A CLINICAL STUDY TO EVALUATE THE EFFICACY OF CHATURBEJ CHURNA AND KAISHORE GUGGULU IN KASHTARTAVA (SPASMODIC AND CONGESTIVE DYSMENORRHEA)

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ABSTRACT

Dysmenorrhea (Dys - difficult, Men -month, Rhein - to flow) - the painful menstruation. 60-70% of women suffer from dysmenorrhea (Kashtartava) out of which 20-25% remains incapacitated for 1-3 days during each cycle but only 5-8% seek medical advice. It is of two types: Primary and secondary dysmenorrhea. It is a common ailment having a major impact over both physical and mental status of women. To find out the best available in Ayurvedic texts, present study was planned to cure the dysmenorrhea with the help of some herbal formulations used orally. For the study 50 patients were selected in a single group out of which 34 were of spasmodic and 16 were of congestive dysmenorrhea. Results were evaluated on basis of improvement in clinical symptoms such as intensity, duration of pain and associated symptoms etc. Subjects were also assessed regarding the intensity of pain on the basis of VAS (visual analogue scale). The data obtained in clinical study before and after treatment was expressed in term of mean, standard deviation (± SD) and standard Error (±SE). At the end of the period it was found that both the drugs showed marked improvement in the symptoms of spasmodic dysmenorrhea only whereas no improvement was observed in the congestive dysmenorrhea.

Keywords: Kashtartava, Chaturbeej churna, Kaishore guggulu

INTRODUCTION

Puberty is the period during which secondary sexual characteristics develop and capability of sexual reproduction is attained1. The major landmark of puberty for females is menarche i.e. the onset of menstruation. Menstruation (men-stray-shuhn) is a woman's monthly bleeding commonly known as menstrual cycle. The menstrual cycle is the cycle of natural changes that occurs in the uterus and ovary as an essential part of making sexual reproduction possible. Dysmenorrhea literally means painful menstruation2. Some degree of discomfort during menses is observed in most of the women but when it becomes unbearable and affecting the day to day activities then it is called dysmenorrhea. It can be classified into two types- primary and secondary dysmenorrhea. Primary dysmenorrhea refers to one that is not associated with any identifiable pelvic pathology. It affects more than 50% of the post pubescent women in the age group of 18-25 years with ovulatory cycles. Secondary dysmenorrhea refers to one associated with presence of organic pelvic pathology i.e. fibroids, adenomyosis, pelvic inflammatory disease, endometriosis3. Kashtartava is formed of two words- “Kashta and Artava.” Kashta means painful, difficult and troublesome. Artava means menstruation. So, the Kashtartava means, “the menstruation occurring with pain.” This may affect the health and working capacity of a woman adversely. In Ayurvedic classics all the gynecological problems are described under the umbrella of Yoniyavapada. The disease Kashtartava is not described in classics as a separate entity. It is present as a symptom of various Yoniyavapas especially Vatala45, Udavartini6-9, Pariputla10 and Sannipatikut11 etc. It is a Tridoshaja vyadh with predominance of Vata. Ayurveda which has existed for over 1000 years has always provided a special branch of medicine just for women offering natural and effective alternatives. In the light of modern medicine, the line of management of dysmenorrhea is symptomatic and does not provide permanent cure for the disease. Thus, the present study, "A clinical study to evaluate the efficacy of Chaturbeej Churna and Kaishore Guggulu in the management of Kashtartava (Spasmodic and Congestive Dysmenorrhea)" aims to take care of these complaints with herbal formulations.

Chaturbeej churna has been mentioned in Bhava Prakash Nighantu12 as vatashamak and shoolhara. Kaishore guggulu13 is described as shothhara and tridoshnashak in Bhaishhayat Ratnavali.

MATERIALS AND METHODS

Study design: The study was single group open trial conducted between the years 2013-2014. A prior approval of Ethics Committee was obtained before initiation of trial vide IEC/2013/366 dated 10-06-2013. Written and informed consent of the women was taken before the registration for study.

Grouping of the patients: 50 women fulfilling the inclusion criteria were randomly selected into test group for the clinical study. But 4 patients did not turn up and thus dropped out. The patients were diagnosed into spasmodic and congestive dysmenorrhea on the basis of signs and symptoms.

Selection of patients- The patients were selected from OPD/IPD of PTSR Department of R.G.G. P.G. Ayurvedic Hospital, Paprola, irrespective of caste and religion.

Criteria of inclusion
- Patients with the chief complaints of Kashtartava (dysmenorrhea).


- Patients of age group 15-40 years.
- Married and unmarried.
- Patients willing for the trial.

**Criteria of exclusion**
- Patient not willing for trial.
- Age group < 15 years and >40 years.
- Patient not fulfilling the inclusion criteria.

- Any other chronic illness - Diabetes Mellitus, hypertension, Fibroid, Endometriosis, Adenomyosis, Malignancies, Congenital anatomical anomalies.
- Pregnancy.
- Allergic conditions, Syphilis, Gonorrhea, HIV.

