ratio and whose granulose cells contain the maximum receptors for FSH becomes the dominant follicles.The rest of follicles becomes atretic by day 8.

Ovulation: The dominant follicle, shortly before ovulation reaches the surface of the ovary. The cumulus becomes detatched from the wall, so that the ovum with surrounding cells floats freely in the liquor folliculi.The oocyte completes the first meotic division with extrusion of the first polar body which is pushed to the perivitelline space.The follicular wall near the ovarian surface becomes thinner.The stigma developes as conial projection which penetrates the outer surface layer of ovary and persist while as a thin membrane. The cumulus escapes out of the follicle by a slow oozing process, taking 60-120 seconds

along with varying amount of follicular fluid. The stigma is soon closed by plug of plasma.

Corpus luteum formation: After ovulation the rupture graffian follicle developes in to corpus luteum. It divided in to 4 stages.

1. Proliferation

2. Vascularization

3. Stage of maturation

4. Stage of regression

1. Proliferation: The granulosa cells undergo hyper trophy without multification.The cells become larger, polyhedral with pale vesicular nuclei and frothy cytoplasm.The cells are called granulosa lutein cells.The color of corpus luteum at this stage is grayish yellow due to presence of lipids.

2. Vascularization: Within 24 hours of rupture of the follicle, small capillaries grow into granulose layer towards the lumen accompanied by lymphatics and fibroblasts.The sprouting vessels may be rupture and bleed in cavity.

3.Stage of maturation: Approximately about 7-8 days following ovulation,the corpus luteum attain a a size about 1-2cm and reaches secretory peak.There is hypertrophy of the theca interna cells.The lutein cells become greatly enlarged and develop lipid inclusion, giving the cells a distinctive yellowish color.Thr color is due to the pigment carotene.

4. Stage of regression: On the day 22-23 of cycle, retrogression starts. The lutein cells atrophy and the corpus luteum becomes corpus Albicans.Regression of corpus luteum is due to withdrawal of tonic LH support.However fertilization occurs in the particular cycle, regression fails to occur, instead it is converted in to corpus luteum of pregnancy.

2. OVARIAN STEROIDOGENESIS: The principal hormones secreted from the ovaries are

1. Estrogens
2. Progesterone
3. Androgens
4. Inhibin

1. ESTROGEN: The estrogen predominantly estradiol (E_2) and to a lessed extent estrone.

Site of Production: Granulosa cells of the follicles. Small quantity is also produced from the theca cells and ovarian stroma.

Two cell, Two gonadotropin ,concept of ovarian steroidogenesis established the fat that two cells i.e Theca cells and Granulosa cells produce different hormones under the influence of two gondotropins LH & FSH. During the follicular phase under the influence of LH, androgens are produced in the theca cells. These androgens diffuse in to the granulosa cells where they are aromatized under the influence of FSH to estrogens-estradiol predominantly and lesser estrone. During follicular phase it is the FSH that enhances aromatase activity in the Granulosa cells.During luteal phase androstenedione produced by the theca cells diffused into the granulosa cells to be converted in to estradiol by LH. During luteal phase it is the LH that enhances the aromatase activity in granulosa cells for the aromatization of androstenedione to estradiol.

Negative feedback: Estrogen exerts a negative feedback effect on the release of FSH by direct action on pituitary, decreasing the sensitivity of the gonadotroph

to GnRH.and also by direct action on the hypothalamus with a decrease GnRH secretion possibly via inhibitory dopaminergic activity.

Positive feedback: High level of estrogen exerts a positive feedback effect on LH. Sustained elevated levels of estrogen lead to sustained elevated LH secretion.It may be due to increasing pituitary responsiveness to GnRH Stimulating the hypothalamus in secreting GnRH.

2. Progesterone: The progesterone is secreted from the luteinized theca granulosa cells of the corpus luteum. A trace amount secreted from theca granulosa cells of the follicles and also from the ovarian stroma.

The principal negative feedback action of progesterone is upon the midcycle gonadotropin surge and it may be responsible for its short duration. Progesterone itself does not appear to exert a positive feedback effcet. Its rise during preovulatory period is related with FSH surge by its positive feedback action.The positive feedback effect of estradiol in the secretory phase is inhibited by progesterone.Progesterone first stimulates,then inhibits the production of GnRH.Progesterone acts through both intraovarian and central negative feedback mechanism to suppress new follicular growth.It is postulated that increased intraovarian progesterone concentration prevents follicular maturation in that ovary in the subsequent cycle.

3. Androgens: The androgens are produced in the ovary by all three types of cells-stroma, theca and granulosa, but mainly by the theca interna of the follicles.The production of Androgens is primary under the control of LH. The principal androgens secreted are –dehydroepiandrosterone, androstenediole and testosterone.

4. Peptides: Inhibin, Activin and Follistatin are polypeptides secreted by the granulosa cells in response to FSH. Activin stimulates FSH release from the

pituitary. It also enhance FSH action in the ovary.Inhibin is secreted by the granulosa cells of the ovarian follicle in response to FSH.It has got a preferential negative feedback effect on FSH release.Inhibin A and InhibinB block the synthesis and secretion of FSH.

Antimullerian hormone: It is peptide produced by the granulosa cells of primordial follicles and by the sertoli cells of fetal testes.AMH leval reflects the number of growing follicles in the ovary.I t helps oocyte maturation and follicular development and recruitment of dominant follicle.Low level of AMH is observed with rise of FSH and E_2 levels and also with increasing age of women.

Relaxin: It is secreted from the preovulatory follicle and corpus luteum.It is probably facilitates follicular rupture during ovulation.

Insulin like growth factor: It is produced in theca cells; granulosa cells and luteinizing granulosa cells.IGF enhance gonadotropin action to stimulate granulosa cell proliferation, aromatase activity and progesterone synthesis.

APPLIED ANATOMY OF OVARIES W.S.R TO PCOD [17]

1. Whole ovarian hypertrophy
2. Thickened capsue ›100µ
3. Increase number of subcapsular follicle cysts.
4. Scarcity of corpus lutea or albicartia
5. Hyperplasia and fibrosis of the ovarian stroma
6. Decrease thickness of granulosa cells
7. Atretic pattern of the granulosa layer
8. Increase thickness of the theca interna
9. Premature luteinizing of theca cells.

DIAGNOSIS OF OVULATION[18]:

Women with regular menstrual cycles are likely to be ovulating. It is important to remember that every woman may fail to ovulate from time to time, so a single negative ovulation test is meaningless. The various method used in practice to detect ovulation are grouped as follow:

- INDIRECT
- DIRECT
- CONCLUSIVE

INDIRECT

Menstrual History: The following features in relation to menstrual are strong evidences of ovulation.

- Regular normal menstrual loss between the age of 20-35 years.
- Midmenstrual bleeding or pain or excessive mucoid vaginal discharge
- Features suggestive of premenstrual syndrome or primary dysmenorrhea.

2.Basal body temperature (BBT) :The body temperature maintaining throughout the first half of the cycle is raised to 0.5-1 F following ovulation.The rise sustains throughout the seond half of the cycle and falls about 2 days prior to the next period called 'BIPHASIC PATTERN'.The rise of temperature is secondary to rise in progesterone output following ovulation. Progesterone is thermogenic.Increase production and seceationof norepinephrine which is also thermoenic.

3. Cervical mucus study: Alteration of the physiochemical properties of the cervical mucus occurs due to the effect of estrogen and progesterone. Disappearance of fern pattern beyond 22 day pf the cycle, which was present in mid cycle is suggestive of ovulation. Persistence of fern pattern even beyond 22^{nd} day suggests anovulation.

4. Hormone estimation:

Serum progesterone: Estimation of serum progesterone is done by on 8 and 21 of a cycle.An increase in value from less than 1ng/mL to greater than 6ng/mL suggests ovulation.

Serum LH: Daily astimation of serum LH at mid cycle can detect the LH surge.Ovulation occurs 10-12 hours after LH peak.

Serum estradiol: attains the peak rise approximately 24 hours prior to LH surge and about 24-36 hours prior to ovulation.

Urinary LH: LH kits are available to detect midcycle LH surge. Ovulation occurs within 14-26 hours of detection of urine LH surge and always within 48 hours.

5. Endometrial Biopsy: Evidance of secretoy activity of the endometrial glands in the second half of the cycle give diagnosis of ovulation and also can predict the functional integrity of the corpus luteum. Subnuclear vacuolation is the earliest evidence appearing 36-48 hours following ovulation.

6. Sonography: Serial transvaginal sonography during midcycle can precisely measure the Graafian follicle just prior to ovulation (18-20mm).The features of recent ovulation are collapsed follicle and fluid in the pouch of Douglas.

DIRECT

Laproscopy: Laproscopic visualization of recent corpus luteum or detection of the ovum from the aspirated peritoneal fluid from the pouch of Douglas is the direct evidence of ovulation.

CONCLUSIVE: Pregnancy is the surest evidence of ovulation.

At last, ultimately it is worth said that the description of anatomy in *Ayurveda* is very gross while in modern science, it is very minute and pinpointed. According to Acharyas in *Ayurveda*, minute knowledge of anatomy and histology might not be needed as *Ayurveda* mainly works on its basic principles. Ovaries are not found directly in classics. It is very scattered and not pinpointed. As thrashed out in literary part, acharya Sushruta had given some references regarding it for which it can be said that ovaries are the part of artavavaha *srotas* as *Artavrupi beeja*. This specific srotas of female is responsible for ovarian cycle (ovulation- production and transportation of beeja rupa artava) and menstrual cycle (*Rajahsrava Rupa Artava*). Thus it should be considered from H-P-O axis. It covers all the hormonal and neuronal functions. Thus, it is a very broad term. Abnormality related to menstruation or fertility directly reflects the vitiation of artavavaha srotas at any point. Vitiation of *Doshas, Dhatu, Agni* leads to abnormality of artavavaha srotas, leads to diseased conditions i.e. PCOD.

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MODERN REVIEW

POLYCYCSTIC OVARIAN DISEASE:

INTRODUCTION[1]:

Polycystic ovarian disease an ill defined heterogenous condition with a complex pathophysiology, is one of the commonest endocrine metabolic disorder. It is characterized by chronic anovulation and hyperandrogenism. Features of PCOS may manifest at any ranging from from childhood (Premature puberty), Teenage years (Menstrual abnormalities, (hirsutism), early adulthood and middle life (Infertility, Insuline resistance) and later life with diabetes mallitus and cardiovascular disease. PCOD is multi oragan disorder and can give rise to long term potential complications.

Stein and Leventhal in 1935 reported seven women who presented with problems of amenorrhea; anovulation and Bilateral enlarged polycystic ovaries with thickened tunica and were treated by wedge resection. Later on, Stein reported another 75 women who also underwent women.

HISTORY: wedge resection, 90% of whom responded to have regular menses and 65% of them conceived.

However the history of the disorder can be traced back in 1721 in an Italian print out which reads as: “Young married peasant women, moderately obese and infertile with two larger than normal ovaries, bumpy, shiny and whitish, just like pigeon eggs.”In 1844 Chereau described similar sclerocystic changes in the ovaries.

INCIDENCE[2]:

The exact prevalence of PCOS is not known as the syndrome is not defined precisely. Prevelance of PCOS is highly variable ranging from 2.2% to 26% globally.There are few studies conducted in India in South India and Maharashtra and prevalence of PCOS by Rotterdam's criteria were reported as 9.13% and 22.5% respectively.

ETIOLOGY[3]:

PCOD is a multifactorial and polygenic condition. No single factor triggers the expression of the disease. Familial aggregation of PCOD among mother and siblings have suggests the evidence of autosomal transmission of responsible genetic sequences.Lifestyle changes in the modern era play the key role to result in hyperinsulinemia, poly cystic ovarian disease and hyperandrogenism.

DIAGNOSIS[4]:

Recently in meeting of the American society of Reproductive Medicine (ASRM) and the European Society of Human Reproduction ans Embryology (ESHRE) held in Rotterdam in May 2003.The new definition of PCOS requires the presence of at least two of the three following criteria.

1. Oligo/ Anovulation
2. Hyperandrogenism (Clinical/Biochemical) with the exclusion of other etiologies of androgen excess
3. Polycystic ovaries.

PATHOPHYSIOLOGY[5, 6]:

The exact pathophysiology of PCOS is yet to be elucidated. The traditional concept is a primarily endocrine condition secondary to

aberrations in the HPO axis. Pathophysiology may be discussed under the following heads:

1. Hypothalalamic Pituitary compartment abnormality
2. Androgen excess and hirsutism
3. Anovulation
4. Long term consequences

Hypothalalamic Pituitary compartment abnormality:

- Increase pulse frequency of GnRH leads to increase pulse frequency of LH. Leptin – A peptide secreted by fat cells and ovarian follicles, Insulin resistance and hyperandrogenemia are responsible for this.
- GnRH is preferential to LH rather than FSH.
- Increase pulse frequency and amplitude of LH results in tonically elevated level of LH.
- FSH level is not increased. This is mainly due to the negative feedback effect of chronically elevated estrogen and the follicular inhibin.
- Increase free estradiol due to reduced SHBG bears positive feedback relationship to LH.
- The LH: FSH ratio is increased.

Androgen excess:

- Abnormal regulation of the androgen forming enzyme P450 C17 is thought to be the main cause for excess production of androgens from the ovaries and adrenals. The principal sources of androgens are,

A. Ovary

B. Adrenal

C. Systemic metabolic alteration

A. Ovary: Ovary produces excess androgens due to stimulation of theca cell by high LH, P450C17 enzyme hyperfunction, defective aromatization of androgen to estrogen, stimulation of theca cells IGF-1.

B. Adrenals: Adrenals stimulated to produce excess androgens by stress P450 C17 enzyme hyperfunction and associated high level of prolactin.

C. Systemic metabolic alteration :

- Hyperinsulinemia causes stimulation of theca cells to produce more androgens.
- Insulin results in more free IGF-1 ,By autocrine action IGF-1 stimulates theca cells to produce more androgens.Insulin inhibits hepatic synthetsis of SHBG, resulting in more free level Of Androgens
- Hyperprolactinemia may be mild elevation of prolatin level due to increased pulsitivity of GnRH or due to dopamine deficiency or both. The prolactin further stimulates adrenal androgen production.

Anovulation:

- Because of low FSH level, follicular growth is arrested at different phase of maturation (2-10 mm diameter).The net effect is diminished estradiol and increase inhibin production. Due to elevated LH , there is hypertrophy of theca cells and more androgens are produced either from theca cells or stroma.
- There is defective FSH induced aromatization of androgens to estrogens.
- There is huge number of atretic follicles that contribute to increased ovarian stroma.
- LH level is tonically elevated without any surge leads to Anovulation.

Long term consequences

Long term consequences seen in patient suffering from PCOS includes the excess androgens, diminished SHBG. Cumulative excess unbound estradiol and estrone in a tonic hyperestrogenic state.

PATHOLOGY:-

Ovaries in women with PCOS are 2 to 5 times the normal size. A cross section of surface of the ovary discloses a white, thickened cortex with multiple cysts that are typically less than a centimeter in a diameter.Microscopically the superficial cortex fibrotic and hypercellular and may contain prominanent blood vessels.In addition to smaller atretic follicles, there is an increase in number of follicles with luteinised theca interna.The stroma may contain luteinizing stromal cells.

IMAGING OF THE POLYCYSTIC OVARY:

1. Whole ovarian hypertrophy
2. Increase number of subcapsular follicle cysts.
3. Scarcity of corpus lutea or albicartia
4. Hyperplasia and fibrosis of the ovarian stroma
5. Decrease thickness of granulosa cells
6. Atretic pattern of the granulosa layer
7. Increase thickness of the theca interna
8. Premature luteinizing of theca cells.

SONOGRAPHIC CRITERIA[7]:

1. Multiple (›10) small (2-8mm) peripheral cyst

2. A dense core of stroma
3. Enlarged ovaries (more than 8 ml)

BIOCHEMICAL OUTCOME[8]:

- Fasting blood sugar
- Insulin level
- LH: FSH Ratio
- Testosterone and Androgen level

CLINICAL PRESENTATION[9, 10, 11]

Menstrual abnormalities:

Women who show polycystic ovaries on ultrasound 50-85% will have symtoms and signs of the irregular menses. In the early phase of the menstrual cycle estradiol levels in women with PCOS are equal to those of normal women, however midcycle elevation of estrogen and progesterone that normally occur after ovulation are absent.Because of the lack of cyclical progesterone secretion the action of etradiol on both HPO axis and the endomrtrium may cause it to become hyperplastic which may cause intermittent and heavy uterine bleeding.

Menstrual disturbances can present as following:

Amenorrhea can occur in 30% of PCOS and and oligomenorrhea in 90% of these womenand is indicative of Anovulation and oligoovulation respectively.There is prevalence of an estrogen effect on endometrium and deficiency of progesterone secretion .Menorrhgia polymenorrhea Hypermenorrhea metrorrhagia occurs as n typical and common presentation of pcos brcause of prolonged unopposed estrogen action on endometrium.

Anovulation:

The characteristic of Anovulation in PCOS is the arrest of growth of antral follicles after reaching a diameter between 5-8mm.This may be caused by premature activation of LH mediated terminal differentiation of granulosa cells and that hyperinsulinaemia makes important phenomenon.In the normal menstrual cycle granulossa cells of the dominant follicle become responsive to LH at diameter of 10mm whereas subsidiary follicles do not response to LH.In the preovulatory phase of the cycle LH maintains and enhamce steroidogenesis but triggers terminal differentiation .Once the granulose layer of the dominant follicle is exposed to LH the cells under go only two more cell divisions before growth is arrested. Thus premature activation of LH would result in premature arrest of growth and failure of ovulation in PCOS.

Hyperandrogenism:

Chronic hyperandrogenism the principal biochemical abnormality affected by PCOS is often attributed to enhanced biglandular androgen production by both ovaries and the adrenals.Hyperandrogenism in PCOS is due to following factors

i. Increased LH acting on LH receptors in theca cells
ii. Hyperinsulinemia acting via LH receptors
iii. Reduction of SHBG
iv. Obesity

Hirsutism and Acne are cutaneous manifestation of hyperandrogenism and are frequent accompaniments of PCOS.Hyperandrogenism when severe affects other parts of body as well.Severe forms present with central obesity, voice change, and increased muscle mass but are rare.

Acne:

It is seen in one third of patients with PCOS.It is a chronic inflammatory disorder of the pilosebaceous unit.Excess secration of sebum ad glandular hypertrophy of the acinar cells in response to hyperandrogenemia is the initial factors.Subsequent hyperkeratosis and increased viscosity in response to the chronic inflammation cause blockage of the pores and leads to acne formation. Superadded bacterial infection may cause pustule formation which is sometimes painful.

Figure No.02.1 ACNE

Hirsutism:

About one in ten women in reproductive period have hirsutism and PCOS is the commonest cause among women.Hirsutism is a cutaneous manifestation of hyperandrogenism and defines as development of male type of hair distribution in the female due to conversion of villous hair to terminal hair due to excess androgens.Hirssutism occurs by change in pigmentation,length,diameter and rate of growth of hairs rather than by increase in the number of hairs per unit area.The ferriman and Gallwey scoring system is used to quantify hair growth

and to monitor response to therapy(Americal Association of Clinical Endocrinologists Hyperandrogenism).The scoring pattern is given in the chart below

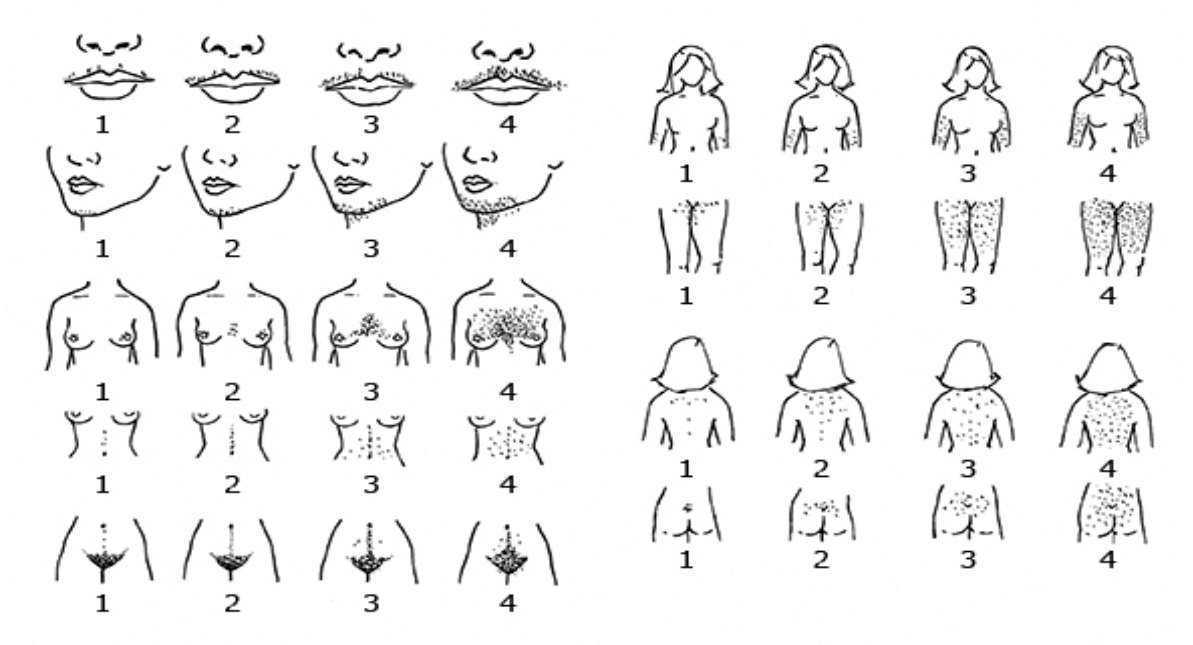

Figure No. No.02.2 The ferriman and Gallwey score

Figure No.02.3 Hirsutism

Alopecia:

This is partly genetic and partly androgen dependent.DHES and testosterone are the hormones mainly implicated in the process.Female androgenic alopecia starts at the crown and is initiated as widening of the hair parting in the muddle and is seen in approximately in 8% of women with PCOS.

Figure No. 02.4 Alopecoa

Obesity and Insulin Resistance:

Obesity plays a significant role in determining the severitiy of clinical manifestation in PCOD. It has been seen that in patients with PCOS the BMI is coreelated eith an increased rate of hirsutism,Menstrual irregularities and Infertility.In one research of Balen at al demonstrated that 38.4% women with PCo in ultrasonography had BMI greater than 25kg/m^2.They also established that there was a increase a infertility and menstrual disturbance whwn BMI was greater than 30kg/m^2.Obesiy plays an central role in the development of PCOS by causing Hyperinsulinemia.it is probably due to decrease number of receptors in target tissues and inhibition of post receptor events.This Insuline resistance appears to be reversible and reduces with weight loss.

HAIR-AN-SYNDROME:

Patient with PCOS characterized by Hyperandrogenism Insulin resistance and Acanthosis nigricans.

Figure No. No.02.5

HEALTH CONSEQUENCES OF PCOD[12, 13, 14]:-

Endometrial Cancer:-The prolonged anovulatin state with consequent continue secretion of estrogen unopposed by progesterone enhance the development and growth of malignancy particularly in young women.Hypersecration of LH,Chronic Hyperinsulinemia,obesity and increase igf-1 levels represent risk factors for endometrial camcer.Womwn with persistently thickened endometrium when measured by btransvaginal ultrasound shuld be adviced to have an endometrial biopsy or hysteroscopy to rule out endometrium hyperplasia.

Ovarian cancer: Data analyzed from the cancer and steroid hormone study showed that ovarian cancer risk was found to be increased 2.5 fold among women with PCOS.The data suggests that the hormonal status of women with PCO featuring abnormal pattern of gonadotropin secratio in women may be

mitigating factor for the observed association between PCOS and ovarian cancer.

Diabetes: Women affected by PCOS often present with abnormalities of Glucose metabolism and lipid profile along with an increase risk of type 2 diabetes and cardiovascular disease.It has been demonstrated that some of these women also have alteration in pancreatic betacell function. Both conditions are recognized as major risk factors for the development of Type 2 diabetes.The onset of glucose intolerance in PCOS women has been reported to occur at early age than in the normal population.

Coronary Artery Diseases: - The incidence of coronary artery diseases is twofold to fivefold higher in individuals with the disease, which is very common in the later years of most patients with PCOD. PCOD increases the risk of myocardial infarction by a large extent due to interplay of various cardiovascular risk factors. A relative risk was observed in developing MI in women with PCOD.

Cardiovascular Diseases:-Systolic blood pressure was found to be raised in obese women with PCOD and there was a positive association between insulin levels and blood pressure. In premenopausal with PCOD there was a significant increase in carotid artery intima-media thickness (IMT), the atherosclerotic index and also femoral artery IMT compared with control subjects. It was found that there is reduced vascular tone in the internal carotid artery and a paradoxical vasoconstrictor response to 5% carbon dioxide, a known vasodilator, in young women with PCOD, which supports further the concept of endothelial dysfunction in this disease.

MANAGEMENT [15, 16, 17]:

CONCEPTUAL STUDY-MODERN REVIEW

The recent treatment of PCOS is mainly symptom oriented with the following objects:

1. To maintain a normal endometrium by regulating menses in women not interested in child bearing. This includes adolescent PCOS primarily presenting with menstrual abnormality, Obesity, Acne and Hirsutism.
2. To improve insulin resistance
3. To antagonize the action of androgens
4. To correct Anovulation for women desirous of pregnancy

TREATMENT PLAN OF ADOLESCENT PCOD**:**

1. Weight reduction: Carbohydrate and fat restricted diet should advised. Weight reduction helps to lower circulationg free androgens and insulin level.Increase SHBG thereby level of free testosterone is reduced. Even weight reducyion may lead to spontaneous resumption of menses.
2. Oral contraceptive Pills: Estrogenic component of the oral contraceptive suppresses luteinizing hormone and thus reduces ovarian androgen production. Estrogen also enhances hepatic production of SHBG thereby the level of free testosterone declines. Combination of ethinyl estradiol and desogestrel is ideal.But these drugs have potential adverse eefcts on insulin resistance, Vascular reactivity and coagulability.Hence long term use of OC piils for adolescent PCOS is not indiacted.
3. Antiandrogens:

- Cytoproterone acetate in dose of 50 mg 1 tab twise daily continouse for period of 2 months, it treats effectively hirsutism and acne by binding testosterone to the androgen receptors.

- Combination of ethinyle estradiol and cytoproperone acetate used where hirsutism, acne and menstrual problems are primary symtomes and pregnancy not desired.
- Spironolactone udes as antiandrogenic administred in dose of 100mg-200mg daily.
- Glucocorticoids and finasteride aso used to treat Hirsutism.
- Androgens used in PCOS will prevent further hair growth.But te hair which have already grown will not removed by takng androgens only.These hair treated by epilation, waxing or by electrolysis.

4. Management of Oligomenorrhea and Amenorrhea: This problem in adolescent girl needs different approach from those of married PCOS girls who present primarlily with fertility problems. For adolescent girl the first line of treatment even for onset of regular menstruation is weight reduction with or without use of low dose oral contraceptive pills.If it does not help then Metformin alone or combination with OC pills used.

MANAGEMENT OF OBESITY IN PCOD:

It is important to maintain an ideal body weight especially for women with PCOD not only improve reproductive potential but also to reduce long term morbidity. It has been suggested that women should be encouraged to loose weight prior to infertility treatment to improve outcome of treatment and reduce complication of pregnancy. Weight reduction is achieved through diet control and life style management and exercise. Hyperinsulinemia is underlying disorder especially in the obese, the role of insulin sensitizing agent in the management of Obese PCOS is central. All insulin sensitizing agents leads to reduction in serum androgens and gonadotropin levels, improvement in serum lipids and prothrombotic factors.Weigh loss reslts in

an improvement in clinical features of the syndrome and in most biochemical markers related to it. Lifestyle modification especially increased exercise has been shown to improve fat distribution ,insulin sensitivity LH hyersecration and androgen excess.These changes reflects themselves clinically with improvement in Oligomenorrhea and Anovulation as well as benefits to hirsutism.

MANAGEMENT OF HYPERINSULINEMIA IN PCOS:

Metformin: :The dose is 500mg to 1500mg daily in devided dose for period of 6 to 9 months .

1. It suppresses endogenous glucose production.
2. Improves peripheral insulin sensitivity to insulin.

Metformin increases insulin sensitivity and decrease serum insulin level in patient with PCOS. Reduction of insulin with metformin is associated with reduction on free testosterone level through suppression of ovarian androgen production. Metformin has the important clinical benefit of lowering fasting insulin level in obese non diabetic individual without producing hypoglycemic.

OVULATION–INDUCTION IN WOMEN WITH PCOD CAUSES INFERTILITY:

PCOS is one of the most common cause of infertility in women due to Anovulation.The management is depends individual assessment of each patient.

1. LIFE STYLE MODIFICATION –EXERCISE AND DIET
2. PHARMACOLOGICAL THERAPY:

Antiestrogens:

- Clomiphene citrate blocks the negative feedback effect of estradiol and thereby stimulates the secretion of gonadotropins from the anterior lobe of the pituitary gland.This leads to follicle selection and increased estrogen production with the final occurrence of a midcycle LH surge.The recommended starting dose is 50mg/day .The tablets are usually given for 5 days following the onset of a spontaneous or a progestagen induced period.
- Insuline resistance leads to Anovulation as excess insulin stimulates the theca cells to produce more androgens, Insulin also inhibit the SHBG and insulin like growth factor binding protein-1. These factors leads to biochemical or hyperandrogenism and Anovulation. Metformin has become an established treatment for PCOS with reduction of serum androgens, gonadotropins and with improvement in metabolic derangement including hyperinsulinemia and helps for ovulation.

Gonadotropins:

- Patients remaining anovulatory after climiphene citrate and/or Metformin treatment are generally treated with gonadotropins. The step up.step down protocol used for this.Patients are stared with very low dos gonadotropinand the dose gradually increased. When the leading follicle reaches 14mm,the FSH threshold dose is reduced by half.Treatment cycle can be very long upto 28-35 days.1

SURGICAL:

Laproscopic ovarian drilling: Surgical treatment is indicated in women with altered FSH: LH ratio, poor response to ovulation induction drugs and rule

out other factors causing infertility.It is done under general anesthesia and using current at 50-80 watts depending upon the ivarian size and number of cysts.5 to 10 punctures are made 1cm apart I each ovary.Suction irrigation is done intermittently so as to minimize adhesion formations.

MECHANISM:

- The drilling of follicles release androgen rich follicular fluid and also decreases the androgen producing stroma so as to decrease circulating androgens.
- There is transient reduction in inhibin and precipitous fall in LH, which results in increase secration of FSH.
- Crowding of cortex decreases which allows progress of normal follicles to the surface resulting in normal ovulation.

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AYURVEDIC REVIEW

Vata, *Pitta* and *Kapha –Tridoshas* are the vital factors of the body. The equilibrium of *Doshas* is mainly responsible for health; any derangement to this will lead to imbalanced condition called disease. In *Ayurveda*, all diseases are described according to involvement of *Dosha, Dushya Dhatu and Srotas*.[1]*Charaka* has told that every disease could not be named. So, *Vaidyas* should know the diseased condition according to the involvement of *Doshas, Dhatus,* and *Srotasas* etc.[2]Hence even if there is no direct mentioning of a disease in *Ayurveda* which is having direct correlation with any modern diseases a detailed analysis of the *Lakshanas*, the state of *Doshas*, *Dhatus*, *Agni*, *Srotas* will guide to formulate an ayurvedic management by understanding its pathogenesis.

नास्ति रोगो विना दोषैः यस्मात् तस्मात् विचलक्क्षणः।
अनुक्तमपि दोषाणां लिडंगैः व्याधिमुपाचरेत्॥ (सु.सं.सु.३५।१९)

Acharya Susruta also mentioned there is no disease which developed without any *Dosha* abnormality. Thus unknown disease should be treat according to their *Dosha* involvement and symptoms[3].

We can correlate PCOD with following conditions:

1. *Artavkshaya/Anartava*
2. *Granthibhuta Artavdushti*
3. *Jataharini*

ARTAVKSHAYA[4]

आर्तवक्षये यथोचितकालादर्शनमल्पता वा योनिवेदना च।(सु.सं.सु १५।१२)

Artavkshaya is characterized by *Yathochitakaladarshan* i.e menstrual fails to occur at proper time, *Alpatartava* i.e scanty menstruation and is associated with Pain.

आर्तवक्षय इत्यादौ योनिवेदना तदेशाभिपूरकार्तवक्षयकुपितेन वायुना। (सु.सं.सु १५ ।१२, चक्र.टीका)

Yonivedana is due to vitiated *Vayu* filling up the *Yoni* region.

आर्तवस्य स्वकाले चाभावस्तस्याल्पताऽथ वा॥

जायन्ते वेदना योनौ लिन्ङं स्यादार्तवक्षये॥

कट्वम्ल लवणोष्णानि विदाहीनि गुरुणि च

फलशाकानि पानानि स्त्री काङ्.क्षत्यार्तवक्षये॥ (भा.प्र.पू.-७।९०-९१,१११)

In *Artavkshaya* the menstrual flow either fails to occur or is scanty associated with pain in pelvic region.

A woman suffering from *Artavkshaya* desires *Katu, Amla, Lavana, Ushna, Vidahi* and *Guru* Products fruits nd vegetables and beverages.

***ANARTAVA*[5]**

आर्तववहे द्वे तयोर्मुलं गर्भाशय आर्तववाहिन्यश्च धमन्यः।

तत्र विद्धायां वन्ध्यात्वं मैथुनासहिष्णुत्वमार्तवनाशश्च॥(सु.शा.९।१२)

Artvavnasha is one of the *Lakshanas* of *Vedha* of *Artavavaha srotas*. Where we can correlate *Artavvahastrotas* with HPO axis. The chain of complicated balanced hormonal interaction in Hypothalamo Pituitary Ovarian axis obstruction at any level leads to Anovulation and Amenorrhea.

Injury to *Artavvahastrotas* can be considered as Physical and mental both i.e *Vegadharana, Mithyahara, Mana Santapa-Chinta* etc leads to *Artavnasha.*

वातकफावृतमार्गाणा त्वप्रवर्तमानं...॥(अ.स.श.१।१३)

दौषैरावृतमार्गत्वादार्तवं नश्यति स्त्रियाः। (सु.स.शा २।२१)

Due to *Nidanaseavan* there is *Vata-Kapha Dushti*, where due to *Kapha Sanchay* in *srotas* leads to *Vatavimargaman* causes *Anartav* or *Artavkshaya*. Here *Dosha Sanchaya* and *Vimaragaman* leads to *Artvakshaya* and *Anartav*. Due to consistent prolong *Nidanasevan Doshas* aggravated and *Sthansamshraya* in *Beejashaya (Dosha-Prasaravastha)* and developes *Beejashaya Granthi.*

GRANTHIBHUTA ARTAVDUSHTI

Looking to the pathology i.e. cyst formation and accumulation in periphery of ovary, we cans compare the condition PCOD with '*Granthibhuta Artavadushti'*.

ग्रन्थि ग्रथनात स्मृतः।(अ.ह्.उ २९।१)

Granthi is nodular or glandular swelling with hard knotty and rough appearance. This type of glandular swelling has been compared with the modern terminology 'cyst'. Which means an abnormal closed epithelium- lined cavity in the body, containing liquid or semisolid material.

वातादयो मांसमसृक् च दुष्टाःसंदूष्य मेदस्च् कफानुविध्दम्।

वृतोन्नतं विग्रथितं तु शोफं , कुर्वन्त्यतो ग्रन्थिरिति प्रदिष्टः॥(सु.स.नि ११।३)

The vitiated *Vatadi* dosas vitiates *Mamsa, Rakta, Kapha* and *Meda* produce a round raised, hard swelling called *Granthi*. In PCOD, development of follicles has been arrested & remained as it is and further develop cysts in ovary[6].

ग्रन्थिभूतं श्लेष्माभ्यां।(अ.सं.शा.१।२४)

ग्रन्थ्यादयस्तु ये द्विदोषवर्णवेदना बोद्धव्याः॥(सु.सं.शा २।४,डल्हन टीका)

Granthibhut Artav Dushti is caused due to vitiation of *Kapha* and *Vata Dosha* where artav is in clotted appearance and is associated with clinical features of both *Kapha* and *Vata.*[7]

JATAHARINI[8]:

वृथा पुष्पं तु या नारी यथाकालं प्रपश्यति।

स्थूललोमशगण्डा वा पुष्पघ्नी साऽपि रेवती॥(का.खि.३३.२-३४.१)

Descriptions of some of the *Rewaties* are related with amenorrhea or menstrual irregularities. Out of these the lady with '*Pushpaghni*' *Rewati* observes her fruitless menstruation in appropriate time, has corpulent and hairy cheeks is known as *Pushpghni Jataharini*. Picture of *Pushpaghni* bears resemblance with hyperandrogenism condition in which anovulation and hirsutism are prominent features.

***CHIKITSA SIDHANT*:**

Ayurveda believes that disease is imbalance of *Dosas.* The therapeutic attempts to restore the imbalance dosas is carried out by following four measures.

दोषा: क्षीणा बृंहयितव्याः, कुपिताः प्रशमयितव्याः,वृद्धा निर्हर्तव्याः,समाः परिपाल्या इति सिध्धान्तः॥(सु.सं.चि.३३।३)

i. Increased he weakended dosash.
ii. Pacifying the vitiated dosas
iii. Preserving the normal one

This is done by utilizing appropriate diets, drugs and psycosomatic activities on the principle of *Samanya Visesh Sidhant.* In PCOD considering the doshic involvement, the treatment should be aime to pacify the vitiated *Kapha-Vata* and increasing the *Agneya Guna of Pitta*[9]

Ayurvedic management is mainly based on 3 sidhantas.

1. *Shodhan Chikitsa*
2. *Shaman Chikitsa*
3. *Nidan-Parivarjana*
4. *Pathya -Apathya*

***SHODHAN CHIKISTA*:** The therapeutic measures which eliminate the vitiated *Doshas* from body are called *Shodhan chikitsa*. The main *Shodhan* protocol indicated in this PCOD is '*Vamana*' as *Kapha* is the main dominating *Dosha* and '*Basti*' for the *Anulomana* of *Vata.*

***SHAMANA CHIKITSA*:** The therapeutic measures which neither eliminate *Doshas* nor vitiate the *Doshas* but normalized the vitiated *Doshas* is called Samshaman Chikitsa.It is advocated to bring the therapeutic equilibrium of *Doshas* and *Dhatus* by administering appropriate diet, drug, exercise and lifestyle.

NIDANPARIVARJANA:

संक्षेपत: क्रियायोगो निदानपरिवर्जनम्।

वातादीनां प्रतिघातःप्रोक्तो विस्तरतः पुनः॥(सु.स.उ.१।२५)

Nidanparivarjana is the foremost and very important principle of *Ayurvedic* treatment.In PCOD *Vatakara Ahara Vihara* should be avoided.Todays lifestyle Junk Food bakery items colddrinks fermented food items *Ratrijagaran Diwaswapna Avyayam* etc. are most common causative factors specialy in reproductive age group women.[10]

SAMANYA VISHESH SIDHANT:

सर्वदा सर्वभावनां सामान्यं वृद्धिकारणम्।

ह्रासहेतुर्विशेषश्च,प्रवृतिरुभयस्य तु॥(च.स.सु.१।४४)

The *Panchabhautik* variation of diet and drug reflects in to the *Rasa, Guna, Virya and Vipaka.* By knowing these properties the diets and drugs can be utelise in therapeutic purpose for promoting or depleting components. As In PCOD we can use *Ushna Virya, Artavjananya Aushadhi* and diet in *Anartav* and *Artavkshaya*.[11]

PATHYA APATHYA:

Diet and lifestyle are extremely important for nourishment of the body and management of disease .*Acharyas* indicate that there is no need of any medicine if individual follows the dietics rules.

The clinical management of patients with PCOD should primarily symptomatic. This involved cycle regulation for menstrual dysfunction, ovulation induction for infertility, weight reduction in obesity.

ARTAVKSHAYA/ANARTAV CHIKITSA[12]:

These conditions caused due to *Kapha sanchay* and *Vata Vimargamana* and *Pitta Kshaya* thus *Vatakaphahara* and *Pittavardhak –Artavjanya* treatment should be done.

तत्र संशोधनमाग्नेयानां च द्रव्याणां विधिवदुपयोग:। (सु.सं.सू १५।१२)

Agneya Dravya should be used.

पितलैरुपचारैस्तत्प्रवर्तमानम्॥(अ.सं.शा.१।१३)

Diet and food products capable of increasing *Pitta* are beneficial.

MEDOHARA CHIKITSA[13]:

गुरु च अपतर्पणं चेष्टं स्थूलानां कर्शनं प्रति।

वातघ्नान्यन्नपानानि श्लेष्ममेदोहराणि च।

रुक्षोष्णा बस्तयस्तीक्ष्णा रुक्षाण्यर्द्धर्तनानि च॥।(च.सं.सु 21/20,21)

Heavy and non nourishing diet useful to reduce obesity.Food and drinks that alleviates *Vata* and *Kapha* and reduce Fat with *Ruksha Usna Tiksha* drugs are beneficial.*Sthaulya chikitsa* is mainly depends on *Nidanaparivarjana* i.e avoiding *Madhura*, *Amla*, *Lavana rasa*, Sedentary lifestyle, *Diwasvapna*, *Avyayam* etc.

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DRUG REVIEW

The comprehensive knowledge of the drug is very important to physician, because without knowledge of the drug, the patient cannot be treated properly. According to the *Acharya Charaka* the Drug is a part of '*Chikitsa Chatushpada'* which has been placed next to the Physician[1].

SELECTION OF THE DRUGS:-

Group A: Capsule Kanashatahwadi kashay

Group B: Capsule PCONIDD

Group C: Both Drugs

Kanashatahwadikashaya:

कणा शताव्हा द्विकरंज दारु भारंगी कुलत्थै सतिलैविपक्वम्।

तथा रसोनेन च सिद्धम्भः सहिंगुकल्कम् हितमस्त्रगुल्मे॥

(सहस्त्रयोग - रक्तगुल्महर कषाय)

As per *Samprapti* of PCOD postulated, it is considerable that in this condition mainly *Kapha* and *Vata dushti* involved. *Raktagulma* is also mainly due to *Vatapradhandushti*. In both conditions there is *Vata aggravation* and *Kapha sanchay* in *Srotas* which leads to *Vatavimargaman*. Vitiated *doshas sthansamshraya* in *Garbhashaya* causes *Artavdushti* and gradually develop *Granthi* in *Beejashaya* as PCOD and development of *Kukshi* in *Raktagulma*.Both *Vyadhi* having *Vatakapha Dushti, Sanga* and *Vimaragaman Srotodushti*. So, for the present study, *Aushadha Yoga Kanashatahwadikashay* mentioned for *Raktagulma* in *Sahastrayoga* has been taken in capsule form. It includes *Kana, Shatwaha, Karanj, Latakaranj, Devdaru, Bharangi, Kulattha,*

Tila Lashuna, Hingu[2].All these drugs are having mainly *Katu-Tikta-Kashay rasa, Laghu, Ruksha, Tikshna guna,Ushna Virya and Vatakaphagna Doshaghnata.*

DETAIL DESCRIPTION OF THE DRUG:-

1. ***KANA***[3,4] :

C 

FIGURE NO.03.1 *KANA*

BOTANICAL NAME: *Piper longum*

FAMILY: Piperaceae

VERNACULAR NAME:

HINDI : Pipala

ENGLISH: Long pepper

GUJARATI: Pippari

MARATHI: Pipali

TELUGU: Pippallu

TAMIL: Tippali

SYNONYMS: *Kana Krishna Pippali Tikshna Tandula Magadhi Vaidehi Ushna*

CLASSICAL CATEGORIZATION

CHARAKA*: Dipaniya Kanthya Asthapanopag Shirovirechan Sheetprashaman, Shulaprashaman Kasahara Hikkanigrahan Triptighna Vamana*

SUSRUTA: *Pipalyadi, Urdhvabhaghara, Trushnahara Sirovirechaniya, Amalkyadi*

VAGHBHATTA*: Piplyadi*

PART USED: Fruit

RASA PANCHAKA

RASA: Katu

GUNA: Laghu Snigdha Tikshna

VIRYA: Anushnashit

VIPAK: Madhur

DOSHGHNTA: Vata kapha hara

KARMA: Vrishya Dipan Pachan

INDICATION: Udarroga Pliharoga Jvara Kushtha Prameha Gulma Arsha Shula Aamvat

CHEMICAL CONSTITUENTS

Essential oil Caryophyllene Piperine Piplartine Piperlongumine Pipercide Sesamine Beta sitosterol, 4 artistolactams, Cepharanone B Aristolactum Piperlactum A & Piperlactum B.

2. *SHATAWAHA*[5,6]

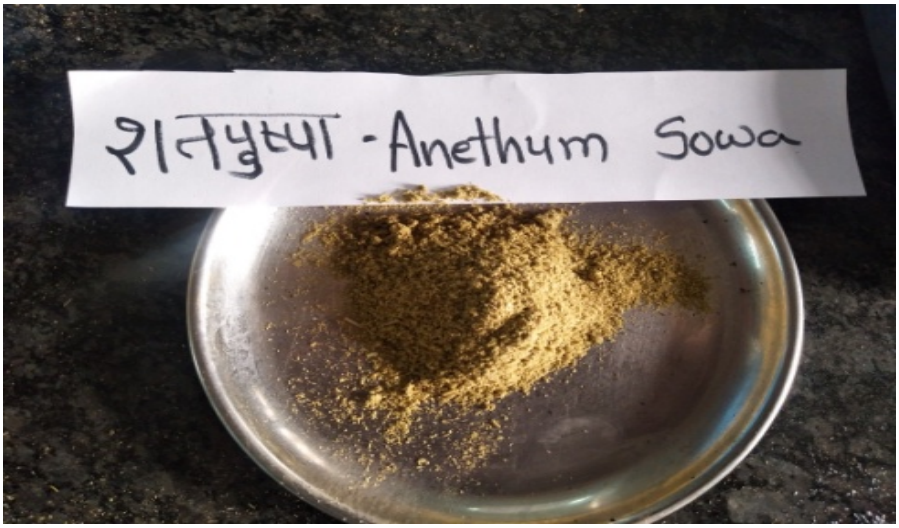

FIGURE NO.03.2 *SHATAWAHA*

LATIN NAME: *Anethum sowa*

FAMILY: Umbelliferae

VERNACULAR NAME:

HINDI : Soyo

ENGLISH: Dill seeds

GUJARATI: Suva

MARATHI: Sepu

TELUGU: Sadapa Vittulu

TAMIL: Satkuppi

SYNONYMS: *Atibala Karavi Misi Madhura Sitachatra*

CLASSICAL CATEGORIZATION

CHARAKA: Asthanopaga Anuvasanopag

PART USED: Fruits

RASA PANCHAK

RASA: Katu Tikta

GUNA: Laghu Tikshna

VIRYA: Ushna

VIPAK: Katu

DOSHGHNTA: Vata kaph hara

KARMA: Dipan Artavjanan Stanyajanan Balya

INDICATION: Shula Jvara Netraroga Vrana Gulma Adhman Yonishula

CHEMICAL CONSTITUENTS

Carvone, Dihydrocarvone, Limonene Apiol Dill-apial,Alpha berga motene,Transdihydrocarvone Beta Caryaphyllene, Cagenol ,Cis ocimene ,Diffuran ,Beta Sitosterol.

3. *KARANJA*[7,8] :

FIGURE NO.03.3 *KARANJA*

LATIN NAME: *Pongamia pinnata*

FAMILY: Fabaceae

VERNACULAR NAME:

HINDI: Dithouri

ENGLISH: Indian Beech

GUJARATI: Kanajhi

MARATHI: Kaaranja

TELUGU : Kanuga

TAMIL: Pongum

SYNONYMS : *Chirabilvaka Naktamala Guduchapushpaka Ghritpura Snigdhapatra*

CLASSICAL CATEGORIZATION

CHARAKA: Kandughna Skandh

SUSRUTA: Aragvadhadi Varunadi Arkadi Shyamadi

VAGHBHATTA: Aragvadhadi Varunadi Arkadi Shyamadi

PART USED: Beeja

RASA PANCHAK

RASA: Tikta Katu Kashay

GUNA: Laghu Tikshna

VIRYA: Ushna

VIPAK: Katu

DOSHGHNA: Vata kaph hara

KARMA: Shothahara, Bhedana Raktasodhak

INDICATION: Yoniroga Kushtha Udavarta Gulma Arsha Krimi Shoth Sirovirechana

CHEMICAL CONSTITUENTS

Karanjin Pongapin 3 – methoxypongapin Pongaglabrone Kanjone Pongol Gamatin Lonchocarpin Isolonchocarpin Porgachromene Isopongaflovone Pongamol Glabrin Ovaliterone Kanugin Cemethaxykanugin Neoglabrin Pongamin

4. **LATA KARANJA**[9,10]

FIGURE NO.03.4 LATAKARNJ

LATIN NAME: *Caesalpinia crista*

FAMILY: Caesalpiniaceae

VERNACULAR NAME:

HINDI : Kantakareja

ENGLISH: Fever Nut

GUJARATI: Kachaka

MARATHI: Sagargota

TELUGU: Gaccakaya

TAMIL: Kajichi Kaya

SYNONYMS: *Kantaki Kuberraksha Putikaranja Vitapa Karanja Karanji*

PART USED: *Beeja*

RASA PANCHAK

RASA: Tikta Kashay

GUNA: Laghu Ruksha

VIRYA: Ushna

VIPAK: Katu

DOSHGHNTA: Tridoshahara

KARMA: Sothahara Vranaropan

INDICATIONS: Prameha Granthi Shula Yakrita roga Pliha roga Kushtha Visamjwara.

CHEMICAL CONSTITUENTS

L-ethylideneglutamic acid Amino acid α-caesal pins Caesalpin Bonducelline

5. *DEVDARU* [11,12]

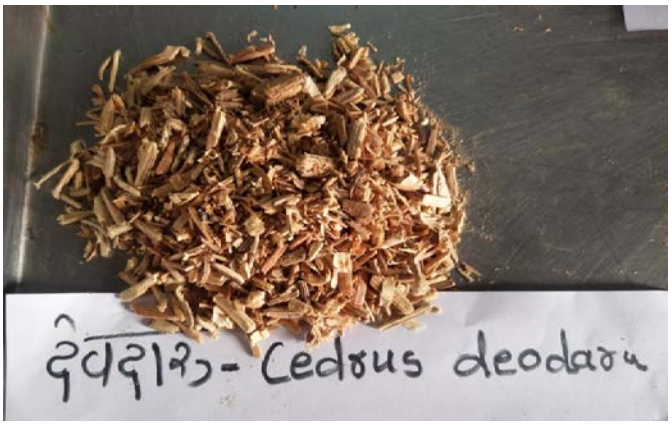

FIGURE NO.03.5 *DEVDARU*

LATIN NAME: *Cedrus deodara*

FAMILY: Pinaceae

VERNACULAR NAME:

HINDI : Devadara

ENGLISH: Himalayan ceder Dcodar

GUJARATI: Devdar

MARATHI: Devdar

TELUGU: Devadaru

TAMIL: Devadaru

SYNONYMS: *Indra daru Drukilinam Bhadra daru Sura Bhuraha Amaradaru Surahva Bhadradri Sura Kashtha Kilimam*

CLASSICAL CATEGORIZATION

CHARAKA: *Stanyasodhana Anuvasanopaga*

SUSRUTA: *Vatsaman*

PART USED: *Bark*

RASA PANCHAK

RASA: Tikta Katu Kashay

GUNA: Ruksha Laghu

VIRYA: Ushna

VIPAK: Katu

DOSHGHNTA: Kapha Vata hara

KARMA: Dipan Kasahara

INDICATIONS: Prameha Dushtavrana Kasa Swas Hikka Adhman Kandu Kushtha Shopha Pinas

CHEMICAL CONSTITUENTS

Essential oil P-Methylacetophenone Atlantone Sesquiterpenes α & β Himochalene Deodarin Toxifolin.

6. *BHARANGI* [13,14]

FIGURE NO.03.6 *BHARANGI*

LATIN NAME: *Clerodendrum serratum*

FAMILY: Verbinaceae

VERNACULAR NAME:

HINDI : Babhanaiti

ENGLISH: Blue Floered glory Tree

GUJARATI: Bharangi

MARATHI: Bharangi

TELUGU: Gatubharangi

TAMIL: Kavali

SYNONYMS: *Kharasaka Padma Phanji Bhrahamanayastika Hanjika*

CLASSICAL CATEGORIZATION

CHARAKA: *Purisha sangrahaniya*

SUSRUTA: *Pipalyadi*

PART USED: wood

RASA PANCHAK

RASA: Tikta Katu

GUNA: Ruksha Laghu

VIRYA: Ushna

VIPAK: Katu

DOSHGHNTA: Kaph Vat hara

KARMA: Jwarahara Kasahara

INDICATIONS: *Kasa Swasa Shopha Pinas Jvara Vrana Krimi Daha*

CHEMICAL CONSTITUENTS

Hispidulin 7- Glucoronides Scutellarein Uncinatone Pectolinarige.

7. *KULATTHA*[15,16]

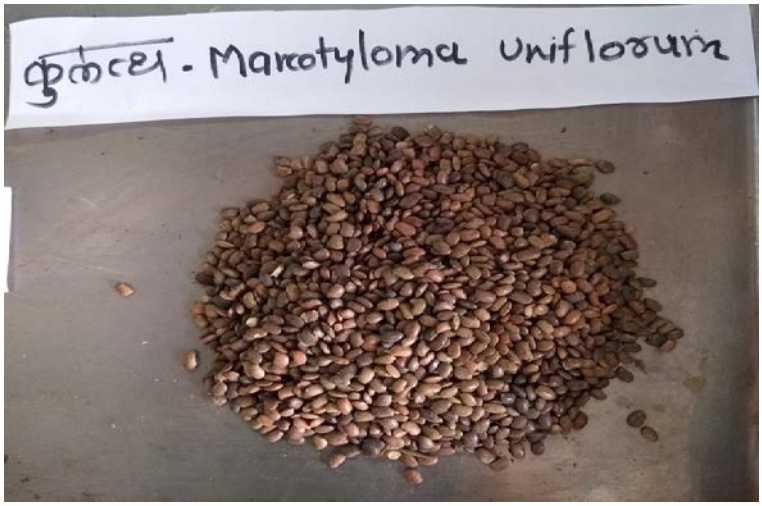

Figure No.03.7 *KULATTHA*

LATIN NAME: *Marcotyloma uniflorum*

FAMILY: Fabaceae

VERNACULAR NAME:

HINDI : Kulthi

ENGLISH: Horse gram

GUJARATI: Kalathi

MARATHI: Kulitha

TELUGU: Vulavalu

TAMIL: Kutirai Kiram

SYNONYMS: *Kulatthika*

CLASSICAL CATEGORIZATION

CHARAKA: *Svedopaga*

VAGHBHATTA: *Niruhopaga*

PART USED: *Seed*

RASA PANCHAK

RASA: Kashay

GUNA: Laghu Ruksha

VIRYA: Ushna

VIPAK: Katu

DOSHGHNTA: Kap-Vat hara

KARMA: Medohara Lekhan Bhedan Garbhashayottejaka

INDICATIONS: Swasa kasa Medoroga Ashamari

CHEMICAL CONSTITUENTS

Essential oil P-Methylacetophenone Atlantone Sesquiterpenes α & β Himochalene Deodarin Toxifolin.

8. *TILA*[17,18]

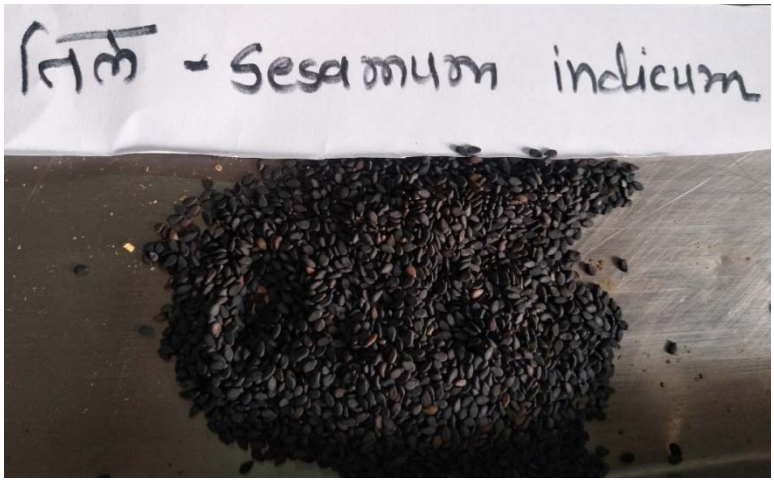

FIGURE NO.03.8 *TILA*

LATIN NAME: *Sesamum indicum*

FAMILY: Pedaliaceae

VERNACULAR NAME:

HINDI : Tila

ENGLISH: Sesamum seeds

GUJARATI: Tal

MARATHI: Til

TELUGU: Nuvvulu

TAMIL: Ellu

CLASSICAL CATEGORIZATION

CHARAKA: *Svedopaga Purisvisarjaniy*

PART USED: Seed

RASA PANCHAK

RASA: Madhur Kashay Tikta

GUNA: Guru Snigdha

VIRYA: Ushna

VIPAKA: Madhur

DOSHGHNTA: Vatahara

KARMA: Twachya Sukrala Artavjanan Mutrasangrahaniya

INDICATION: Vataroga Grahani Agnimandhya Yoniroga

CHEMICAL CONSTITUENTS

Neutral lipids Glylcolipids Phospholipids Sesamose Sesamolin Sesamolinon Sesamol Pinoresinol

9. *LASHUNA*[19]

FIGURE NO.03.9 *LASHUNA*

LATIN NAME: *Allium sativum*

FAMILY: Liliaceae

VERNACULAR NAME:

HINDI : Lahasun

ENGLISH: Garlic

GUJARATI: Lasana

MARATHI: Lashuna

TELUGU: Velluli

TAMIL: Vengayam

SYNONYMS: *Rasona Ugragandha Mahaaushadh Mlechkanda*

PART USED: Kanda

RASA PANCHAK

RASA: Madhur Lavan Tikta Katu Kashay

GUNA: Snigdha Guru Tikshna Sara

VIRYA: Ushna

VIPAKA: Katu

DOSHGHNTA: Vata Kapha hara

KARMA: Balya Bruhaniya Rasayan Vrushya Netrya

INDICATION: *Vata vyadhi Shula Ajirna Vibandha Gulma Swasa Hrdroga Asthibhgna Rajyakshma Soth Krimi*

CHEMICAL CONSTITUENTS

Allin Carbohydrates Vitamins Aminoacids Enzymes Volatile compounds Triglycosides Prostaglandins A_2 D_2 E_2 F_2 Allymethylselenide Ajoene Prosteoruboside β.

10.HINGU[20,21]

FIGURE NO.03.10

LATIN NAME: *Ferula northex bioss/ foetida*

FAMILY: Umbelliferae

VERNACULAR NAME:

HINDI : Hing

ENGLISH: Asafoetida

GUJARATI: Hing

MARATHI: Hing

TELUGU: Inguva

TAMIL: Perungayam

SYNONYMS: *Jatuka Bahlika Ramatha Sahasravedhi Ugragandha Sahasravedhi Jaran Jantughna*

CLASSICAL CATEGORIZATION

CHARAKA: *Dipaniya Swashara Sajnasthapan Katukskandh*

SUSRUTA: *Pipalyadi Usakadi*

VAGHBHATTA: *Pippalyadi*

PART USED: *Niryas*

RASA PANCHAK

RASA: Katu

GUNA: Laghu Snigdha Tikshna

VIRYA: Ushna

VIPAKA: Katu

DOSHGHNTA: Kap-Vat hara

KARMA: Artavjanan Shulahara Chakshushya Bhedaniya Anulomaniya Balya

INDICATION: *Artavdosha Krimi Murcha Apasmara Shula Gulma Udararoga Agnimandhya.*

CHEMICAL CONSTITUENTS

A-Pinene Phellandrene A-Trisulfide Asaresinotannol Farnesiferon Gummosin Kamolonon Mogoltadone Polyanthinin Polyanthin Undecylsulfonyl acetic acid Umbelliferone.

TABLE NO.03.1 *RASAPANCHAKA, DOSHGNTA, KARMA* & ROGGHNTA OF INGREDIENTS OF *KANASHATAWAHADI KASHAYA*

Drug Name	*Rasa*	*Guna*	*Virya*	*Vipak*	*Doshghnta*	*Karma*	*Rogghnta*
Kana	*Katu*	*Laghu Snigdha Tikshna*	*Anushnashit*	*Madhur*	*Vata kaph hara*	*Vrishya Dipan Pachan*	*Kushtha Prameha Gulma Shula*
Shatawaha	*Katu Tikta*	*Laghu Tikshna*	*Ushna*	*Katu*	*Vata kaph hara*	*Dipan Artavjanan Balya*	*Gulma Yonishula*
Karanj	*Tikta Katu Kashay*	*Laghu Tikshna*	*Ushna*	*Katu*	*Vata kaph hara*	*Raktasodhak*	*Yoniroga Kushtha Udavarta Gulma*
Latakaranj	*Tikta Kashay*	*Laghu Ruksha*	*Ushna*	*Katu*	*Tridosh Hara*	*Shulahara Lekhana*	*Prameha Granthi Shula Kushtha*
Devdaru	*Tikta Katu Kashay*	*Ruksha Laghu*	*Ushna*	*Katu*	*Kaph Vata hara*	*Dipan*	*Prameha Kushtha*
Bharangi	*Tikta Katu*	*Ruksha Laghu*	*Ushna*	*Katu*	*Kaph Vata hara*	*Aampachana*	*Vrana Krimi Daha*
Kulaththa	*Kashay*	*Laghu Ruksha*	*Ushna*	*Katu*	*Kaph-Vat hara*	*Medohara Lekhan Bhedan Garbhashayott ejaka*	*Medoroga*
Tila	*Madhur Kashay Tikta*	*Guru Snigdha*	*Ushna*	*Madhur*	*Vat hara*	*Twachya Artavjanan*	*Vataroga Agnimandhya Yoniroga*
Lashuna	*Madhur Lavan Tikta Katu Kashay*	*Snigdha Guru Tikshna Sara*	*Ushna*	*Katu*	*Vata Kapha hara*	*Balya Rasayan*	*Vata vyadhi (Lashuna Prabhanjan) Shula Vibandha Gulma Krimi*

Hingu	*Katu*	*Laghu Snigdha Tikshna*	*Ushna*	*Katu*	*Kaph-Vat hara*	*Artavjanan Shulahara Anulomaniya Balya*	*Artavdosha Shula Gulma Agnimandhya*

TABLE NO.03.2 CHEMICAL CONSTITUENTS AND ACTION OF THE INGREDIENTS OF *KANASHATAWAHADI KASHAYA*[22 to 38]

DRUG	CHEMICAL CONSTITUENTS	ACTION
KANA	Essential oil Caryophyllene Piperine Piplartine Piperlongumine Pipercide Sesamine Beta sitosterol, 4 artistolactams, Cepharanone B Aristolactum Piperlactum A & Piperlactum B.	Hypoglycemic Activity Antiobesity Antidepressent Antioioxidant Hepatoprotective Melanin inhibiting activity
SHATAWAHA	Carvone, Dihydrocarvone, Limonene Apiol Dill-apial, Alpha berga motene, Transdihydrocarvone Beta Caryaphyllene, Cagenol, Cis ocimene, Diffuran, Beta Sitosterol.	Antioxidant Activity Digestive Anti spasmodic Rich saurce of phytoestrogens Antidiabetic Enhance follicular maturity Correct menstrual irregularity
DEVADARU	Essential oil P-Methylacetophenone Atlantone Sesquiterpenes α & β Himochalene Deodarin Toxifolin.	Antidiabetic effect Antioxidant effect Antispasmodic effect Immunomodulator Hepatoprotective Analgesic Antihyperlipidemic

BHARANGI	Hispidulin 7-Glucoronides Scutellarein Uncinatone Pectolinarigenin	Hepatoprotective effect Analgesic effect Antioxidant Anti-inflammatory Hypoglycemic effect Anti-Obesity Inhibited prostaglandin synthesis
KULATHTHA	Essential oil P-Methylacetophenone Atlantone Sesquiterpenes α & β Himochalene Deodarin Toxifolin.	Analgesic Antiinflammatory Antihepatotoxic Antiobesity Antimicrobial Antidiabetic Removing free radicals
TILA	Neutral lipids Glylcolipids Phospholipids Sesamose Sesamolin Sesamolinon Sesamol Pinoresinol, Oil substance protein, carbohydrates, minerals, calcium, phosphorus, vitamin- A, B, & C etc. Two components like sesamin and sesamalin A	Antioxidant Antodiabetic Antihyperlipidemic Hepatoprotective. It stimulate ovulation Decrease production of Testosterone Decrease androgen levels By increasing SHBG. Helps to absorption of insulin Have Phytoestrogen Immunomodulater

LASHUNA	Allin Carbohydrates Vitamins Aminoacids Enzymes Volatile compounds Triglycosides Prostaglandins A2 D2 E2 F2 Allymethylselenide Ajoene Prosteoruboside β.	Antioxidant Antidiabetic ,Analgesic Antihyperlipidemic Hepatoprotective. Contractive effect on uterus Digestive, Enhance implantation Enhance fertility Inhibin ovarian cancer cells Increase folliculogenesis
HINGU	A-Pinene Phellandrene A-Trisulfide Asaresinotannol Farnesiferon Gummosin Kamolonon Mogoltadone Polyanthinin Polyanthin Undecylsulfonyl acetic acid Umbelliferone.	Anti spasmodic Digestive Excites the secretion of Progesterone Antiobesity Hepatoprotactive Anti diabetic
KARANJ	Karanjin Pongapin 3 – methoxypongapin Pongaglabrone Kanjone Pongol Gamatin Lonchocarpin Isolonchocarpin Porgachromene Isopongaflovone Pongamol Glabrin Ovaliterone Kanugin Cemethaxykanugin Neoglabrin Pongamin	Hypoglycemic effect Analgesic effect Anti stress activity Antiinflammatory Antioxidant Antispasmodic
LATAKARANJ	L-ethylideneglutamic acid Amino acid α-caesal pins Caesalpin Bonducelline	Hypoglycemic effect Immunomoduatory Analgesic Hepatoprotective Adaptogenic Antioxidant Antiinflammatory Antiestrogenic effect

PCONIDD CAPSULE:

FIGURE NO.03.11 CAPSULE PCONIDD

As per *Samprapti* of PCOD postulated, it is considerable that in this condition mainly *Kapha* and *Vata* is involved. Both of them are responsible for the *Sanga* and *Vimargaman* type of Srrotodushti. In ayurvedic classics, as we know, there is no any single condition, which can be compared to PCOD. As PCOD is represented by menstrual irregularities mainly which are included Artavakshaya i.e Irregular menses or scanty menses. So for the present study, Capsule PCONIDD used. This medicine is from Snehnatura Pharmacy use for PCOD. It

contains Ashoka Karvellak Meshshrungi Jambu Mamejjak Haridra Shatavari Bilva Bala Guduchi Nimba Twaka Lodhra Yashad Shilajit. All these drugs are having mainly Katu-Tikta-Kashay rasa, Laghu, Ruksha, Tikshna Guna, Ushna Virya and VataKaphaghna Doshaghnata.Which break down the samprapti of PCOD and related symtoms.

DETAIL DESCRIPTION OF THE DRUG:-

1. ***ASHOKA***[39,40]

FIGURE NO.03.12 *ASHOKA*

LATIN NAME: *Saraca asoka*

FAMILY: Caesalpinoidea

VERNACULAR NAME:

HINDI : Ashoka

ENGLISH: Ashoka

GUJARATI: Ashoka

MARATHI: Ashoka

TELUGU: Ashoka, Chettu

TAMIL: Ashogam

SYNONYMS: *Kankeli Madhupushpa Raktapallav Vanjulah Hemapushpa Gatshoka*

CLASSICAL CATEGORIZATION

CHARAKA: *Kashayskandh Vedanasthapana*

SUSRUTA: *Rodhradi*

VAGBHATTA: *Rodhraddi*

PART USED: Bark

RASA PANCHAK

RASA: Kashay Tikta

GUNA: Laghu Ruksha

VIRYA: Shita

VIPAKA: Katu

DOSHGHNTA: Pitthara

KARMA: Raktarodhaka Shothahara Vranya Grahi Hrdya

INDICATION: *Raktapradar Mutraghat Apachi Trushna Daha Krimi Ashamari*

CHEMICAL CONSTITUENTS

Alkanes Esters Primary alcohols H-Octacosanol Tannin Catachin Iron Catechol (+) (-) Epicatechin.

2. *KARVELLAK* [41]

FIGURE NO.03.13 *KARVELLAK*

LATIN NAME: *Mormordica charntina*

FAMILY: Cucurbitaceae

VERNACULAR NAME:

HINDI : Karela

ENGLISH: Bitter Gourd

GUJARATI: Karelu Kadvi lobhi

MARATHI: Karle

TELUGU: Kakar kaya

TAMIL: Pavaikkai

SYNONYMS: Kathillam Susavi

CLASSICAL CATEGORIZATION

CHARAKA: *Tikta Skandh*

SUSRUTA: *Aragvadhadi gana*

VAGBHATTA: *Aragvadhadi gana*

PART USED: Fruit

RASA PANCHAK

RASA: Tikta Katu

GUNA: Laghu Ruksha

VIRYA: Sita

VIPAKA: Katu

DOSHGHNTA: Kapha pitta hara

KARMA: Dipan Bhedana

INDICATION: *Artavjanan Mutral Chakshushya Prameha Jvara Krimi Pandu*

CHEMICAL CONSTITUENTS

Charantin Polypeptide-P Protain K^+

3. *MESHSHRUNGI*[42,43]

FIGURE NO.03.14 *MESHSHRUNGI*

LATIN NAME: *Gymnema sylvesta*

FAMILY: Asclepiaclaceae

VERNACULAR NAME:

HINDI : Gudmar

ENGLISH: Gymnema

GUJARATI: Dhuleti Mardasingi

MARATHI: Kavali Vakundi

TELUGU: Mesam kompu

TAMIL: Podapatri

SYNONYMS: *Aja Sringika Madhunasini Visani*

CLASSICAL CATEGORIZATION

CHARAKA: *Tilvak Kalpa*

SUSRUTA: *Varunadi gana Salasadigan* ---

PART USED: Leaf

RASA PANCHAK

RASA: Kashay Tikta

GUNA: Laghu Ruksha

VIRYA: Ushna

VIPAKA: Katu

DOSHGHNTA: Kaph vata hara

KARMA: Dipan Sramsaman

INDICATION: *Madhumeha Kushtha Krimi Vrana Kasa Swasa*

CHEMICAL CONSTITUENTS

Gymnemic acid Gymnemine Gymnemagenin Gypemosies

4. *JAMBU*[44,45] :

FIGURE NO.03.15 *JAMBU*

LATIN NAME: *Syzygiumm jambolana*

FAMILY: Myrtaceae

VERNACULAR NAME:

HINDI : Jamun

ENGLISH: Jaman

GUJARATI: Jambu

MARATHI: Jamba

TELUGU: Neredu chettu

TAMIL: Saval naval

SYNONYMS: *Kokileshta Pikabhaksha Phalendra Surbhipatra*

CLASSICAL CATEGORIZATION

CHARAKA: *Mutrasangrahaniya Purishvisarjaniya Chchardinigrahana*

SUSRUTA: *Nyoghradigana*

VAGBHATTA: *Nyoghradi gana*

PART USED: Fruit

RASA PANCHAK

RASA: Kashay Madhur Amla

GUNA: Laghu Ruksha

VIRYA: Sita

VIPAKA: Katu

DOSHGHNTA: Kapha Pittahara VATAVARDHAKA

KARMA: Grahi

INDICATION: *Madhumeha Atisara Chchardi Raktapitta Daha Vrana Raktapradar Ashmari*

CHEMICAL CONSTITUENTS

Eugenia Triterpenoids A&B Oleanolic acid Malic acid Glucose Fructose Gallic acid.

5. HARIDRA [46,47]

FIGURE NO.03.16

LATIN NAME: *Curcuma longa*

FAMILY: Zingiberaceae

VERNACULAR NAME:

HINDI : Haldi

ENGLISH: Curcuma, turmeric

GUJARATI: Haladar

MARATHI: Haridra Halad

TELUGU: Asiyatika

TAMIL: Manjal

SYNONYMS: *Nisha Yoshipriya Hattavilasini Kimighna Pittakanchini Gauri*

CLASSICAL CATEGORIZATION

CHARAKA: *Lekhaniya Kushthaghna Kandughna Krimighna Shirovirechaniya*

SUSRUTA: *Haridradi Mustadi Sleshamsaman*

VAGBHATTA: *Haridradi Mustadi Sleshamsaman*

PART USED: *Kanda* (Rhizome)

RASA PANCHAK

RASA: Tikta Katu

GUNA: Laghu Ruksha

VIRYA: Ushna

VIPAKA: Katu

DOSHGHNTA: Kapha pitta hara

KARMA: Lekhana Vrushy Vranya Sodana Kandughna Sothahara Mutra sangrahaniya Krimigjna

INDICATION: *Prameha Kushtha Krimi Kandu Vrana Pandu Kamala Aruchi*

CHEMICAL CONSTITUENTS

Curcumene Curcumenone Curcone CurdioneCinele Curze renone Epiprolucrymenol Eugenol amphene Camphor Borneol Procurmadiol Curcumins konan A B & D, β-Sitosterolets.

6. *SHATAVARI*[48,49]

FIGURE NO.03.17 *SHATAVARI*

LATIN NAME: *Asparagus racemosus*

FAMILY: Liliaceae

VERNACULAR NAME:

HINDI : Satavare

ENGLISH: Asparagus

GUJARATI: Satavari

MARATHI: Satavari

TELUGU: Pillipichara

TAMIL: Sadavare

SYNONYMS:

CLASSICAL CATEGORIZATION

CHARAKA: *Balya Vayasthapan Madhurskandhan*

SUSRUTA: *Vidarigandhadi Pittasamsaman Kantakmula*

VAGBHATTA: *Vidarigandhadi*

KASHAYAP: *Satpushpa shatavari kalpa for Vandhyatva*

PART USED: Root

RASA PANCHAK

RASA: Madhur Tikta
GUNA: Guru Snigdha
VIRYA: Shita
VIPAKA: Madhura
DOSHGHNTA: Vata Pitta hara
KARMA: Rasayan Vrushya Stanyajanan
INDICATION: *Stanya kshya Artavkshaya Raktapitta Arsha Atisara Grahni Gulma*

CHEMICAL CONSTITUENTS

Sarsapogenin two spirostanolic two furostanolic sponins sitosterol Asparagamine.

7. BILVA[50,51] :

FIGURE NO.03.18

LATIN NAME: *Aegle marmelos*

FAMILY: Rutaceae

VERNACULAR NAME:

HINDI: Bilv

ENGLISH: Bael

GUJARATI: Bilva

MARATHI: Bel

TELUGU: Bilva

TAMIL: Maredu

SYNONYMS: *Malurah Sandilya Sailusa Sriphala Gandha garbha Sadphala Kantaki Granthila Mahakapitha*

CLASSICAL CATEGORIZATION

CHARAKA: *Shothhara Arshoghna Asthapanopaga Bruhat panchmula*

SUSRUTA: *Varunadi Aambasthadi Bruhat Panvhmula*

VAGBHATTA: *Varunadi Aambasthadi*

PART USED: Bark

RASA PANCHAK

RASA: Kashay Tikta

GUNA: Laghu Ruksha

VIRYA: Ushna

VIPAKA: Katu

DOSHGHNTA: Vata Kapha hara

KARMA: Grahi Dipan Pachan

INDICATION: Atisara Grahani Prameha Soth Agnimandhya

CHEMICAL CONSTITUENTS

Xanthotoxin Umbeliferone Marmesin Marmin Skimmin Furoquinoline βsteroids

8. BALA [52,53] :

FIGURE NO.03.19 *BALA*

LATIN NAME: *Sida cardifolia*

FAMILY: Malvaceae

VERNACULAR NAME:

HINDI : Khirainnti

ENGLISH: Country Mollow

GUJARATI: Jungli methi

MARATHI: Chikana

TELUGU: chittamuttie

TAMIL: Mayir manikham

SYNONYMS: *Vatya, Vatyalika, Vatyapushpa, Vatvyadhi, Bhadroudani*

CLASSICAL CATEGORIZATION

CHARAKA: *Balya, Bruhaniya, Prajasthapan, Madhurskand*

PART USED: Leave

RASA PANCHAK

RASA: Madhur

GUNA: Laghu Snigdha Picchil

VIRYA: Sita

VIPAKA: Madhur

DOSHGHNTA: Vata Pitta hara

KARMA: Balya, Bruhaniya, Vrushya

INDICATION: *Raktapitta, Vatvyadhi, Prameha, Kshaya*

CHEMICAL CONSTITUENTS

Ephedrine, Hypaphorine, Vasicinone, Vassccicine, choline, Betaine, Phytosterol.

9. GUDUCHI[54, 55]:

FIGURE NO.03.20 *GUDUCHI*

LATIN NAME: *Tinospora cordifolia*

FAMILY: Menispermaceae

VERNACULAR NAME:

HINDI : Chhinnaruha, Giloy

ENGLISH: Indian Tinospora

GUJARATI: Galo

MARATHI: Guduchi

TELUGU: Tippa teega

TAMIL: Akaca valli

SYNONYMS:

Avyatha,Amruta,Amritvalli,Kundali,Guduchika,Gundra,Chakralakshana, Chakrangi,Jivantika,Jvaranashini,Bhishakpriya,Rasayini,Somvalli.

CLASSICAL CATEGORIZATION

CHARAKA: *Vayasthapana, Dahaprashaman, Trishna nigrahan, Truptighna, Stanyasodhana*

SUSRUTA: *Guduchyadi, Patoladi, Valli panchmula, Aaragvadhadi, Kakolyadi*

ASTANGSANGRAHA: *Guduchyadi, Patoladi, Aragvadhadi*

DHANVANTARI NIGHANTU: *Guduchyadi varga*

PART USED: Stem

RASA PANCHAK

RASA: Tikta, Kashay

GUNA: Guru, Snigdha

VIRYA: Ushna

VIPAKA: Madhura

DOSHGHNTA: Tridoshahara

KARMA: Medhya, Rasayana, Dipaniya, Grahi, Medohara, Daha prashaman

INDICATION: *Pandu, Prameha, Kushtha, Medoroga*

CHEMICAL CONSTITUENTS

Tinosporin, Tinosporide, beta sitosterol, Cordifol, Heptacosanol, Octacosanol, Isocolumbin, Tetrahydropalmatime, Magnoflarine, Palmatine.

10.NIMBA [56,57]:

FIGURE NO.03.21

LATIN NAME: *Azardirachta indica*

FAMILY: Meliaceae

VERNACULAR NAME:

HINDI: Nim

ENGLISH: Neem tree

GUJARATI: Limado

TELUGU: Vepachettu

TAMIL: Vembu

SYNONYMS: *Arista, Pichumanda, Sarvatobhadra, Hinguniryasa, Sukpriya, Subhadra, Sutika*

CLASSICAL CATEGORIZATION

CHARAKA: *Kandughna, Tikstaskandha*

SUSRUTA & VAGBHATTA: *Aragvadhadi, Lakshadi, Guduchyadi*

PART USED: Leaves

RASA PANCHAK

RASA: Tikta, Kashay

GUNA: Laghu, Ruksha

VIRYA: Sita

VIPAKA: Katu

DOSHGHNTA: Kapha Pittahara

KARMA: Dipana, Grahi, Raktasodhaka, Garbhashayauttejaka

INDICATION: *Kushtha, Prameha, Gulma*

CHEMICAL CONSTITUENTS

Azadirachtin,Azardirachtaninn,Nimbandiol,Nimbin,Nimbolide,Nimbin,Sitosterol,ulinone,Margosinolide,Nimbi,Nimbidi,Azdirachtol,Melianone,Nimbiol,Tocopherol,Azadirone,Azadiradione,Nimbinin,Salannol,Nimbin,Sitosterol,Kullinone,Margosinolide,Tocopherol,Margosene,Arachidic acid.

11.TWAKA [58, 59]:

FIGURE NO.03.22

LATIN NAME: *Cinnamomum zeylanica*

FAMILY: Lauraceae

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VERNACULAR NAME:

HINDI : Dalchini

ENGLISH: Cinnamon

GUJARATI: Taja

TELUGU: Lavanga patta

TAMIL: Iiayangam

SYNONYMS: *Utkala, Tanutwaka, Varanga, Twakpatra, Bharngam, Kavacha, Saala, Saihal, Latapatra, Ramapriya*

CLASSICAL CATEGORIZATION

SUSRUTA: *Eladi*

VAGBHATTA: *Eladi, Trijatak*

PART USED: Bark

RASA PANCHAK

RASA: Katu, Tikta, Madhura

GUNA: Laghu, Ruksha, Tikshna

VIRYA: Ushna

VIPAKA: Katu

DOSHGHNTA: Vata-Pittahar

KARMA: Balya, Vranya, Grahi, Garbhashay sankochana

INDICATION: *Aamjirna, Aruchi, Krimi*

CHEMICAL CONSTITUENTS

Cinnacassiol $C_{1,}$ Cinncassiol D_4, Cinnamaldehyle,Benzadehyde,Eugenon, Methylamylketone,Pinene,Cymene,Linalool,Safrole,Borneol,Cinnamyl Alchohol, Epicatizchin(-),Cinnacassiol $D_{1,}$Cinnzeylani etc.

12.MAMEJJAK[60]:

FIGURE NO.03.23 *MAMEJJAK*

LATIN NAME: *Enicostemma littorale*

FAMILY: Gentianacea

VERNACULAR NAME:

GUJARATI: Mamejjavo

SYNONYMS*:* *Nagjihva, Nahi, Mamejjak, Tikshnapatra*

PART USED: *Panchang*

RASA PANCHAK

RASA: Tikta

GUNA: Laghu, Ruksha

VIRYA: Ushna

VIPAKA: Katu

DOSHGHNTA: Kapha-Pittahara

KARMA: Dipaniya, Aampachak, Sarak, Raktasodhak, Lekhaniya

CHEMICAL CONSTITUENTS

Alkaloids, Catechins, Saponin, Sterols, Tritepinoids, Phenolic acids, Flavonoids, Xanthones, Minerals

13.LODHRA[61] :

FIGURE NO.03.24 *LODHRA*

LATIN NAME: Symplocos racemosa

FAMILY: Symplocaceae

VERNACULAR NAME:

HINDI : Lodhra

ENGLISH: Symplocos tree

GUJARATI: Lodhara

MARATHI: Lodha

TELUGU: Lodhuga

TAMIL: Belli lotai

SYNONYMS: *Nayanousadha, Akhsibhaisajya, Sthula valkala, Tilvaka, Tirita, Kansahina, Bhilli, Rodhra, Sarvaka, Sambara, Kakakila, Hasti*

CLASSICAL CATEGORIZATION

CHARAKA: *Sonita sthapana, Sandhaneeya, Purisha sangrahaniya, Kashaya skandhya*

SUSRUTA: *Lodhradi, Nayarodhadi gana*

VAGBHATTA: *Rodhradi, Nyagrodhad*

PART USED: Stembark, Flower

RASA PANCHAK

RASA: Kashaya

GUNA: Laghu, Ruksha

VIRYA: Shita

VIPAKA: Katu

DOSHGHNTA: Kapha pitta hara

KARMA: Asrajita, Vireki

INDICATION: *Raktapitta, Pravahika, Swetpradara*

CHEMICAL CONSTITUENTS:

Proanthocyanidin-3-monogluco-furanosides of 7-0-methyle and 4-o-methyle-leucopelargonidin and glycosides.

14.SHILAJIT[62]:

FIGURE NO.03.25 *SHILAJIT*

5th Mineral drug in *Maharasa* group.*Shila* means Rock/Mountain and *Jatu* means *Laksha.*

English NAME: Black Bitumen & Asphaltum Pinjabinum.

SYNONYMS: *Silajatu, Shailya, Shilait, Shail dhatu, Shilamay, Shilasweda, Shila niryas*

TYPES

1. *Gomutragandhi shilajatu*

2. Karpurgandhi Shilajit

RASA PANCHAK

RASA: Tikta

VIPAKA: Katu

KARMA: Deha dadhyakara, Medha smrutikara, Balya.

INDICATION: *Balya, Shoth, Pandu, Agnimandhya, Udarroga, Sthaulya Prameha, Kushtha, Gulma.*

CHEMICAL CONSTITUENT:

Fulvic acid is collection of Hormones, Nutrients, Antioxidents, Enzymes, and Bactericidal Substances.

Properties: Antiviral, Antifungal, Biochemicals, Phytochemicals.

15. YASHAD [63] :

FIGURE NO.03.26 YASHAD

Zinc –Zn

SYNONYMS: Yasad, Jasad, Ritihetu, Kharparaj, Rangsankash

RASA PANCHAK

RASA: Kashay, Katu

GUNA: Shita

KARMA: Rajastrav Nishudanam, Sharamahara, Avasadahara, Bala-Virya-Viveka samrudhikara

INDICATION: *Pandu, Prameha, Aratavdushti*

CHEMICAL CONSTITUENTS: Calcined and pure zinc.

TABLE NO.03.3 *RASAPANCHAKA, DOSHGNTA,KARMA* & R*OGGHNTA* OF INGREDIENTS OF PCONIDD CAPSULE

Drug Name	*Rasa*	*Guna*	*Virya*	*Vipak*	*Doshghnta*	*Karma*	*Rogghnta*
Ashoka	*Kashay Tikta*	*Laghu Ruksha*	*Shita*	*Katu*	*Pitthara*	*Raktarodhaka Shothahara Vranya Grahi Hrdya*	*Raktapradar Mutraghat Apachi Trushna Daha Krimi Ashamari*
Karvellak	*Tikta Katu*	*Laghu Ruksha*	*Shita*	*Katu*	*Kapha Pitta hara*	*Dipan Bhedana*	*Artavjanan Mutral Chakshushya Prameha Jvara Krimi Pandu*
Meshshrungi	*Kashay Tikta*	*Laghu Ruksha*	*Ushna*	*Katu*	*Kaph Vata hara*	*Dipan Sramsaman*	*Madhumeha Kushtha Krimi Vrana Kasa Swasa*

Jambu	*Kashay Madhur Amla*	*Laghu Ruksha*	*Shit*	*Katu*	*Kapha Pittahara Vatavrodhaka*	*Grahi*	*Madhumeha Atisara Chchardi Raktapitta Daha Vrana Raktapradar Ashmari*
Haridra	*Tikta Katu*	*Laghu Ruksha*	*Ushna*	*Katu*	*Kapha Pitta hara*	*Lekhana Vrushy Vranya Sodana Kandughna Sothahara Mutra sangrahaniy a Krimigjna*	*Prameha Kushtha Krimi Kandu Vrana Pandu Kamala Archi*
Shatavari	*Madhur Tikta*	*Guru Snigdha*	*Shita*	*Madhur a*	*Vata Pitta hara*	*Rasayan Vrushya Stanyajanan*	*Staya kshya Artavkshaya Raktapitta Arsha Atisara Grahni Gulma*
Bilva	*Kashay Tikta*	*Laghu Ruksha*	*Ushna*	*Katu*	*Vata Kapha hara*	*Grahi Dipan Pachan*	*Atisara Grahani Prameha Soth Agnimandhya*
Bala	*Madhur*	*Laghu Snigdha Picchil*	*Shita*	*Madhur a*	*Vata Pitta hara*	*Balya Bruhaniya Vrushya*	*Raktapitta, Vatvyadhi Prameh Kshaya*
Lodhra	*Kashay*	*Laghu,R uksha*	*Shita*	*Katu*	*Kapha pitta hara*	*Asrajita Vireki*	*Raktapitta, Pravahika Swetpradara*
Guduchi	*Tikta, Kashay*	*Guru, Snigdha*	*Ushna*	*Madhur a*	*Tridoshahara*	*Medhya, Rasayana Dipaniya Grahi Medohara Daha prashaman*	*Pandu Prameha Kushtha Medoroga*

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Nimba	*Tikta, Kashay*	*Laghu Ruksha*	*Shita*	*Katu*	*Kapha Pitta hara*	*Dipan ,Grahi Raktasodha kaGarbhash ayauttejaka*	*Kushtha Prameha Gulma*
Twaka	*Katu,Ti kta,Ma dhura*	*Laghu Ruksha Tikshna*	*Ushna*	*Katu*	*Vata-Pitta har*	*Balya Vranya Grahi Garbhashay sankochana*	*Aamjirna Aruchi Krimi*
Mamejjak	*Tikta*	*Laghu Ruksha*	*Ushna*	*Katu*	*Kapha-Pitta hara*	*Dipaniya Aampachak Sarak Raktasodha k Lekhaniya Vishaghna*	*Dipaniya Aampachak Sarak Raktasodha Lekhaniy Prmehghna*
Shilajit	*Tikta*	--------	----------	*Katu*	--------	*Deha dadhyakara Medha smrutikara Balya*	*Balya Shoth Pandu Agnimandhya Udarroga Sthaulya Prameha Kushtha Gulma*
Yashad	*Kashay, Katu*	*Shita*	-----	-------	--------	*Rajastrav Nishudanam Sharamahar a,Avasadah ara,Bala-Virya-Viveka Samrudhika ra*	*Pandu Prameha Aratavdushti*

TABLE NO. 03.4 CHEMICAL CONSTITUENTS AND ACTION OF THE INGREDIENTS OF PCONIDD CAPSULE:

Name Of Drug	Chemical Constituents	Action
Ashoka	Alkanes Esters Primary alcohols H-Octacosanol Tannin Catachin Iron Catechol (+) (-) Epicatechin.	Antidiabetic Antiinflammatory Regulates menses Stimulate ovarian tissues and regulate ovulation, Antiacne Antiobesity Regulate estrogen
Karvellak	Charantin Polypeptide-P Protain K^{+}	Antidiabetic Antiinflammatory Antitumor Antibacterial Analgesic
Meshshrungi	Gymnemic acid Gymnemine Gymnemagenin Gypemosies	Antidiabetic Antihyperlipidemic Immuno stimulatory Hepatoprotective
Jambu	Eugenia Triterpenoids A&B Oleanolic acid Malic acid Glucose Fructose Gallic acid.	Antidiabetic Antii nflammatory Cardioprotective Hepatoprotective Antimicrobial Anti-hyperlipidemic Anti-obesity

Haridra	Curcumene Curcumenone Curcone CurdioneCinele Curze renone Epiprolucrymenol Eugenol amphene Camphor Borneol Procurmadiol Curcumins Ukonan A B & D, β-Sitosterolets.	Antidiabetic Antiobesity Antiinflammatory Hepatoprotective Anticarcinogenic Cardioprotective Protective role in skin disorders
Shatavari	Sarsapogenin two spirostanolic two furostanolic sponins sitosterol Asparagamine	Antioxidant Activity Digestive Anti spasmodic Activity Correct the hormonal influence and enhance follicular maturity Stimulate ovulation
Bilva	Xanthotoxin Umbeliferone Marmesin Marmin Skimmin Furoquinoline βsteroids	Antioxidant Antidiabetic Antimicrobial Antiobesity Hepatoprotective Antibacterial Antithyroid
Bala	Ephedrine, Hypaphorine, Vasicinone, Vassccicine, choline,Betaine,Phytosterol	Antiinflammatory Analgesic Antistress Antiobesity Antidiabetic Anticancer Antibacteria; Hepatoprotective

Twaka	Cinnacassiol C1, Cinncassiol D4, Cinnamaldehyle,Benzadehyde,Eugenon,Methyl amyl ketone,Pinene,Cymene,Linalool,Safrole,Borneol,Cinnamyl Alchohol, Epicatizchin(-),Cinnacassiol D1,Cinnzeylani etc.	Hypoglycemic Improve insulin sensitivity Improve menstrual irregularity Antiobesity Hepatoprotective Antioxident Antihyperlipidemic Reduce IGF Increase IGFBP-1 in plasma and ovarian tissue
Mamejjak:	Alkaloids,Catechins, Saponin,Sterols, Tritepinoids, Phenolic acids, Flavonoids,Xanthones,Minerals	Antidiebetic, Antioxident Hepatoprotective Antimicrobial Anti inflammatory Antitumor Hepatomodulatory Anti hyperlipidemic
Lodhra	Proanthocyanidin-3-monogluco-furanosides of 7-0-methyle and 4-o-methyle-leucopelargonidin and glycosides.	Antiandrogenic Antiobesity Antioxident Hypolipidemic Anti-acne Hepatoprotective Prevent ovarian cell dysfunction Improve fertility Stimulate FSH Enhance folliculogenesis Increase ovarian weight due to FSH surge

Shilajit	Fulvic acid is collection of Hormones, Nutrients, Antioxidents, Enzymes, and Bactericidal Substances.	Anti inflammatory Immunomodulatory Antidiabetic Antiobesity Antihyperlipidemic Cardioprotective Blood detoxifire Antiviral Antifungal Biochemicals Phytochemicals.
Yashad	Calcined and pure zinc.	Immunomodulator Antidiabetic Antiinflammatory Haematogenic Digestive stimulant
Guduchi	Tinosporin , Tinosporide, beta sitosterol, Cordifol,Heptacosanol, Octacosanol,Isocolumbin, Tetrahydropalmatime, Magnoflarine, Palmatine.	Hypoglysemic Antinflammatory Antidiabetic Anticancer Antitumor Antioxidant Analgesic Heapatoprotective Antidepressant Lowering serum Testosterone Immunomodulator

Nimba	Azadirachtin, Azardirachtaninn Nimbandiol Nimbin, Nimbolide, Nimbin, Sitosterol ulinone Margosinolide Nimbi Nimbidi,Azdirachtol Melianone,Nimbiol,Tocopherol,Azadirone Azadiradione Nimbinin,S alannol, Nimbin,Sitosterol, Kullinone, Margosinolide, Tocopherol, Margosene, Arachidic acid.	Antidiabetic Antiinflammatory Antioxidant Hypolipidemic Anti-acne Hepatoprotective Prevent ovarian cell dysfunction

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85. https://www.researchgate.net/publication/8461753_Antifertility_effect_of_Tinospora_cordifolia_Willd_stem_extract_in_male_rats

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4791507/

PHARMACEUTICAL ANALYSIS:-

Analytical study for Physio-Chemical analysis of the drug was carried out in the Pharmaceutical Chemistry Laboratory of Parul Institute of Ayurved, Waghodia, Vadodara, Gujarat.

TABLE NO.04.1 DRUG ANALYSIS REPORT OF BOTH DRUGS

Drug Name	Drug 1- *Kanashatahwadi Kashay Ghanavati*
	DRUG 2- PCONIDD CAPSULE
Manufacturing Date	Drug 1 01/03/2019
	Drug 2 12 /O4/2019
Name Of scholar	Dr.Shweta N. Rathod
Thesis Title	Comparative Clinical Study To Evaluate The Effect Of *Kanashatahwadi Kashay Ghanavati* And Capsule PCONIDD In Artavakshaya W.S.R. To PCOD.
Department	Prasuti Tantra Evum Stree Roga
Year	2017-18

TABLE NO.04.2 ORGANOLEPTIC CHARACTERISTICS OF BOTH DRUGS

Sample	*Kanashatahawadi Kashay Ghanavati*	Capsule PCONIDD
Colour	Brown	Cream
Odour	Strong smell(Hingu)	Bitter
Taste	Bitter	Bitter
Consistency	Granules form	Powder

TABLE NO.04.3 PHYSIO-CHEMICAL PARAMETERS OF BOTH DRUGS

S.No	Parameter	*Kanashatahawadikashay Ghanavati*	Capsule Pconidd
1	Loss On Drying at 105^0c(%w/w)	7.27	0.45
2	Total Ash Value(%w/w)	9.90	36
3	Acid Insoluble Ash(%w/w)	1.5	8.5
4	Water Soluble Extractive (%w/w)	31	26.5
5	Alcohol Soluble Extractive(%w/w)	19	23.5
6	P^H Value (10%)	8	5
7	Particle size distribution	*Kanashatahwadi Kashay Ghanavati*	PCONIDD
8	10-20 mesh (%w/w)	98	100
9	20-40 mesh (%w/w)	38	100
10	40-60 mesh (%w/w)	12	95
11	80 mesh (%w/w)	03	35
12	120 mesh (%w/w)	0	15

TABLE NO. 04.4 QUALITATIVE ANALYSIS OF BOTH DRUGS

	Sample	**Kanashatahwadi kashay**	**PCONIDD**
S.No.	**Solvent**	**Present(+) / Absent(-)**	**Present(+) / Absent(-)**
1	Alkaloid	+	+
2	Tainin	+	+
3	Saponin	+	+
4	Volatile oil	+	+
5	Essential oil	+	+
6	Ascorbic acid	+	+
7	Sterol	+	+

TABLE NO.04.5 THIN LAYER CHROMATOGRAPHY (CAPSULE KANASHATAHWADIKASHAY)

- Extract: Methanol Soluble
- Solvent System: Ethyl acetate: Acetic acid (5:4)
- Distance travel by solvent: .5.8 cm

	DAY LIGHT		**LONG UV**		**SHORT UV**	
Spot No.	**Color of Spot**	**Rf value**	**Color of Spot**	**Rf value**	**Color of Spot**	**Rf value**
1.	Brown	0.68	Dark Brown	0.68	Yellowish	0.68
2.	Greenish Yellow	0.80	Yellowish Green	0.80	Light Yellow	0.80

TABLE NO. 4.6 THIN LAYER CHROMATOGRAPHY (PCONIDD)

- Extract: Methanol Soluble
- Solvent System: Toluene: Ethyl acetate (95:5)
- Distance travel by solvent: .7cm

	DAY LIGHT		LONG UV		SHORT UV	
Spot No.	**Color of Spot**	**Rf value**	**Color of Spot**	**Rf value**	**Color of Spot**	**Rf value**
1.	Yellowish green	0.07	Light Yellow	0.07	Light Yellow	0.07
2.	Green	0.3	Green	0.3	Light Yellow	0.3
3.	Pale Yellow	0.6	Pale Yellow	0.6	Pale Yellow	0.6

MATRIALS AND METHOD

This study evaluate the efficacy of Ayurvedic preparations capsule *Kanashatahwadikashaya* and capsule PCONIDD individually and in combination in *Artavkshaya* w.s.r to PCOD.

AIM:

- To compare the effect of capsule *Kanashatahwadikashay* and capsule PCONIDD and combine treatment protocol.

OBJECTIVES:

- Comprehensive study of *Artavakshaya* with special reference to PCOD.
- Comprehensive study of capsule *Kanashatahwadikashay* and capsule PCONIDD and its therapeutic evalution in PCOD.
- To evaluate the effect of capsule *Kanashatahwadikashay* and capsule PCONIDD on reduction of cyst and decreasing ovarian volume.
- To observe the effect of capsule *Kanashatahwadikashay* and capsule PCONIDD in regulation of menstrual cycle.

HYPOTHESIS:

- Capsule *Kanashatahwadikashay* and capsule PCONIDD have no effect on PCOD.
- Capsule *Kanashatahwadikashay* has effect on PCOD.
- Capsule PCONIDD has effect on polycystic ovarian disease.
- Both drugs have effect on polycystic ovarian disease.

MATERIALS:

LITERARY SOURCE:

- Ayurvedic Samhitas, modern text books, articles and previous research works were reffered in this study.

SAMPLE SOURCE:

The patients were registered from the IPD and OPD patients from Parul Ayurveda Hospital, Khemdas Ayurveda Hospital and Parul Sevashram Hospital after confirming the inclusion criteria.A special proforma was prepared to take history of patients.

MEDICINE SOURCE:

CAPSULE *KANASHATAHWADIKASHAYA*: Raw drugs were purchased and prepared from GMP certified Parul Ayurveda Pharmacy and authentication was done by Department of *Dravyaguna*, PIA, Parul University, Vadodara. Preparation of granules was done in Pharmacy of Parul Institute of Ayurveda, Waghodia, Vadodara and capsules filled in Dhanvantari pharmacy, Anand, Gujarat.

CAPSULE PCONIDD: Capsule PCONIDD were obtained from Snehanatura Pharmacy, Karnataka.

STUDY DESIGN:

- Randomized Open comparative clinical study.
- 30 patients who fulfil the diagnostic criteria were selected and allocated in 3 groups of 10 each randomly.
- **Group A : Capsule *Kanashatahwadikashaya***
- **Group B : Capsule PCONIDD**
- **Group C: Both Drugs**

SAMPLE SIZE: With the drop out rate 20%, 37 patients were fulfiling the inclusion criteria were selected randomly among them 30 patients were complete the study.

INCLUSION CRITERIA:

- 20-35 years of age irrespective of marital status.
- Patient presenting with symptoms of *Artavakshaya* and *Anartav* (amenorrhoea) ≤ 3 months
- USG showing features of PCO.
- Hyeperandrogenism

EXCLUSION CRITERIA:

- Patient suffering from any other disease cause *Anartav* and *Artavakshaya* excluding PCOD on the above criteria.
- Patient suffering with gross structural abnormalities of uterus and its appendages.
- Systemic illness like DM, thyroid dysfunction, HTN, renal disorders.
- Patient suffering from menorrhagia or metrorrhagia

INVESTIGATION:

- CBC ,ESR , RBS
- Urine (R/M)
- USG -pelvic and abdomen
- Serum testosterone level
- Thyroid function test
- S.LH
- S.FSH

CRITERIA FOR DIAGNOSIS:

- Patients having *Artavakshaya*
- USG pelvis showing features of PCO
- Increase ovarian volume
- Hyperandrogenism.

STUDY DURATION: 3 months

INFORMED CONSENT:

The benefits and risk of the study were explained to the patients in their language. Before starting the procedure, the written consent was taken.

CRITERIA FOR ASSESSMENT

Subjective parameters:

- Duration of bleeding
- Interval between 2 menstrualcycle
- Quantity of menstrual bleeding
- Pattern of menstrual cycle
- Pain during menstrual bleeding.

Objective parameters:

- Body weight
- Hirsutism
- Acne
- Ovarian volume
- No. of ovarian cyst

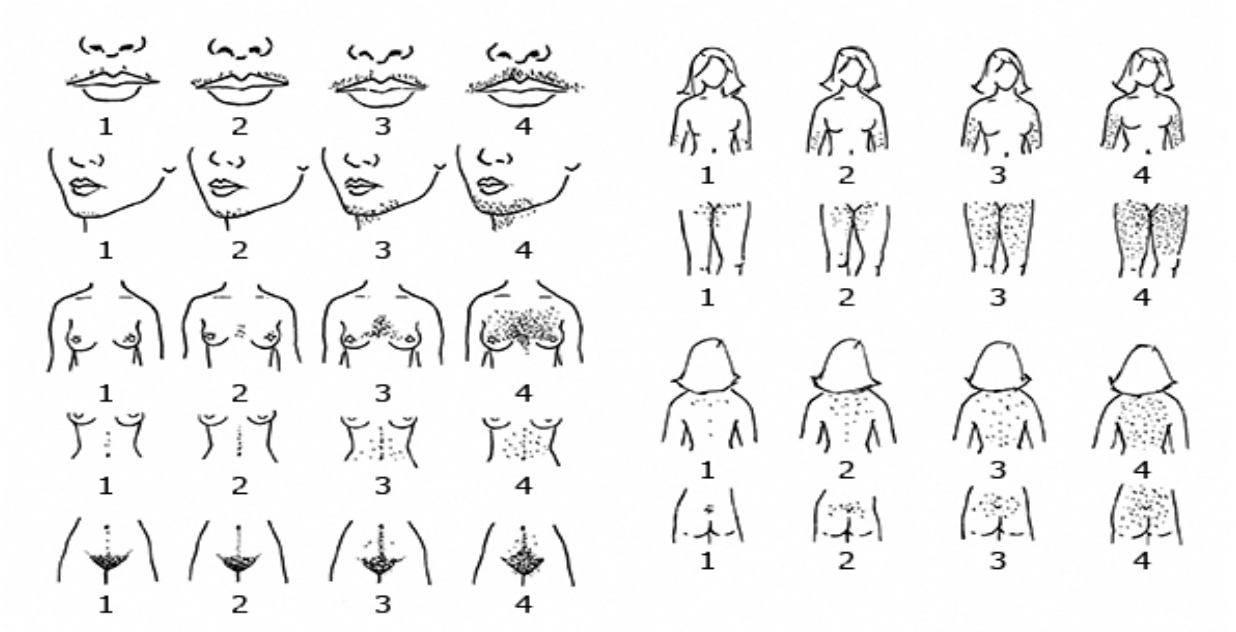
TABLE NO.5.1 SUBJECTIVE PARAMETERS

Sr.No.	SYMPTOM	VARIEBLE	SCORE
1.	DURATION OF BLEEDING	3-5 days	0
		1-2 days	1
		Spotting	2
2.	INTERVAL BETWEEN 2 MENSTRUAL CYCLE	<35 days	0
		36-45 days	1
		46 -60 days	2
		>60days	3
3	QUANTITY OF MENSTRUAL BLEEDING	>2 pads	0
		2 pads	1
		1 pad	2
		Spotting	3
4.	PATTERN OF MENSTRUAL CYCLE	Regular cycle	0
		Irregular cycle	1
5.	PAIN DURING MENSTRUAL BLEEDING	No pain	0
		Mild pain (Daily activities are not affected)	1
		Moderate pain (Daily activities affected,need to take analgesics)	2
		Severe pain patient (Daily activities inhibited,pain continuous after taking analgesics)	3

TABLE NO.5.2 OBJECTIVE PARAMETERS

S.N.	SYMPTOM	VARIEBLE	SCORE
1.	WEIGHT (on the basis of BMI by WHO)	18.5 to 24.9 kg/m^2(normal)	0
		25.00 to 29.9 kg/ m^2 (over weight)	1
		30.01 to 34.9 kg/m^2 (class 1 obesity)	2
		35.0 to 39.9 kg/m^2 (class 2 obesity)	3.
		>40(morbidly obese)	4.
2.	ACNE	NO	0
		Comedones ,occasional papules	1
		Papules ,comedones, few pustules	2
		Predominant pustules, nodules, abscesses	3
		Mainly cysts ,abscesses, wide spread scarring	4

HIRSUTISM (FERRIMAN GALLWAY SCORE):-



3.	HIRSUTISM	Normal (score less than 8)	0
		Medium coverage (score 8-15)	1

		Heavy coverage (score more than 15)	2

TABLE NO.5.3 CONTENTS OF THE DRUG CAPSULE

KANASHATAHWADI KASHAY

S.No.	DRUGS
1	*KANA(Piper longum)*
2	*SHATAWAHA (Anethum sowa)*
3	*KARANJA (Pongamia pinnata)*
4	*LATA KARANJA (Caeselphia crista)*
5	*DEVDARU(Cedrus deodara)*
6	*BHARANGI(Clerodendrum)*
7	*KULATHTHA (Marcotyloma uniflorum)*
8	*TILA (Sesamum indicum)*
9	*LASHUNA(Allium sativum)*
10	*HINGU(Ferula assafoetida)*

TABLE NO.5.4 CONTENTS OF THE DRUG CAPSULE PCONIDD

SR. NO.	DRUGS
1	*ASHOKA* (*Saraca indica*)
2	*KARVELLA* (*Momordica charantina*)
3	*MESHSHRUNGI(Gymmema sylveste)*
4	*JAMBU (Eugelena jamolana)*
5	*MAMEJJAKA (Enicostema littorale)*
6	*SHILAJIT*
7	*HARIDRA (Curcuma longa)*
8	*SHATAVRI(Aspargus racemosa)*
9	*BILVA(Aegle marmelos)*
10	*BALA (Sida cordifolia)*
11	*GUDUCHI(Tinospora cordifolia)*
12	*NIMBA (Azadirachta Indica)*
13	*TWAK(Cinnamomum zeylanicum)*
14	*YASHAD*

15.	*LODHRA (Symplocos racemosa)*

TABLE NO.5.5 METHOD- INTERVENTION

GROUPS	GROUP-A	GROUP-B	GROUP-C
Drug	*Capsule Kanashatawahadi*	Capsule PCONIDD	Both Drugs
Dose	2 capsules (500gm of each)	2 Capsules (500gm of each)	Both (500gm of each)
Route	Orally	Orally	Orally
Anupan	*Sukhoshna Jala*	*Sukhoshna Jala*	*Sukhoshna Jala*
Time Of Administration	Before Food -TDS	Before Food –TDS	Before Food –TDS
Follow Up	1 Month	1 Month	1 Month

NOTE: *Kanashatahwadikashaya* was planned to made in form of *Ghanavati* but as binding of *Ghanavati* could not be done due to *Snigdha Guna* of *Tila, Lashuna and Hingu*, leading to increase in fragility.So it was converted in to granules form and capsule filling was done under the advice of experts and as it can be more palatable and easy for dispensing.

ETHICAL CLEARANCE & CTRI REGISTRATION:

From Institutional Ethics Committee of PIA, Parul University, Vadodara ethical clearance was obtained.Vide **Ref.No.PU/PIA/IECHR/2019/56** dated **14/02/19** (Annexure-1).This study was registered with CTRI Number **CTRI/2019/10/021680** (Annexure-2).

PATHYA AHARA-VIHARA

- Take green leafy vegetables, fresh citrate fruits and salad.
- Regularly use *Krishna tila*, *Lashuna, Pippali*, *Shunthi, Ajamoda, Goghee, and Takra* in your food preparations.

- Take boiled warm water only.
- Do *Suryanamaskara* and *Pranayama* daily in the morning.

APATHYA:-

- Avoid junk food, fermented food preparations and colddrinks.
- Eat only fresh food.
- Do not sleep immediately after taking food.
- Avoid awakening at night.
- Avoid sleep in day time.
- Do not take excessive amount of Tea and Coffee.
- Mental stress

STATISTICAL ANALYSIS

- Non-parametric Kruskal-Wallis test was used to check whether the difference between before treatment and after treatment values between the three independent groups were significantly different from each other.
- Non-parametric test was used in this study bacause the data was not following normal distribution and there were more than two groups in the study.

DISCUSSION OF ANALYZING RESULTS:

Important finding, results and observations obtained from the study were critically analyzed to prove the efficacy of the selected *Ayurvedic* drugs in PCOD has been described in this chapter.

SUMMARY AND CONCLUSION

Summary and possible conclusion of the whole study based on obtained results and observations has been described in this chapter.

OBSERVATION OF THE STUDY

DEMOGRAPHIC DATA

AGE

Table no. 06.1: Age wise distribution of 37 patients.

AGE		
Years	**No. of patients**	**Percentage**
20-25	20	54.1
26-30	14	37.8
31-35	3	8.1
Total	37	100.0

Among 37 patients, maximun no. of patients i.e 20 (54.1%) belonged to age group of 20-25 years , followed by age group of 26-30 years 14(37.8%) and 3 patients (8.1%) of age group 31-35 years.

RELIGION

Table no.06.2 Religion wise distribution of 37 patients.

RELIGION		
	No. of patients	**Percentage**
Hindu	36	97.3
Muslim	1	2.7
Others	0	0
Total	37	100

Among 37 patients, maximun no. of patients i.e 36 (97.3%) patients were Hindu followed by 1 (2.7%) patient was Muslim.

DESHA

Table no. 06.3 *Desha* wise distribution of 37 patients.

DESHA		
	No. of patients	**Percentage**
Sadharana	37	100
Jangala	0	0
Total	37	100

All patients i.e; 37 patients (100%) were from *sadharana desha*.

MARITAL STATUS

Table no. 06.4 Marrital status wise distribution of 37 patients.

MARITAL STATUS		
	No. of patients	**Percentage**
Married	18	48.6
Unmarried	19	51.4
Total	37	100.0

Among 37 patients, 19 patients i.e 51.4% were married and 18 patients i.e 48.6% were unmarried.

EDUCATION:

Table no.06.5 Education wise distribution of 37 patients.

EDUCATION		
	No. of patients	**Percentage**
Graduate	24	64.9
Higher secondary	2	5.4
Post Graduate	8	21.6
Primary	3	8.1
Total	37	100.0

Among 37 patients, maximum no. of patients were graduate i.e. 24 patients (64.9%) followed by Post graduated 8 (21.6%) Primaray educated 3(8.1%) and 2 patients (5.4%) were Higher secondary educated.

OCCUPATION

Table no. 06.6 Occupation wise distribution of 37 patients.

	No. of patients	**Percentage**
Housewife	7	18.9
Labour	1	2.7
Service	11	29.7
Student	18	48.6
Total	37	100.0

Among 37 patients, maximum no. of patients were students i.e. 18 patients (48.6%) followed by 11(29.7) were from service class, 7(18.9%) were Housewife and 1 patient (2.7%) was Labour.

SOCIO-ECONOMICAL STATUS

Table no. 06.7 Socioeconomical status wise distribution of 37 patients.

SOCIO ECONOMIC STATUS		
	No. of patients	Percentage
Lower middle class	8	21.6
Middle class	26	70.3
Very Poor	3	8.1
Total	37	100.0

Among 37 patients, maximum no. of patients belongs to middle class i.e.26 patients (70.3%) followed by 8 (21.6%) patients were belong to Lower middle class and 3 patients (8.1%) belongs to very poor class.

MENARACHE

Table no. 06.8 Menarache wise distribution of 37 patients.

MENARACHE		
	No. of patients	**Percentage**
11-13 years	3	8.1
14-16 years	34	91.9
>15 years	0	00

Total	37	100.0

Among 37 patients, maximum no. of patients i.e 34 (91.9%) attained menarche at the age of 13-14 years and 3 patients (8.1%) attained menarche at age of 11-12 years of the age and none of patient attained menarache at the age more than 15 years.

SECONDARY CHARACTERS

Table no. 06.9 Breast development wise distribution of 37 patients.

Breast development	No. of patients	Percentage
Proper	37	100
Improper	00	00
Total	37	100.0

Among 37 patients, all patients i.e100% had proper development of breast.

Table no. 06.10 Vulva wise distribution of 37 patients

Inspection of vulva	No. of patients	Percentage
Proper	37	100
Improper	00	00
Total	37	100.0

Among 37 patients, all patients i.e 100% had normal vulva.

HISTORY

Table no.06.11 History wise distribution of 37 patients

HISTORY		
	No. of patients	**Percentage**
K/C/O PCOD	26	70.3
Not known	11	29.7
Total	37	100

Among 37 patients, 26 patients (70.3%) had History of known case of poly cystic ovarian disease.

NIDANA SEVANA

Table no.06.12 *Ahara-prakar* wise distribution of 37 patients

AHARA-PRAKARA		
	No. of patients	**Percentage**
Samisha	17	45.9
Niramish	20	54.1
Total	37	100

Among 37 patients, 20 patients i.e. 54.1% had taken *Niramish ahara* and 17 i.e 45.9% had taken *Samisha ahara*.

Table no.06.13 Dietary habits wise distribution of 37 patients

DIETARY HABITS		
	No. of patients	**Percentage**
Regular	00	00
Irreguar	37	100
Total	37	100

Among 37 patients, all i.e 100% had irregular dietary habits.

Table no. 06.14 *Rasapradhanyata* wise distribution of 37 patients

RASAPRADHANYATA		
	No. of patients	**Percentage**
Madhura	30	81
Amla	6	16.2
Katu	1	2.7
Total	37	100

Among 37 patients, 30 patients i.e 81% had taken *Madhurasapradhanya Ahara*, 6 patients i.e 16.2% had taken *Amlarasapradhanya Ahara*, 1 patient i.e 2.7% had taken *Katurasapradhanya Ahara.*

Table no.06.15 *Gunapradhanyata* wise distribution of 37 patients

GUNAPRADHANYATA		
	No. of patients	**Percentage**
Guru	34	91.8
Sheeta	2	5.4
Ruksha	1	2.7
Total	37	100

Among 37 patients, 34 patients i.e 91.8% had taken *Gurugunapradhanya Ahara*, 2 patients (5.4%) had taken *Sheetagunapradhanya Ahara*, 1 patirnt (2.7%) had taken Rukshagunapradhanya Ahara.

Table no. 06.16 *Ahara Nidana* wise distribution of 37 patients

PARAMETERS	**NO.OF PATIENTS**	**PERCENTAGE**
Ajeernashana	23	76.7%
Anashana	17	56.7%
Visamashana	12	40.0%
Adhyashana	9	30.0%
Samashana	5	16.7%

Among 37 patients, 23 patients (76.7%) had habit of *Ajeernashana*, 17 patients (56.7%) had *Anashana*, 12(40%) had V*ishamashana* and 9 patients (30%) had *Adhayshana*.

Table no.06.17 *Vihara Nidana* wise distribution of 37 patients

PARAMETERS	NO.OF PATIENTS	PERCENTAGE
Ratrijagarana	33	89.2%
Avyayama	29	78.4%
Diwaswapna	13	35.1%
Alasya	13	35.1%
Vegadharana	11	29.7%
Ativyayama	5	13.5%
Bharavahana	1	2.7%

Among 37 patients , 33 patients (89.2%) were having history of *Ratrijagarana*,29 patients (78.4%) were having *Avyayama*, 13 patients (35.1%) were having *Diwaswapna* and Alasya respectively, 11 patients (29.7%) were having habit of *Vegadharana*, 5 patients (13.5%) having *Ativyayama* and 1 patient (2.7%) having history of *Bharvahana*.

Table no.06.18 *Nidanas* wise distribution of 37 patients

PARAMETERS	NO.OF PATIENTS	PERCENTAGE
Junk food	32	86.5%
Cold drink	28	75.7%

Soda	15	40.5%
Chocolates	9	24.3%
Chinese food	8	21.6%
Ice cream	4	10.8%
Stress	3	8.1%
Fermented food	2	5.4%
Bakery items	1	2.7

32 patients (86.5%) had habit of taking Junk food,28 patients (75.7%)had habit of taking colddrinks,15 patients (40.5%)had habit of taking soda,9 patients (24.3%)had habit of taking chocolates,8 patients (21.6%)had habit of taking icecreams,3 patients (8.1%)had stress,2 patients (5.4%)had habit of taking fermented food items and 1 patient (2.7%) had history of taking bakery items.

PRAKRUTI

Table no.06.19 *Prakruti* wise distribution of 37 patients

PRAKRUTI		
	No. of patients	**Percentage**
Kapha-Vata pradhana	15	40.5
Vata-Kaphapradhana	14	37.8
Pitta-Kapha pradhana	08	21.6
Total	37	100

Among 37 patients, 15 patients (40.5%) had *Kapha-Vata pradhana* prakruti followed by 14patients (37.8%) had *Vata-Kapha pradhana* and 8 patients (21.6%) had *Pitta-Kapha pradhana prakruti.*

AKRUTI

Table no. 06.20 *Akruti* wise distribution of 37 patients.

AKRUTI		
	No. of patients	**Percentage**
Sthula	18	48.6
Madhyama	15	40.5
Krusha	4	10.8
Total	37	100

Among 37 patients, 18 patients (48.6%) had *Sthula Akruti* followed by 15 patients (40.5%) had *Madhayma Akruti* and 4 patients (10.8%) had *Krusha Akruti.*

SAARA

Table no. 06.21 *Saara* wise distribution of 37 patients

SAARA		
	No. of patients	**Percentage**
Pravara	1	2.7
Madhyama	36	97.3
Avara	0	0
Total	37	100

Among 37 patients, 36 patients (97.3%) had *Madhayma Saara* followed by 1 patient (2.7%) had *Pravara Saara* and none of patient had *Avara Saara.*

SAMHANAN

Table no.06.22 Distribution of patients based on *Samhanan*

SAMHANAN		
	No. of patients	**Percentage**
Pravara	0	0
Madhyama	36	97.3
Avara	1	2.7
Total	37	100

Among 37 patients, 36 patients (97.3%) had *Madhayma Samhanan,* 1 patient (2.7%) had *Avara Samhanan* and none of patient had *Pravara Samhanan.*

SATWA

Table no. 06.23 *Satwa* wise distribution of 37 patients

SATWA		
	No. of patients	**Percentage**
Pravara	1	2.7
Madhyama	36	97.3
Avara	0	0
Total	37	100

Among 37 patients, 36 patients (97.3%) had *Madhayma Satwa*, 1 patient (2.7%) had *Pravara Satwa* and none of patient had *Avara Satwa.*

SATMAYA

Table no. 06.24 *Satmaya* wise distribution of 37 patients

SATMAYA		
	No. of patients	**Percentage**
Pravara	0	0
Madhyama	37	100
Avara	0	0
Total	37	100

Among 37 patients, all i.e 100% patients had *Madhyama Satmya.*

AHARASHAKTI

Table no. 06.25 *Aharashakti* wise distribution of 37 patients

AHARASHAKTI		
	No. of patients	**Percentage**
Pravara	4	10.8
Madhyama	33	89.2
Avara	0	0

Total	37	100

Among 37 patients 33 patients (89.2%) had *Madhayma Aharashakti*, 4 (10.8%) had *Pravara Aharashakti* and none of patient had *Avara Aharashakti.*

VYAYAMSHAKTI

Table no.06.26 Distribution of patients based on *Vyayamashakti*

VYAYAMSHAKTI		
	No. of patients	**Percentage**
Pravara	2	5.4
Madhyama	33	89.2
Avara	2	5.4
otal	37	100

Among 37 patients, 33 patients (89.2%) had *Madhayma Vyayamashakti* 2 patients (5.4%) had *Pravara Vyayamshakti* and 2 patients (5.4%) had A*vara Vyayamshakti.*

KOSHTHA

Table no. 06.27 *Koshtha* wise distribution of 37 patients

KOSHTHA		
	No. of patients	**Percentage**
Mrudu	2	5.4

Madhyama	31	83.8
Krura	4	10.8
Total	37	100

Among 37 patients, 31 patients (83.8%) had *Madhayma Koshtha*, 4 patients (10.8%) had *Krura Koshtha* and 2 patients (5.4%) had *Mrudu Koshtha.*

AGNI

Table no.06.28 Distribution of patients based on *Agni*

AGNI		
	No. of patients	**Percentage**
Vishama	1	2.7
Madhyama	32	86.5
Tikshana	4	10.8
Total	37	100

Among 37 patients, 32 patients (83.8%) had *Madhayma Agni,* 4 patients (10.8%) had *Tikshana Agni* and 1 patient (2.7%) had *Vishama Agni*.

OBSERVATION OF MENSTRUAL HISTORY

Table no.06.29 Regularity of menstrual cycle wise distribution of 30 patients:

Pattern	**Group A (N=10)**	**Group B (N=10)**	**Group C (N=10)**

	BT	AT	BT	AT	BT	AT
Regular	3	8	3	8	0	2
Irregular	7	2	7	2	10	8

In group A, among 10 patients, before treatment 3 patients were having regular cycle and after treatment 8 patients got regular cycle.

In group B, among 10 patients, before treatment 3 patients were having regular cycle and after treatment 8 patients got regular cycle.

In group C among 10 patients, before starting treatment all 10 patients were having irregular cycle and after treatment 2 patients got regular cycle.

Table no.06.30 (Non-parametric Friedman test) Regularity of menstrual cycle wise distribution of 30 patients

Groups	Mean rank (BT)	Mean rank (AT)	P value
Group A (BT-AT)	3.05	2.25	0.079(NS)
Group B (BT-AT)	2.95	2.15	0.044(S)
Group C(BT-AT)	3.06	2.61	0.021 (HS)

Group A: Before treatment in regularity of menstruat cycle mean rank was 3.05 which was decreased to 2.25 with P value 0.07 thus Group A is stastically not significant.

Group B: Before treatment in regularity of menstruat cycle mean rank was 2.95 which was decreased to 2.15 with P value 0.044 thus Group B is stastically significant.

Group C: Before treatment in regularity of menstruat cycle mean rank was 3.06 which was decreased to 2.61 with P value 0.021 thus Group C is stastically highly significant

Table no.06.31 Duration of menstruation wise distribution of 30 patients

Duration	Group A (N=10)		Group B (N=10)		Group C (N=8)	
	BT	AT	BT	AT	BT	AT
3-5 days	5	9	7	10	7	8
1-2 days	5	1	2	0	1	0
Spotting	0	0	1	0	0	0

In group A, among 10 patients Among 10 patients, before treatment 5 patients were having duration of menstruation 3-5 days and after treatment 9 patients were having duration of menstruation 3-5 days.

In group B, among 10 patients, before treatment 7 patients were having duration of menstruation 3-5 days and after treatment 10 patients were having duration of menstruation 3-5 days.

In group C, among 8 patients, before treatment 7 patients were having duration of menstruation 3-5 days and after treatment 8 patients were having duration of menstruation 3-5 days.

Table no.06.32 (Non-parametric Friedman test) Duration of menstruation wise distribution of patients in Group A

N=08	Mean rank	Chi-Square	P Value
Duration –BT	3.06	9.000	0.029(S)
Duration -BT-DT1	2.31		
Duration-BT-DT2	2.31		
Duration-BT-AT	2.31		

Table no.06.33 (Non-parametric Friedman test) Duration of menstruation wise distribution of patients in Group B

N=07	Mean rank	Chi-Square	P Value
Duration –BT	3.00	7.364	0.061(NS)
Duration -BT-DT1	2.71		
Duration-BT-DT2	2.14		
Duration-BT-AT	2.14		

Table no.06.34 (Non-parametric Friedman test) Duration of menstruation wise distribution of patients in Group C

N=02	Mean rank
Duration –BT	2.50
Duration -BT-DT1	2.50
Duration-BT-DT2	2.50
Duration-BT-AT	2.50

Group A: Before treatment in duration of menstrual cycle mean rank was 3.06 and which was decreased to 2.31 with P value 0.029 thus Group A is stastically significant.

Group B: Before treatment in duration of menstrual cycle mean rank was 3.00 and which was decreased to 2.14 with P value 0.061 thus Group B is stastically not significant.

Group C: Before treatment in duration of menstrual cycle mean rank was 2.50 and which was same after treatment.

Table no. 06.35 Interval between two menstrual cycle wise distributions of 30 patients.

Interval	Group A (N=10)	Group B (N=10)	Group C z(N=10)

	BT	AT	BT	AT	BT	AT
<35days	4	8	4	7	1	2
36-45 days	2	2	2	1	1	1
46-60 days	4	0	3	2	5	5
>60 days	0	0	1	0	3	2

In group A out of 10 patients 4 patients interval between two menstrual cycles have < 35 days and after treatment 8 patients interval between two menstrual cycle have < 35.

In group B out of 10 patients 4 patients interval between two menstrual cycles have < 35 days and after treatment 7 patients have interval between two menstrual cycle < 35 days.I

In group C out of 10 patients 1 patient interval between two menstrual cycle have < 35 days and after treatment 2 patients have interval between two menstrual cycle < 35 days.

Table no.06.36 (Non-parametric Friedman test) Interval between two menstrual cycle wise distributions of patients in Group A

N=08	Mean rank	Chi-Square	P Value
Interval –BT	3.31	9.462	0.024(S)
Interval -BT-DT1	2.31		
Interval-BT-DT2	2.38		
Interval-BT-AT	2.00		

Table no.06.37 (Non-parametric Friedman test) Interval between two menstrual cycle wise distributions of patients in Group B

N=06	Mean rank	Chi-Square	P Value

Interval –BT	**2.92**	**4.714**	**0.194(NS)**
Interval -BT-DT1	**2.58**		
Interval-BT-DT2	**2.25**		
Interval-BT-AT	**2.25**		

Table no.06.38 (Non-parametric Friedman test) Interval between two menstrual cycle wise distributions of patients in Group C

N=02	Mean rank	Chi-Square	P Value
Interval –BT	**3.75**	**4.714**	**0.194(NS)**
Interval -BT-DT1	**2.75**		
Interval-BT-DT2	**1.75**		
Interval-BT-AT	**1.75**		

Group A: Before treatment interval between two menstrual cycle mean rank remained 3.31 which was decreased to 2.00 with P value 0.024 thus Group A is stastically significant.

Group B: Before treatment interval between two menstrual cycle mean rank was 2.92 which was decreased to 2.25 with P value 0.194 so thus Group B is stastically not significant.

Group C: Before treatment interval between two menstrual cycle mean rank was 3.75 which was decreased to 1.75 with P value 0.194 thus Group C is stastically not significant.

Table no.06.39 Quantity of menstrual blood wise distributions of 30 patients.

Quantity	Group A (N=10)	Group B (N=10)	Group C (N=8)

	BT	AT	BT	AT	BT	AT
>2 pads	2	9	4	7	2	8
2 pads	3	1	1	3	6	0
1 pad	5	0	4	0	0	0
Spotting	0	0	1	0	0	0

In group A, before treatment 2 patients have used more than 2 pads/day during menstrual cycle and after the treatment 9 patients have used more than 2 pads/day during menstrual cycle.

In group B, before treatment 4 patients have used more than 2 pads/day during menstrual cycle and after the treatment 7 patients have used more than 2 pads/day during menstrual cycle.

In group C, before treatment 2 patients have used more than 2 pads/day during menstrual cycle and after the treatment 8 patients have used more than 2 pads/day during menstrual cycle.

Table no.06.40 (Non-parametric Friedman test) Quantity of menstrual blood wise distributions of patients in group A

N=08	Mean rank	Chi-Square	P Value
Interval –BT	3.44	14.186	0.003(HS)
Interval -BT-DT1	2.69		
Interval-BT-DT2	2.50		
Interval-BT-AT	1.38		

Table no.06.41 (Non-parametric Friedman test) Quantity of menstrual blood wise distributions of patients in group B

N=06	Mean rank	Chi-Square	P Value
Quantity –BT	3.33	10.917	0.012(S)
Quantity -BT-DT1	2.92		
Quantity-BT-DT2	2.17		
Quantity-BT-AT	1.58		

Table no.06.42 (Non-parametric Friedman test) Quantity of menstrual blood wise distributions of patients in group C

N=02	Mean rank	Chi-Square	P Value
Quantity –BT	3.25	3.000	0.392(NS)
Quantity -BT-DT1	2.25		
Quantity-BT-DT2	2.25		
Quantity-BT-AT	2.25		

Group A: Before treatment in quantity of menstrual blood mean rank was 3.44 which was decreased to 1.38 with P value 0.003 thus group A is stastically highly significant.

Group B: Before treatment in quantity of menstrual blood mean rank was 3.33 which was decreased to 1.58 with P value 0.012 thus Group B is stastically significant.

Group C: Before treatment in quantity of menstrual blood mean rank was 3.25 which was decreased to 2.25 with P value 0.392 so that Group C is stastically not significant.

Table no.06.43 Pain during menstruation wise distributions of 30 patients.

Quantity	Group A (N=10)		Group B (N=10)		Group C (N=8)	
	BT	AT	BT	AT	BT	AT
No pain	3	6	3	5	1	3
Mild pain	3	3	1	5	2	4
Moderate pain	3	1	6	0	5	1
Severe pain	1	0	0	0	0	0

In group A, before treatment 3 patients had no pain 3 patients had mild pain, 3 patients had moderate pain and 1 patient had severe pain during menstruation.After treatment 6 patients had no pain , 3 patients had mild pain and 1 patient had moderate pain during menstruation.

In group B, before treatment 3 patients had no pain 3 patients had mild pain, 1 patient had moderate pain and 6 patient had moderate pain during menstruation.After treatment 5 patients had no pain, 5 patients had mild pain during menstruation.

In group C before treatment 1 patient had no pain, 2 patients had mild pain and 5 patient had moderate pain during menstruation.After treatment 3 patients had no pain, 4 patients had mild pain and 1 patient had moderate pain during menstruation.

Table no.06.44 (Non-parametric Friedman test) Pain during menstruation wise distributions of patients in group A

N=08	Mean rank	Chi-Square	P Value
Pain –BT	3.00	12.059	0.007(HS)
Pain -BT-DT1	3.25		

Pain-BT-DT2	1.94		
Pain-BT-AT	1.81		

Table no.06.45 (Non-parametric Friedman test) Pain during menstruation wise distributions of patients in group B

N=06	Mean rank	Chi-Square	P Value
Pain –BT	3.33	12.231	0.007(HS)
Pain -BT-DT1	3.08		
Pain-BT-DT2	2.08		
Pain-BT-AT	1.50		

Table no.06.46 (Non-parametric Friedman test) Pain during menstruation wise distributions of patients in group C

N=03	Mean rank	Chi-Square	P Value
Pain –BT	3.67	7.000	0.072(NS)
Pain -BT-DT1	2.50		
Pain-BT-DT2	2.50		

Pain-BT-AT	1.33		

Group A: Before treatment in pain during menstrual cycle mean rank was 3.00 which was decreased to 1.81 with P value 0.007 thus group A is stastically significant.

Group B: Before treatment in pain during menstrual cycle mean rank was 3.33 which was decreased to 1.50 with P value 0.007 thus group B is stastically significant.

Group C: Before treatment in pain during menstrual cycle mean rank was 3.67 which was decreased to 1.33with P value 0.072 thus group C is not stastically significant.

WEIGHT

Table no.06.47 Weight wise distributions of 30 patients.

Weight	Group A (N=10)		Group B (N=10)		Group C (N=10)	
	BT	AT	BT	AT	BT	AT
Normal	1	2	5	6	1	4
Over weight	5	6	4	3	9	6
Class 1 obesity	4	2	1	1	0	0
Class 2 obesity	0	0	0	0	0	0
Morbid obesity	0	0	0	0	0	0

Group A: Before treatment 1 patient had normal weight,5 patients were over weight and 4 patients were under class 1 obesity.After treatment 2 patients had normal weight,6 patients were over weight and 2 patients were under class 1 obesity.

Group B: Before treatment 1 patient had normal weight, 5 patients were over weight and 4 patients were under class 1 obesity.After treatment 2 patients had

normal weight,6 patients were over weight and 2 patients were under class 1 obesity.

Group C: Before treatment 1 patient had normal weight, 9 patients were over weight.After treatment 4 patients had normal weight,6 patients were over weight.

Table no.06.48 (Non-parametric Friedman test) Weight wise distributions of patients in group A

N=10	Mean rank	Chi-Square	P Value
Weight BT	2.85	7.364	0.061 (NS)
Weight BT-DT1	2.65		
Weight BT-DT2	2.25		
Weight BT-AT	2.25		

Table no.06.49 (Non-parametric Friedman test) Weight wise distributions of patients in group B

N=10	Mean rank	Chi-Square	P Value
Weight BT	2.65	1.000	0.801(NS)

Weight BT-DT1	2.45		
Weight BT-DT2	2.45		
Weight BT-AT	2.45		

Table no.06.50 (Non-parametric Friedman test) Weight wise distributions of patients in group C

N=10	Mean rank	Chi-Square	P Value
Weight BT	2.70	7.200	0.066(NS)
Weight BT-DT1	2.70		
Weight BT-DT2	2.50		
Weight BT-AT	2.10		

Group A: Before treatment in weight mean rank was 2.85 which was decreased to 2.25 with P value 0.061 thus group A is stastically not significant.

Group B: Before treatment in weight mean rank was 2.65 which was decreased to 2.45 with P value 0.801 thus group B is stastically not significant.

Group C: Before treatment in weight mean rank was 2.70 which was decreased to 2.10 with P value 0.066 thus group C is not stastically significant.

HIRSUTISM

Table no. 06.51 Hirsutism wise distributions of 30 patients.

Hirsutism	Group A (N=10)		Group B (N=10)		Group C (N=10)	
	BT	AT	BT	AT	BT	AT
Normal	5	5	8	8	5	5
Medium coverage	3	3	1	1	2	2
Heavy coverage	2	2	1	1	3	3

Group A: Before treatment 5 patients didn't have hirsutism, 3 patients had medium coverage of hirsutism and 2 patients had heavy coverage of hirsutism. After treatment the result remains unchanged.

Group B: Before treatment 8 patients didn't have hirsutism, 1 patient had medium coverage of hirsutism and 1 patient had heavy coverage of hirsutism. After treatment the result remains unchanged.

Group C: Before treatment 5 patients didn't have hirsutism, 2 patients had medium coverage of hirsutism and 3 patients had heavy coverage of hirsutism.After treatment the result remain unchanged.

OBSERVATION OF ACNE

Table no. 06.52 Acne wise distributions of 30 patients.

Acne	Group A (N=10)		Group B (N=10)		Group C (N=10)	
	BT	AT	BT	AT	BT	AT
Normal	9	9	10	10	9	9
Comedones occasional papules	1	1	0	0	1	1

Comedones occasional papules	0	0	0	0	0	0
Mainly cysts, abcesses, wide spread scarring	0	0	0	0	0	0

Group A: Before treatment 9 patient didn't have acne, 1 patient has comedones occasional papules.After treatment result remains unchanged.

Group B: Before treatment none of patients had acne.

Group C: Before treatment 9 patient didn't have acne, 1 patient has comedones, occasional papules.After treatment result remain unchanged.

Table no.06.53 (Wilcoxon Signed Rank Test) observation on S.LH and S.FSH in group A

S.LH		**N**	**MEAN RANK**	**Z VALUE**	**P VALUE**
AT-BT	**NEGATIVE RANKS**	**8**	**5.63**	**-1.784**	**0.074(NS)**
	POSITIVE RANKS	**2**	**5.00**		
	TIES	**0**			
	TOTAL	**10**			
S.FSH		**N**	**MEAN RANK**	**Z VALUE**	**P VALUE**
AT-BT	**NEGATIVE RANKS**	**5**	**4.80**	**-0.178**	**0.859 (NS)**
	POSITIVE RANKS	**4**	**5.25**		
	TIES	**1**			

	TOTAL	**10**			

Table no.06.54 (Wilcoxon Signed Rank Test) observation on S.LH and S.FSH in group B

S.LH		**N**	**MEAN RANK**	**Z VALUE**	**P VALUE**
AT-BT	**NEGATIVE RANKS**	**7**	**5.57**	**-1.172**	**0.241(NS)**
	POSITIVE RANKS	**3**	**5.33**		
	TIES	**0**			
	TOTAL	**10**			
S.FSH		**N**	**MEAN RANK**	**Z VALUE**	**P VALUE**
AT-BT	**NEGATIVE RANKS**	**5**	**4.80**	**-0.357**	**0.721(NS)**
	POSITIVE RANKS	**5**	**6.20**		
	TIES	**0**			
	TOTAL	**10**			

Table no.06.55 (Wilcoxon Signed Rank Test) observation on S.LH and S.FSH in group C

S.LH		**N**	**MEAN RANK**	**Z VALUE**	**P VALUE**
AT-BT	**NEGATIVE RANKS**	**8**	**4.88**	**-1.172**	**0.241(NS)**
	POSITIVE RANKS	**2**	**8.00**		

	TIES	**0**			
	TOTAL	**10**			
S.FSH		**N**	**MEAN RANK**	**Z VALUE**	**P VALUE**
AT-BT	**NEGATIVE RANKS**	**7**	**4.29**	**-0.889**	**0.374(NS)**
	POSITIVE RANKS	**3**	**7.50**		
	TIES	**0**			
	TOTAL	**10**			

Group A: Before treatment S.LH mean rank was 5.63 which decreased to 5 with P value 0.074, thus group A is stastically not significant. Before treatment S.FSH mean rank was 4.80 which increased to 5.25 with P value 0.859 thus, group A is stastically not significant.

Group B: Before treatment S.LH mean rank was 5.57 which decreased to 5.33 with P value 0.241, thus group B is stastically not significant. Before treatment S.FSH mean rank was 4.80 which increased to 6.20 with P value 0.721, thus group B is stastically not significant.

Group C: Before treatment S.LH mean rank was 4.88 which increased to 8.00 with P value 0.241.So that Group C is stastically not significant. Before treatment S.FSH mean rank was 4.29 which increased to 7.50 with P value 0.374, thus group C is stastically not significant.

Table no.06.56 (Wilcoxon Signed Rank Test) Observation in ovarian volume -Group A

LEFT OVARIAN VOLUME	**N**	**MEAN RANK**	**Z VALUE**	**P VALUE**

AT-BT	NEGATIVE RANKS	6	5.83	-0.775	0.439 (NS)
	POSITIVE RANKS	4	5.00		
	TIES	0			
	TOTAL	10			
RIGHT OVARIAN VOLUME		N	MEAN RANK	Z VALUE	P VALUE
AT-BT	NEGATIVE RANKS	8	6.25	-2.301	0.021(S)
	POSITIVE RANKS	2	2.50		
	TIES	0			
	TOTAL	10			

Table no.06.57 (Wilcoxon Signed Rank Test) Observation in ovarian volume –Group B

LEFT OVARIAN VOLUME		N	MEAN RANK	Z VALUE	P VALUE
AT-BT	NEGATIVE RANKS	8	6.38	-2.408	0.016(S)
	POSITIVE RANKS	2	2.00		
	TIES	0			
	TOTAL	10			
RIGHT OVARIAN VOLUME		N	MEAN RANK	Z VALUE	P VALUE
AT-BT	NEGATIVE RANKS	8	6.00	-2.091	0.037(S)
	POSITIVE RANKS	2	3.50		
	TIES	0			

	TOTAL	**10**			

Table no.06.58 (Wilcoxon Signed Rank Test) Observation in ovarian volume -Group C

LEFT OVARIAN VOLUME		**N**	**MEAN RANK**	**Z VALUE**	**P VALUE**
AT-BT	**NEGATIVE RANKS**	**8**	**5.75**	**-2.807**	**0.005 (S)**
	POSITIVE RANKS	**2**	**4.50**		
	TIES	**0**			
	TOTAL	**10**			
RIGHT OVARIAN VOLUME		**N**	**MEAN RANK**	**Z VALUE**	**P VALUE**
AT-BT	**NEGATIVE RANKS**	**10**	**5.50**	**-1.892**	**0.059(NS)**
	POSITIVE RANKS	**0**	**0.00**		
	TIES	**0**			
	TOTAL	**10**			

Group A: Before treatment volume of left ovary mean rank was 5.83 which was decreased to 5.00 with P value 0.439, thus group A is stastically not significant. Before treatment Volume of right ovary mean rank was 6.25 which was decreased to 2.50 with P value 0.021 thus, group A is stastically significant.

Group B: Before treatment volume of left ovary mean rank was 6.0 which was decreased to 2.00 with P value 0.016 thus, group B is stastically significant.

Before treatment volume of right ovary mean rank was 6.00 which was decreased to 3.50 with P value 0.037 thus, group B is stastically significant.

Group C: Before treatment volume of left ovary mean rank was 5.75 which was decreased to 4.50 with P value 0.005 thus, group C is stastically significant. Before treatment volume of right ovary mean rank was 5.50 which was decreased to 0.00 with P value 0.059 thus, group C is stastically not significant.

Table no.06.59 ((Wilcoxon Signed Rank Test) Observation on ovarian cyst Group-A

RT. OVARIAN CYST		N	MEAN RANK	Z VALUE	P VALUE
AT-BT	NEGATIVE RANKS	2	1.50	-1.414	0.157(NS)
	POSITIVE RANKS	0	0.00		
	TIES	8			
	TOTAL	10			
LT. OVARIAN CYST		N	MEAN RANK	Z	P VALUE
AT-BT	NEGATIVE RANKS	2	1.50	-1.414	0.157(NS)

	POSITIVE RANKS	**0**	**0.00**		
	TIES	**8**			
	TOTAL	**10**			

Table no.06.60 (Wilcoxon Signed Rank Test) Observation on ovarian cyst Group-B

RT. OVARIAN CYST		**N**	**MEAN RANK**	**Z VALUE**	**P VALUE**
AT-BT	**NEGATIVE RANKS**	**7**	**4.00**	**-2.646**	**0.008(S)**
	POSITIVE RANKS	**0**	**0.00**		
	TIES	**3**			
	TOTAL	**10**			
LT. OVARIAN CYST		**N**	**MEAN RANK**	**Z VALUE**	**P VALUE**
AT-BT	**NEGATIVE RANKS**	**4**	**2.50**	**-2.00**	**0.046(S)**
	POSITIVE RANKS	**0**	**0.00**		

	TIES	6			
	TOTAL	10			

Table no.06.61 (Wilcoxon Signed Rank Test) Observation on ovarian cyst Group-C

RT. OVARIAN CYST		N	MEAN RANK	Z	P VALUE
AT-BT	NEGATIVE RANKS	5	3.00	-2.236	0. 025(S)
	POSITIVE RANKS	0	0.00		
	TIES	5			
	TOTAL	10			
LT. OVARIAN CYST		N	MEAN RANK	Z	P VALUE
AT-BT	NEGATIVE RANKS	4	2.50	2.000	0.046(S)
	POSITIVE RANKS	0	0.00		
	TIES	6			
	TOTAL	10			

Group A: Before treatment in right ovarian cyst mean rank was 1.50 which was decreased to 0.00 with P value 0.157 thus, group A is stastically not significant. Before treatment in left ovarian cyst mean rank was 1.50 which was decreased to 0.00 with P value 0.157 thus, group A is stastically not significant.

Group B: Before treatment in right ovarian cyst mean rank was 4.00 which was decreased to 0.00 with P value 0.008 thus, group B is stastically significant. Before treatment in left ovarian cyst mean rank was 2.50 which was decreased to 0.00 with P value 0.046 thus, group B is stastically significant.

Group C: Before treatment in right ovarian cyst mean rank was 3.00 which was decreased to 0.00 with P value 0.025 thus, group C is stastically significant. Before treatment in left ovarian cyst mean rank was 2.50 and which was decreased to 0.00 with P value 0.046 thus, group C is stastically significant.

Table no.06.62 Summary of the Wilcoxon test carried out on the Variables and Groups that had significant values in the Friedman test from the previous table.

Variable	Group	Pair	Wilcoxon (Z score)	P-value	Remarks
Pain	Group-A	DT1 and DT2	-2.333	0.020	**S**
		DT1 and AT	-2.271	0.023	**S**
	Group-B	BT and DT2	-2.449	0.014	**S**
		BT and AT	-2.640	0.008	**HS**
		DT1 and AT	-2.449	0.014	**S**
Quantity	**Group A**	BT and DT1	-2.000	0.046	S
		BT and AT	-2.640	0.008	HS

		DT1 and AT	-2.640	0.008	HS
		DT2 and AT	-2.333	0.020	S
	Group B	BT and DT2	-2.121	0.034	S
		BT and AT	-2.232	0.026	S
Interval	**Group A**	BT and DT2	-2.070	0.038	S
Duration	**Group A**	BT and DT1	-2.000	0.046	S
		BT and AT	-2.236	0.025	S

Pain during menstruation:

Group A: During treatment 1 to during during treatment 2 and during treatment 1 to after treatment were significant with P value 0.020 and 0.023 respectively.

Group B : Before treatment to during treatment 2 and during treatment 1 to after treatment were significant with P value 0.014 and before treatment to after treatment was highly significant with P value 0.008.

Quantity of menstrual blood

Group A: Before treatment to during treatment 1 and during treatment 2 to after during treatment were significant with P value 0.046 and 0.020 respectively.

Before treatment to after the treatment with P value 0.008 and during treatment 1 to after the treatment were highly significant woth P value 0.008.

Group B: Before treatment to during treatment 2 and before treatment to after the treatment were significant with P value 0.034 and 0.026 respectively.

Interval between two menstrualcycle

Group A: Before treatment to during treatment 2 was significant with P value 0.038.

Duration of menstruation:

Group A: Before treatment to during treatment 1 and before treatment to after treatment were significant with P value 0.046 and 0.025 respectively.

DISCUSSION

NIDANA AVUM SAMPRAPTI:

As PCOD is caused by vitiated *Vata-Kapha*. In present study, the *Nidanas* found same *Vata-Kapha prakopaka.*

Vata- Prakopaka Nidana:

Ratrijagarana was seen as one of the potential causative factor in 89.2% of the patients.keeping awake late night for study and late night use of mobile phones considered as Ratrijagarana in this study.*Ratrou jagaranaruksasm*[1] i.e *Ratrijagrana* cause *Ruksha Guna* which cause *Vataprakopa* which was evident causative factor for PCOD and also leads to *Artavkshaya.*

Anashana was observed as causative factor in 56.7 % of the patients. *Anasanamalpabhojanmava*[2], in this study not taking food (*Anashana*), intake of less quantity of food (*Alpabhojana*) was considered. Due to this causative factor *Vata* gets *Prakopa* and this can be cause for *Artavkshaya* related to PCOD.

Chinta This study shows 8.1% of the subjects were under stress. Educational stress, work stress and family stress were observed in this study. Increased stress leads to hormonal changes like raised levels of cortisol and prolactin and affects the normal menstrual cycle[3.] This leads to *Vata Prakopa* and also cause *Rasavaha Sroto Dushti*, as *Artava* is *Upadhatu* of *Rasa*. Hence *Rasa Dushti* results in *Artavavaha Sroto Dushti.*

Kapha –Prakopaka Nidana:

Avyayama[4] was seen as one of the potential causative factor in 78.4% of the patoents.Lack of physical activity and exercise was considered as *Avyayam* in this study. It vitiated *Kapha Dosha* and further *Rasavaha* and *Medavaha Srotas*

leads to *Sthaulyata .Avyayama* is is also one of the cause for *Agnidushti*.This conditions were developed gradually menstral abnormalities and PCOD.

Guruguna pradhana, Atimadhura Ahara seven were causative factors in 91.8% and 81% of patients respectively.*Madhura rasa* has *Snigdha ,Guru* and *Sheeta Guna* which does the *Kapha prakopa.Atimadhura* sevan also leads to *Sthaulya,Gauravata Agnimandhya*.This is the ultimately cause fo the *Artavkshya* and PCOD[5].

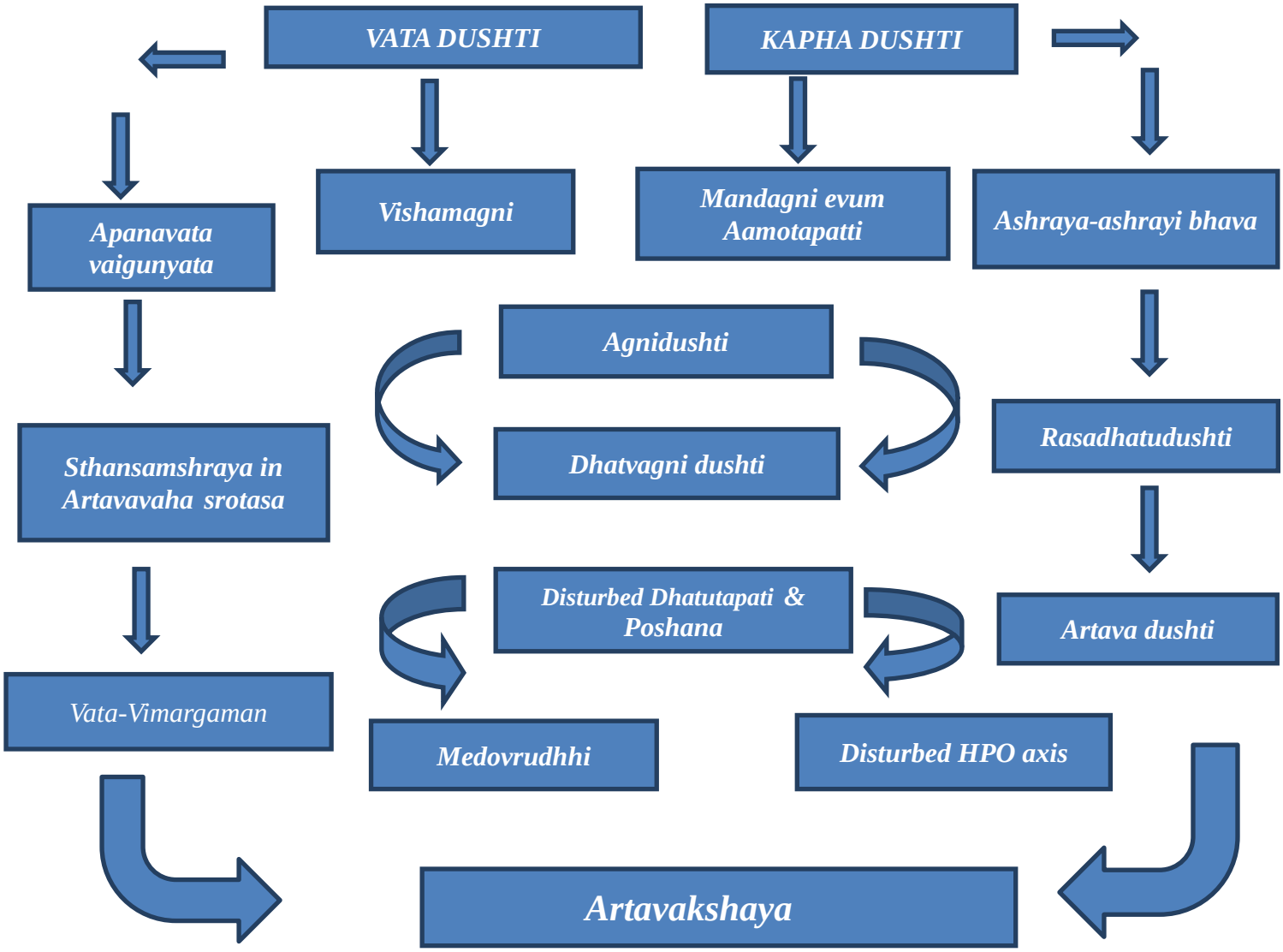
Ajeernashana and *Vishamashana* were cusative factors in 76.7% and 40% of patients.Eating during previous meal is not digested properly is considered as Ajeernashana.The food taken untimely which is taken either excess or low is considered as *Vishamashana*[6].They are the main causative factors for *Agnidusti*,which are further cause for *Artavadushti*[7] leading to PCOD.

Irregular dietary habit in 100% which is considered as *Apathya- Ahitakara Aharaseven* which adversely effect on body and mind leads to *Tridoshaprakopa Dhatudushti-Srotodusti* and further menstrual irreguarieties leading to PCOD[8].

Junkfood habit 86.5%, colddrinks 75.7% ,Soda 40.5% chocolates 24.3% Chinese food 21.6%, Icecream 10.8% fermented food 5.4% were *Nidanas* seen in present study.These are high in sugar fat and calories but low in nutritients,which cause obesity.High energy dense foods often lack of protein calcium iron vtamin A,C,D and E,potassium,zinc,and monosasatirated fats[9].A deficiency increase risk of nutritional deficiency and leads to *Dhatukshya* and *Vataprakopa*.which further affect the hypothalamo pituitary ovarian axis by disturbing the hormonal levels leads to menstrual abnormalities leading to PCOD.

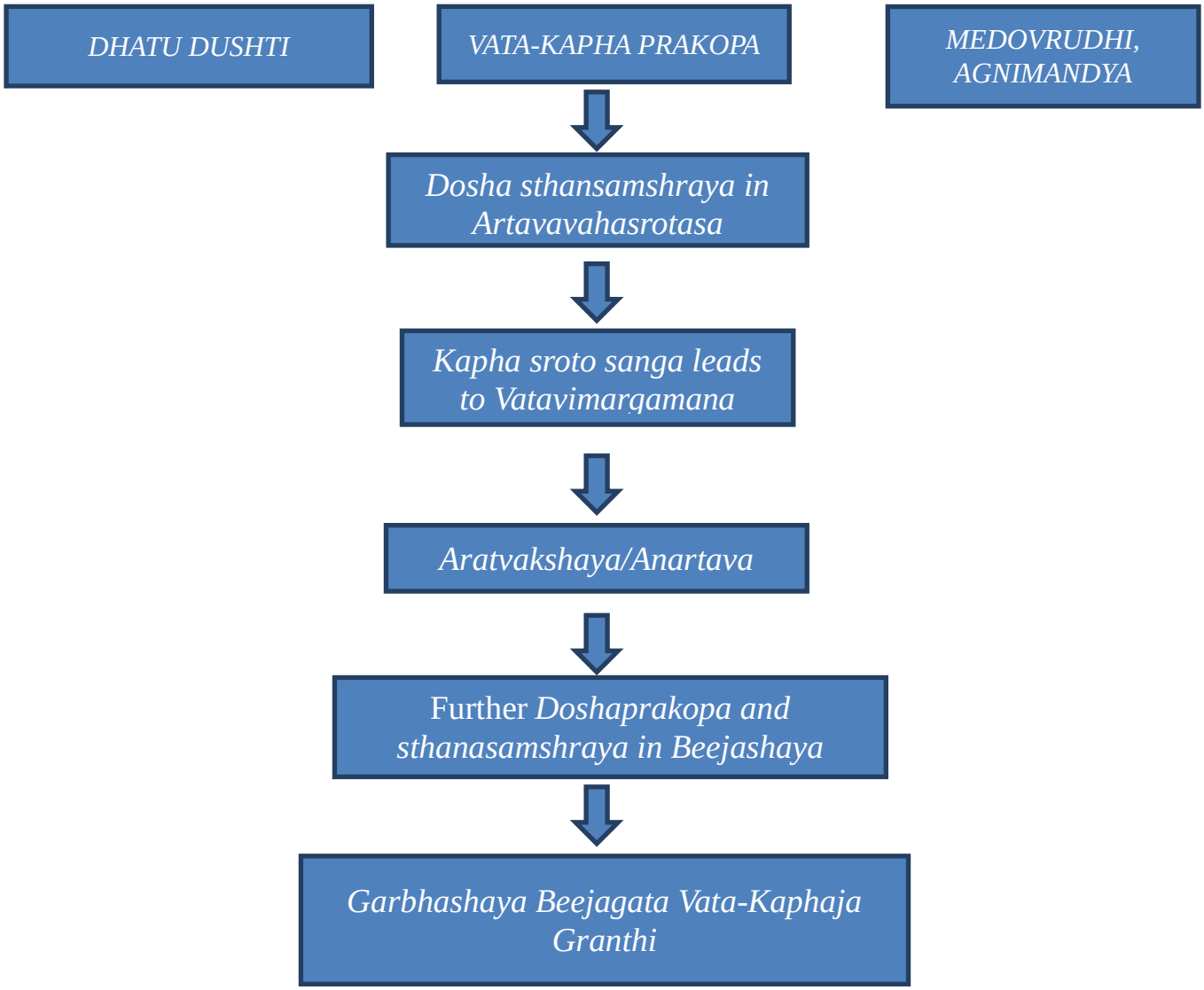
These *Nidanasevanas* leads to diffrenet symptoms of PCOD - this whole process of *Nidanasevan* to *Lakshanas* is known as *Samprapti*.

Samprapti* of *Artavkshaya



Flow chart :7.1 *Samprapti of Artavakshaya*

***Samprapti* of *Artavkshaya* w.s.r PCOD:**



Flow chart 7.2 *Samprapti* of PCOD

Nidanas as discussed above cause *Vata-Kapha aggravation*, leads to *Agnidushti* and *Dhavtvagnidushti* respectively.There is disturbed *dhatuutpati* and *Poshana*

leads to abnormal function of *Rasadi Dhatus* cause metabolic dysfunction and disturbed H-P-O axis leads to menstrual irregularities.

Kapha vitiation leads to *Rasadatudushti* due to *Ashray Ashrayi bhava* and further *Artavadushti* as *Artava* is *Upadhatu* of *Rasa.*

Vata vitiation mainly *Apanavata vaigunyata* occurs and *Sthanshamshraya* in *Garbhashaya* leads to *Artavakshaya*

Medovrudhi, *Agnimandhya* and *Dhatudushti* leads to *Vata-Kapha Prakopa, Sthansamshraya* in *Artavavahasrotasa*.Vitiated *Kapha* develop *Sroto Sanga* and *Vata Vimargamana* leads to *Artavakshaya* or *Anartava.* Due to continuous *Nidanasevana Doshas* aggravated and *Sthansamshrya* in *Beejashaya* develop *Garbhashaya Beejagata Vata-Kaphaj Granthi.*

TABLE NO.7.1 *SAMPRAPTI GHATAKAS*

Dosha	*Kapha , Vata*
Dushya	*Rasa, Rakta ,Mamsa,Meda*
Agni	*Dhatvagnimandhya*
Srotas	*Rasavaha,Raktavaha,Mamsavaha,Medovaha,Artavavaha*
Srotodushti	*Sanga, Atipravrutti*
Udbhavasthana	*Aamashaya*
Rogamarga	*Abhayantara*

INTERPRETATION OF OBSERVATION:

Total 37 patients were registered in this present study in which, 30 patients had completed the treatment and 7 patients were disconitinued due to loss of followups.

OBSERVATIONS OF THE CLINICAL STUDY

AGE:

Out of 37 patients, 20 patients i.e 54.1% belonges to age group of 20-25 years, followed by age group of 26-30 years 14(37.8%) and 3 patients (8.1%) of ag group 31-35 years. This observation shows that younger reproductive age group i.e 20-25 years of age is highly prone to the Poly cystic ovarian disease.

RELIGION:

Out of 37 patients maximum i.e 36 (97.3%) patients were Hindus and only 1 (2.7%) patient was Muslim. No relation can be established between the religion and PCOD as there is predominance of Hindus in this region.

INCIDENCE OF *DESHA*

All patients i.e; 37 patients (100%) were found to be from *Sadharana Desha* because the patients selected for the study is belonged to *Sadharana Desha* Gujarat. Thus no relations can be established between the community and PCOS.

MARITAL STATUS

A maximum no. of patients were unmarried i.e. 19 patients (51.4%) and 18(48.6%) were unmarried. Unmarried girls consult gynaceologist for irregular menses obesity and cosmetic purpose in this study. Married women were more worried for their irregular menstruation pattern for their fertility issues.

EDUCATION

A maximum no. of patients were graduate i.e. 24 patients (64.9%), secondly Post graduated 8 (64.9%) followed by primaray educated 3(8.1%) and 2 patients (21.6%) were Higher secondary educated. Educated women approaches towards Ayurvedic Hospital for authentic ayurvedic treatment.

OCCUPATION

A maximum no. of patients were students i.e. 18 patients (48.6%), secondly 11(29.7) were from service class, 7(18.9%) were Housewife, 1 patient (2.7%) was Labour.Students had habit of irregular dietary pattern like junk food, cold drinks etc. and they were also more prone to stress due to studies.Thus maximum patients were students in this sudy.

SOCIO-ECONOMICAL STATUS

Maximum patients i.e. 26 patients (70.3%) were belonged to middle class followed by 8 patients (21.6%) were from lower middle class and 3 patients (8.1%) were from very poor class. In present study middle class patients were predominat.

MENARCHE

Among 37 patients, maximum no. of patients i.e 34 (91.9%) attained menarche at the age of 13-14 years and 3 patients (8.1%) attained menarche at age of 11-12 years of the age and none of patient attained menarache at the age more than 15 years.Thus,all patients were suffered from physiological disturbance which develop menstrual irregularities and PCOD.

SECONDARY CHARECTERS

Among 37 patients included in study, all 37 patients (100%) had proper developmet of secondary characteristics as deformities were excluded for the study.It suggest that all the patients were having only physiological functional defect.

AHARA-PRAKAR

A maximum no.of patient 20 (54.1%) had take *Niramish ahara* and 17(45.9%) had taken *Samisha ahara*.There is no effect of *Aharaprakar* on present study.

DASHVIDHA PARIKSHA

A maximum no. of patients 15(40.5%) had *Kapha-Vata* prakruti followed by 14(37.8%) had *Vata-Kapha* ,8(21.6%)had *Pitta-Kapha prakruti*.Thus the predominance of the patient with *Vata Kapha Prakrutu* signifies more prone to the PCOD as this disease also predominance with *Kapha-Vata Dosha* .A maximum no. of patients 18(48.6%) had *Sthula Akruti* followed by 15(40.5%) had *Madhayma Akruti*, 4(10.8%) had *Krusha Akruti*.As obesity is one of the cause of PCOD maximum patients were related to *Sthula Akruti*.A maximum patient 97.3% patients had *Madhayma Saara* , 97.3% had *Madhayma Samhanan* ,100% patients had *Madhyama Satmya*, 89.2% had *Madhayma Aharashakti* , 89.2%had *Madhayma Vyayamashakti*, 83.8% had *Madhayma Koshtha* and 83.8% had *Madhayma Koshtha*.Most of the patients were from young age group cause the *Madhyam Saara Smahanana Satmya,Koshtha,Aharashakti and Vyayamashakti.*

LAKSHANA:

All patients (100%) had B/L PCO in USG.Maximum patients (70.3%) were known case of PCOD as chief complaint.Obesity found in maximum patients i.e. 81.1% as symptom and also as causative factor .Patients had *Artavakshaya* i.e. Irregular menstrual cycle (78.37%), *Kashtartav* (72.97%) Oligomenorrhea (70.27%), Hypomenorrhea (64.86%) individually or combine as complaints.Other complaints were Hirsutism (40.54%) and acne (10.81%).All these are cardinal symptoms of PCOD.

PATTERN DURATION AND INTERVAL OF MENSTRUAL CYCLE:

Capsule *Kanashatahwadikashaya* showed statistically significant effect on interval between two menstrual cycles after completion of clinical trial with P

value 0.024. Capsule *Kanashatahwadikashaya* showed statistically significant effect on duration of menstruation after completion of clinical trial with P value 0.029.Capsule PCONIDD showed statistically significant effect on pattern of menstrual cycle after completion of clinical trial with P value 0.044.Combine capsules showed statistically significant effect on pattern of menstrual cycle after completion of clinical trial with P value 0.021.

MODE OF ACTION OF DRUGS ON PATTERN DURATION AND INTERVAL OF MENSTRUAL CYCLE:

Capsule *Kanashatahwadikashay* and Capsule PCONIDD have *Medohara,Dipana, Agnivardhaka, Aampachanna* properties which regulates the *Uttarotara Dhatuutapati* and normalize the metabolism leads to regulate the menstrual cycle.*Ushana virya* properties of both capsules are *Kaphashamak* and *Aampachaka*, which removes the *Srotosanaga* and normalize the function of the *Artavvahasrotas.*Due to removal of *Srotosanga*, aggravated *Apanavata* normalized, which expelled *Artava* in proper interval with duration in normal *Rutuchakra*.As there is normal function of *Apanavata* and *Artvavhasrotasa*, normalize the development of follicles and ovulation occurs.

PAIN DURING MENSTRUAL CYCLE:

After completion of the clinical trial capsule *Kanashatahwadikashaya* and capsule PCONIDD individually showed statistically highly significant effect on pain during menstrual cycle with P values 0.007 respectively.

MODE OF ACTION OF DRUGS ON PAIN DURING MENSTRUAL CYCLE:

All ingredients of Capsule *Kanashatahwadikashaya* have *Vatahara* property. Ingredients of PCONIDD Capsules like *Meshashrungi*, *Shatavari*, *Bilva* have

Vatahara property.As *Vata* is main factor for *Vedana* it pacify the pain during menstrual cycle.

Ingredients of capsule *Kanashatahwadi kashaya* like *Shatawaha, Hingu, Lashuna, Kana* have *vatanuloman* properties.Ingredients of capsule PCONIDD like *Guduchi, Meshshrungi* have *vatanuloman* properties.*Vatanulomana* drugs normalize the function of *Apanavata* and helps to pacify the pain during menstrual cycle.Ingredients of capsule *Kanashatahwadhukashaya* like *Latakaranja* and *Hingu* have *Vedanasthapaka* property helps to relieving the pain during menstrual cycle.

Capsule *Kanashatahwadikashaya*:It has been reported in study that *Karanja, Latakaranj, Shatawaha, Bharangi , Kulaththa* and *Lashuna* have analgesic effect helps to pacify the pain during menstrual cycle.It has been also reported in study that *Karanj,Devadaru* and *Hingu* have antispasmodic effect helps to pacify the pain.

Capsule PCONIDD:It has been reported in study that *Karavellaka, Bala* and *Guduchi* have Analgesic effect helps to pacify the pain during menstrual cycle.It has been also reported in study that *Shatavari* has Antispasmodic effect helps to pacify the pain during menstrual cycle.

WEIGHT:

Capsule *Kanashatahwadikashay* and combine treatment showed statistically no significant effect on weight after completion of trial with same P values 0.06, which are very near to the significant value.

Clinically Capsule *Kanashatahwadikashaya* and combine treatment were decreasing weight in patients. These results varies due to patient's life style i.e. *Ahara- Vihara* and *Pathya Palana.*

MODE OF ACTION OF DRUGS ON WEIGHT

The ingredients of Capsule *Kanashatahwadikashay* like *Kana, Shatawaha, Kulaththa, Latakaranja, Bharangi, Hingu* have *Medohara, Lekhan, Dipana, Pachana Properties*.All ingredients of Capsule *Kanashatahwadikashay* have *Ushna Virya*.It has been reported in study that *Kana, Kulaththa* and *Hingu* have anti-obesity effect.The ingredients of Capsule PCONIDD like *Guduchi, Nimba, Mamejjak, Bilva, Karvellaka, Haridra, and Shilajita* have *Medohara, Lekhana, Dipana* Properties.All ingredients of Capsule PCONIDD drug have *Ruksha guna* except *Shatavari, Bala* and *Guduchi*. It has been reported in study that *Ashoka, Jambu, Haridra, Bilva, Bala, Lodhra, Shilajita* have anti-obesity effect. *Dipana, Pachana properties* increases Agni which helps to *Aampachana* and *Uttarotardhatu Utpati- Pushti* leads to normalized BMI. *Ushna Virya, Ruksha guna* and *Lekhana karma* helps to treat *Medodusti* and decrease weight.

S.LH , S.FSH

In PCOD there is increased secration of LH than FSH by increasing the GnRh pulsatile secration.LH ultimetaly increased the level of androgens.Thus there is increased S.LH: S.FSH ratio.In this study it was found that all groups has no significant effect on S.LH:S.FSH ratio.

OVARIAN VOLUME:

Capsule *Kanashatahwadikashaya* showed statistically significant effect on right ovarian volume with P Value 0.021. Capsule PCONIDD showed statistically significant effect on both ovarian volume with P values 0.016 in left ovary and 0.037 in right ovary.Combine capsules showed statistically significant effect on left ovarian volume with P value 0.005.

OVARIAN CYST

DISCUSSION

Capsule PCONIDD showed statistically significant effect on both ovarian cyst with P values 0.046 in left ovary and 0.008 in right ovary.Combine Capsules showed statistically significant effect on both ovarian cyst with P values 0.046 in left ovary and 0.025 in right ovary.

MODE OF ACTION OF DRUGS ON POLY CYSTIC OVARIAN DISEASE:

Doshaghnata: The ingredients of both capsules are *Kapha-Vatahara*, so formulation is able to normalize *Kapha* and *Vata*.

Effect on *Srotas*: Qualities of the ingredients like *Ushna Virya, Vata-Kapha samana* removes *Kapha sanga* and *Vatavimargamana* and improves the function of *Artavahasrotasa.*

Agni: *Dipana, Pachana* qualities of the formulations balance the *Agni* which improves the digestion process and ultimately metabolism of the body is also improved.

Balya, Rasayana, Vrushya properties of ingredients of capsules like *Bala, Twaka, Shatavari, Guduchi, Yashada, Shilajita, Kana, Shatawaha, Hingu, and Lashuna* promotes quality production of *Dhatus* and balance the metabolism of the body.

Lekhana: Main causative factors of PCOD are *Santarpanajanya* i.e. *Guru, Madhura ahara Avyayama, Diwaswapna*. Cyst can be correlate with *Granthi* which is *kapha* predominance. In both conditions *Lekhana dravyas* of both capsules like *Mammejaka Haridra, Kana, Latakaranaja, and Kulattha* break the *Samprapti* of PCOD.

Ushna Virya of capsules removes the *Srotoavarodha* and *Sanga* leads to normal function of *Vayu*. Therefore balance doshas normalize the function of Artavavaha srotas i.e. regular menstrual cycle.

Thus to break down the samprapti of Artavakshaya related to PCOD V*ata-Kaphahara, Ushnavirya, Agnivardhaka, Dipana Pachana, Lekhana, Balya* drugs are required and all these are available in Capsule *Kanashatahwadi kashaya* and Capsule PCONIDD.

Capsule *Kanashatahwadikashaya*:

It has been reported that *Tila* decreasing the androgen levels by increasing SHBG. It also stimulates ovulation.*Shatawaha* enhanace the folliculogenesis & correct menstrual irregularity.*Lashuna* enhance implantation and fertility. *Hingu* increase the secretion of Progesterone. Thus Capsule *Kanashatahwadikashaya* work as antiandrogen, balance the hormones, enhance folliculogenesis and ovulation helps to cure PCOD and related symptoms.

Capsule PCONIDD

It has been reported that, *Shatavari* correct the hormonal influence, enhance the follicular maturity and stimulate ovulation and normalize menstrual cycle.*Ashoka* regulate ovulation & menstrual cycle.*Lodhra* prevent ovarian cell dysfunction, stimulate FSH and enhance folliculogenesis .It also improve fertility.*Guduchi* lowering the serum Testosterone and regulates the menstrual cycle.**Thus Capsule PCONIDD mainly works to balance hormones, enhance folliculogenesis, ovulation and helps to cure PCOD and related symptoms.**

HIRSUTISM AND ACNE:

Hirsutism and Acne score remained unchanged. Thus it can be said that all groups has no significant effect in Hirsutism and Acne score.Hirsutism and acne in PCOD is due to hyperandrogenism and both drugs has antiandrogenic effect. Both drugs has also *Agnivardhaka* properties which helps to *Samyak Mamsadhatu Utpatti* leads to normal function of *Twaka* as it is the updhatu of *Mamasa*,which cure Acne and Hirsutism.Thus if both drugs individually or combine given to patient for longer duration they may be effective in Hirsutism and Acne.

TOTAL EFFECT OF THE THERAPY

TABLE NO.07.2 OVERALL EFFECT OF THERAPY IN GROUP A

EFFECT OF THERAPY	NO. OF PATIENT	%
UNCHANGED-<25%	0	0
MILD IMPROVEMENT <26-50%	2	20
MODERATE IMPROVEMENT-<50-75%	5	50
MARKEDLY IMPROVEMENT -<75-99%	3	30
COMPLETE CURE- 100% RELIEF	0	0

In group A, total 10 patients completed the treatment.Among them maximum patients i.e 50% moderate improved, 30% patients markedly improved and 20% patients reported mild improvment.None of patient reported unchanged and completely cured.

TABLE NO.07.3 OVERALL EFFECT OF THERAPY IN GROUP B

EFFECT OF THERAPY	NO. OF PATIENT	%
UNCHANGED-<25%	1	10

MILD IMPROVEMENT <26-50%	0	0
MODERATE IMPROVEMENT-<50-75%	3	30
MARKEDLY IMPROVEMENT -<75-99%	6	60
COMPLETE CURE- 100% RELIEF	0	0

In group B, total 10 patients completed the treatment. Among them maximum i.e 60% markedly improved, 30% patients moderate improved, 10% unchanged .None of patients reported mild impovement and completely cured.

TABLE NO.07.4 OVERALL EFFECT OF THERAPY IN GROUP C

EFFECT OF THERAPY	NO. OF PATIENT	%
UNCHANGED-<25%	5	50
MILD IMPROVEMENT <26-50%	0	0
MODERATE IMPROVEMENT-<50-75%	3	30
MARKEDLY IMPROVEMENT -<75-99%	2	20
COMPLETE CURE- 100% RELIEF	0	0

In group C, total 10 patients completed the treatment.Among them maximum i.e 50% unchanged, 30% patients moderate improved, 20% markedly improved. None of patients repor.

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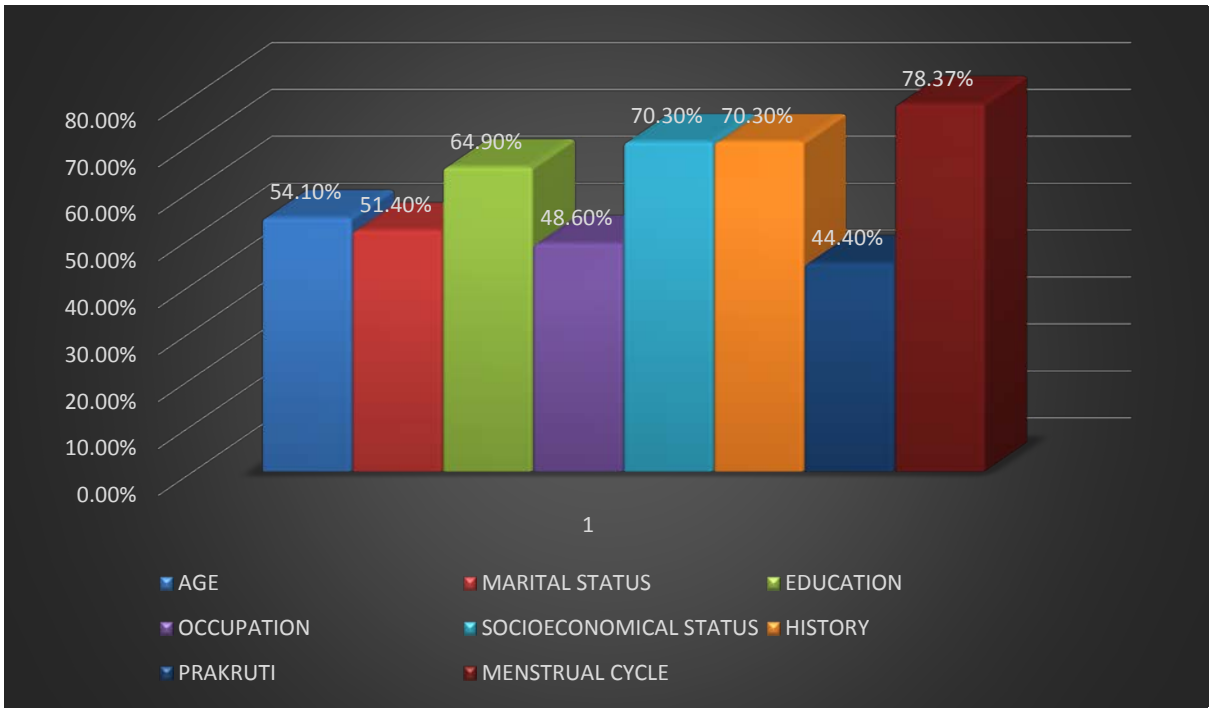
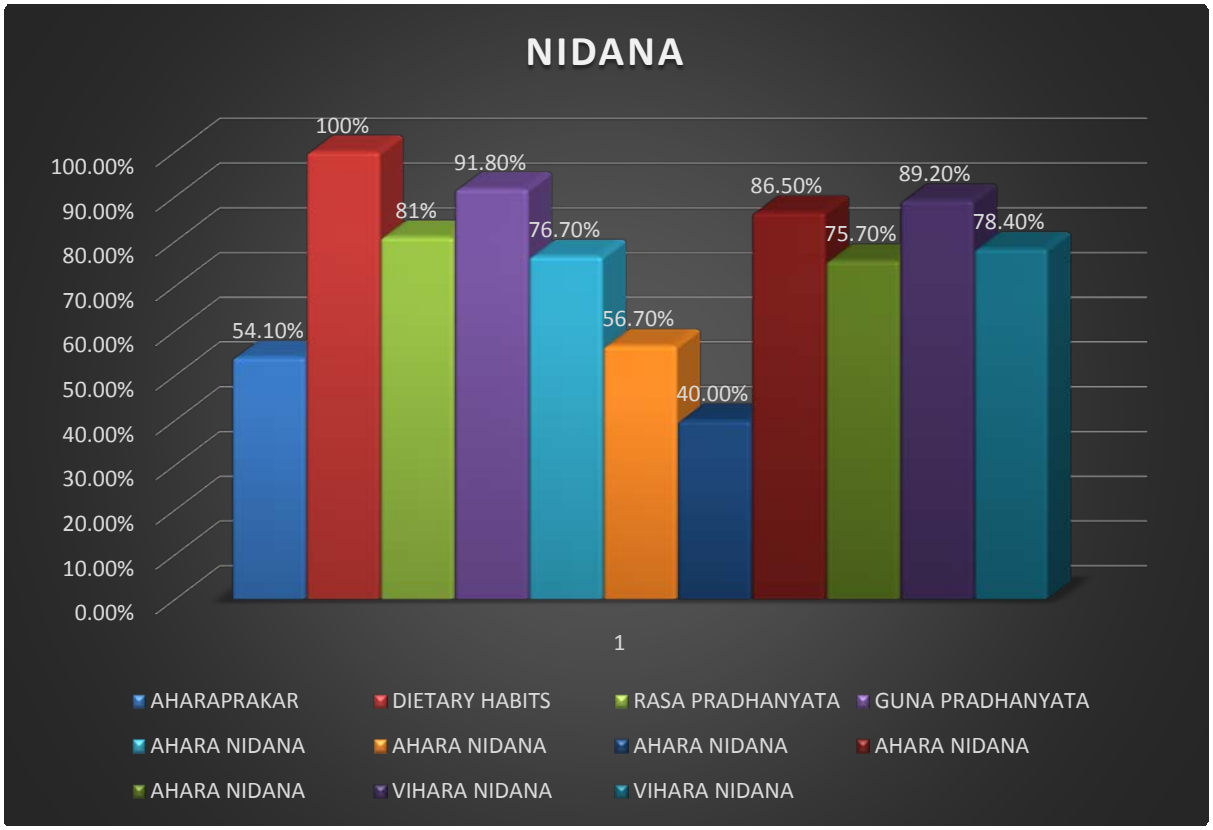
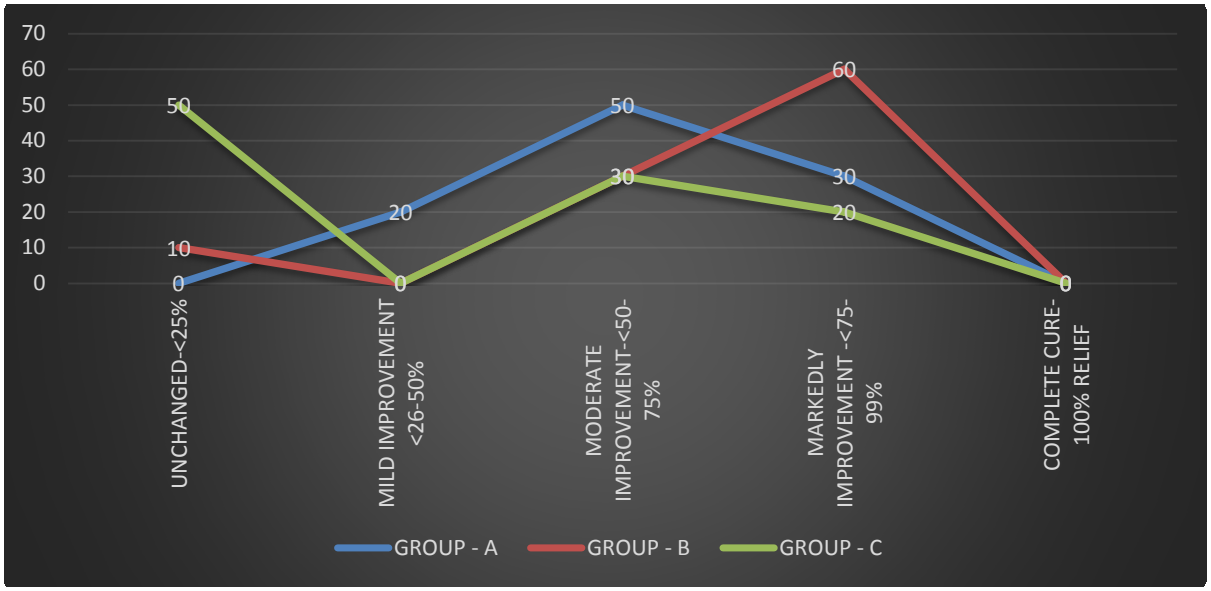


GRAPH NO.06.1 DEMOGRAPHIC OBSERVATION



GRAPH NO.06.2 *NIDANA* OBSERVATION



GRAPH NO.06.3 OVERALL EFFECT OF THERAPY

SUMMARY

The title of the present study is **comparative clinical study to evaluate the effect of *Kanashatawahadi Kashaya Ghanavati* and capsule PCONIDD in *Artavkshaya* w.s.r to PCOD** was planned with the following titles.

The whole study was divided in following parts.

Introduction:

Introduction portion describe the importance and prevalence of the PCOD in todays life.In this part view of the whole study, previous research works, aim and objectives, materials and methods were also included.

Conceptual study:

Conceptual study included literary review, disease review and drug riview.First in literay review, compiled modern pathology and physiology of ovaries, *Ayurvedic* portion of *Artavvahasrotas*, *Artavakshaya* and *Anartava*.Second in disease review, modern and *Ayurvedic* aspects of PCOD and *Artavakshaya* were included.The scattered *Ayurvedic* refrences of the PCOD and their symptoms were trying to compile as it is not directly found in *Ayurvedic Samhitas*.The modern treatment and *Ayurvedic Chikitsa Siddhant* were also discussed here.Third in drug review, description of both drug formulations i.e. capsule *Kanashatawadhikashaya* and capsule PCONIDD with their contents,botanical name, *Rasapanchaka*, *Karma*, *Doshghnta*, *Rogghnta* and pharmacological action based on chemical compositions were discussed.The method of drug preparation and reason to select these drugs on *Artavakshaya* w.s.r to PCOD were also discussed.

SUMMARY

Clincal study:

Observation and Result

- Total 37 patients were randomly selected based on inclusion criteria for the present study.Among them 30 patients were completed the whole study and seven patients rejected due to loss of follow ups.The observataion and results were obtained from the data recorded represented at the end of the treatment.
- Maximum i.e. 20 patients (54.1%) were from age group of 25-30 years while maximum 19 patients (51.4%) were unmarried.
- Maximum i.e; 24 patients (64.9%) educated upto graduate leval. All the patients had timely onset of menarche i.e. in 100%
- Maximum 15 patients i.e; 44.4% had *Kapha-Vata Prakruti*.
- Irregular dietary habit were found in all patients i.e. 100%.*Aharaja Nidanas* were found i.e. intake of *Guruguna Pradhana Ahara* (91.8%) and *Atimadhura sevana* (81%), junkfood habit (86.5%), colddrinks (75.7%), *Ajeernashana* (76.7%), *Anashana* (56.7%) and *Vishamashana* (40%) as *Nidanas* in present study.Viharaj Nidanas were found i.e. *Ratrijagarana* (89.2%) and *Avyayama* (78.4%) in present study**.**
- Patients had *Artavakshaya* i.e. Irregular menstrual cycle (78.37%), *Kashtartav* (72.97%) Oligomenorrhea (70.27%), Hypomenorrhea (64.86%) individually or combine as complaints. Other complaints were Obesity (81.1%) Hirsutism (40.54%) and acne (10.81%).
- There is no any complications found during and after the treatment.

Result:

In group A, total 10 patients completed the treatment.Among them maximum patients i.e 50% moderate improved, 30% patients markedly improved and 20%

patients reported mild improvment.None of patient reported unchanged and completely cured.In group B, total 10 patients completed the treatment. Among them maximum i.e 60% markedly improved, 30% patients moderate improved, 10% unchanged .None of patients reported mild impovement and completely cured.In group C, total 10 patients completed the treatment.Among them maximum i.e 50% unchanged, 30% patients moderate improved, 20% markedly improved. None of patients reported mild impoved and completely cured.

Discussion:

Probabale mode of action of both drugs individually and combine on the basis of properties and active chemical constituents were discussed according to *Ayurveda* as well as modern parameters, logical and scientific interpretation of observations were mentioned in discussion. *Nidana, Samprapti* and *Samprapti-Vighatana* of *Artavkshaya* related to PCOD were also discuss here. This part is followed by summary and conclusion.

Conclusion:

Capsule *Kanashatahwadikashaya* and Capsule PCONIDD individually and in combination were found effective in PCOD.

CONCLUSION

- Today's lifestyle behavior like junk food habits, irregular dietary pattern and physical inactivity leads to menstrual irregularities related to PCOD especially in age group of 20-25 years.
- *Guru, Atimadhuraaharasevana, Vishamashana, Anashana, Adhyashana, Diwaswapna , Ratrijagarana and Avyayama leads to Agnidushti, Dhatudushti* and further *Artavahasrotodushti*
- Not all women who suffer from PCOD will have all of same symptoms. It is differ depending upon the level of severity.
- *Vata-Kaphahara, Ushnavirya, Rukshaguna, Agnivardhaka, Dipana, Pachana, Lekhana, Balya* drugs helps to break down the samprapti of *Artavkshaya* related to PCOD.
- *Capsule Kanashatahwadikashaya* individually was found statistically significant in normalizing duration (45.5%)and interval of menstrual cycle(63.7%), improving the quantity of menstruation(81.8%), relieving the pain during menstruation(59.1%) and in reducing ovarian volume(57.3%).
- Capsule PCONIDD individually was found statistically significant in regularizing menstrual cycle (44.8%), improving the quantity of menstruation (55.0%), relieving pain during menstruation (59.9%), reducing ovarian volume (53.8%) and number of cysts (61.7%).
- Both combine capsules has significant result in regularinzing menstrual cycle (61.2%), reducing ovarian volume (50.1%) and number of cyst (55.4%).

CONCLUSION

- Thus Null hypothesis is rejected and alternative hypothesis is accepted, Capsule Kanashatahwadikashaya and Capsule PCONIDD individually and combination effective in PCOD.

ADVERSE DRUG REACTION

- No ADR was observed during the study period.
- Capsule *Kanashatahwadikashaya* show relief in Premenstrual syndrome i.e. normalized bowel and appetite, relief in breast, abdomen and pelvic - pain, mood swings and irritability before the menses.

LIMITATION OF THE STUDY

- In *Sahasrayoga Kanashatahwadi* mentioned as *Kashaya kalpana* and use it in authentically *kashaya* form might be more effective.
- The data was taken 3 follow up periods such as BT, DT1, DT2 and AT with a gap of 1 month to check whether there was any significant result or not between this period. Only those subjects whose all four reading were present considered for the statistical test. There were a few subjects whose reading could not be taken due to amenorrhea. Hence the sample size being differ in each groups of study. So the limitation of study can be rectified with further studies on a larger sample.
- There were no previous research on capsule PCONIDD and capsule *Kanashatawahadikashaya*.
- Both capsules have *Pramehghna* property, but as per exclusion criteria of *Prameha*, the outcome could not be measured.

FUTURE SCOPES

- The study can be conducted in single group on larger sample with longer duration of treatment.
- The study can be done by comparing the classical *Shodhana* with *Shamana* drugs or combination.
- The study on Capsule *Kanashatahwadhikashaya* can be conducted on Premenstrual syndrome.
- This type of studies can promote these formulations in list of formulary of drug dispensing specially will use in different type of disease like *Artavakshaya, Anartava, Kashtartava.*