**Trial drugs**
Chaturbeeja Churna
Kaishore Guggulu

| Name            | Botanical name                  | Part used |
|-----------------|---------------------------------|-----------|
| Methika         | Trigonella foenum graecum Linn. | Beeja     |
| Chandarshoor    | Lepidium sativum Linn.          | Beeja     |
| Kalajai         | Nigella sativa Linn.            | Beeja     |
| Yavani          | Trachyspermum ammi Linn.        | Beeja     |

Table 1: Ingredients of Chaturbeeja Churna

| Name            | Botanical name                  | Part used |
|-----------------|---------------------------------|-----------|
| Guggulu         | Commiphora mukul Hook ex. Stocks | Niryas    |
| Haritaki        | Terminalia chebulana Retz.      | Phala     |
| Bibhitaka       | Terminalia bellerica Roxb.      | Phala     |
| Anulaki         | Emblica officinalis Gaertn.     | Phala     |
| Guduchi         | Tinospora cordifolia Wild Miers ex Hook. F. & Thoms | Kanda |
| Pippali         | Piper longum Linn.              | Phala     |
| Maricha         | Piper nigrum Linn.              | Phala     |
| Shanthi         | Zingiber officinale Roxb.       | Kanda     |
| Vidanga         | Emblica ribes Burm. F.          | Phala     |
| Nishotha        | Operculina turpethum Linn. Silva Manso | Moola twak |
| Danti           | Baliospermum montanum Muell Arg. | Moola     |

Table 2: Ingredients of Kaishore Guggulu

**Determination of Dose**
Chaturbeeja churna 3gm B.D with luke warm water.
Kaishore guggulu 500mg tid with milk/luke warm water.

**Nature of Administration:** 7 days before the onset of period up to 3 days during the period.

**Duration of trial:** Three consecutive menstrual cycles with monthly follow up at the end of period.

**CRITERIA FOR ASSESSMENT**
The effect of treatment (results) was assessed regarding the clinical signs and symptoms (on the basis of VAS and grading, scoring system) and the overall improvement.

The criteria adopted for intensity of pain was VAS (Visual Analogue Scale), Visual Analogue Scale (VAS) is measurement instrument that tries to measure a characteristic or attitude that is believed to range across a continuum of values and cannot easily be directly measured. Operationally VAS is usually a horizontal line, 100 mm (10 cm) in length, anchored by word descriptor at each end, as illustrated in figure.

The patient marks on the line the point that they feel represent their perception of their current state. The VAS score is determined by measuring in millimeters from the left-hand end of the line to the point that the patient marks. The sign and symptoms were assessed by adopting suitable scoring methods. The details are as follow:

| Table: 3 Overall score of each symptom |
|---------------------------------------|
| Symptom                        | Score |
| Absence of symptom              | 0     |
| Presence in mild degree          | 1     |
| Presence in moderate degree      | 2     |
| Presence in severe degree        | 3     |

**Figure 1 Visual analogue scale**

![Visual Analogue Scale](image)

The patient marks on the line the point that they feel represent their perception of their current state.
Table: 4 Scoring according to VAS

| Symptom            | VAS Score | Final score |
|--------------------|-----------|-------------|
| No pain            | VAS -0    | 0           |
| Mild pain          | VAS 1-3   | 1           |
| Moderate pain      | VAS 4-6   | 2           |
| Severe pain        | VAS 7-10  | 3           |

STATISTICAL ANALYSIS

The data obtained in clinical study before and after treatment was expressed in term of mean, standard deviation (± SD) and standard Error (±SE). Appropriate test like t- test was applied to observe the significance between before and after treatment and regarding inter group comparison of drug effects.

The obtained results were interpreted as:
- Insignificant result p > 0.05
- Significant p < 0.01
- Highly significant p < 0.001

RESULTS AND DISCUSSION

Table 5: Statistical analysis of effect of therapy on Spasmodic dysmenorrhea

| Symptoms                  | Mean score | Relief | Paired 't' test |
|---------------------------|------------|--------|----------------|
|                           |            |        |                |
|                           | B.T.       | A.T.   | Diff. | In % | S.D. + | S.E. + | t     | P       |
| Duration                  | 32         | 2.46   | 0.46  | 2.02 | 81.30 | 0.567  | 0.100 | 19.9   | <0.001 |
| Intensity                 | 32         | 2.28   | 0.46  | 1.81 | 79.43 | 0.535  | 0.945 | 19.1   | <0.001 |
| Associated features       |            |        |       |      |       |        |       |        |
| Nausea                    | 20         | 2.40   | 0.60  | 1.80 | 75.75 | 0.410  | 0.091 | 19.6   | <0.001 |
| Vomiting                  | 16         | 2.43   | 0.56  | 1.87 | 76.95 | 0.341  | 0.085 | 21.9   | <0.001 |
| Breast t.                 | 10         | 2.40   | 0.30  | 2.10 | 87.50 | 0.567  | 0.179 | 11.6   | <0.001 |
| Headache                  | 9          | 2.44   | 2.00  | 0.44 | 81.90 | 0.500  | 0.166 | 12.0   | <0.001 |
| Vertigo                   | 4          | 2.50   | 0.25  | 2.25 | 90.00 | 0.500  | 0.250 | 9.0    | <0.01  |
| Diarrhea                  | 7          | 2.00   | 0.00  | 2.00 | 100.00| 0.577  | 3.464 | 3.4    | <0.05  |
| Anorexia                  | 15         | 2.22   | 0.53  | 1.66 | 75.45 | 0.487  | 0.125 | 13.2   | <0.001 |
| Nervousness               | 2          | 1.50   | 0.00  | 1.50 | 100.00| 0.707  | 0.500 | 3.0    | >0.05  |
| Irritability              | 9          | 2.11   | 0.33  | 1.77 | 83.80 | 0.440  | 0.146 | 12.0   | <0.001 |
| Constipation              | 9          | 2.22   | 0.33  | 1.88 | 84.68 | 0.600  | 0.200 | 9.4    | <0.001 |

Table 6: Statistical analysis of effect of therapy on Congestive dysmenorrhea

| Symptoms                  | Mean score | Relief | Paired 't' test |
|---------------------------|------------|--------|----------------|
|                           |            |        |                |
|                           | B.T.       | A.T.   | Diff. | In % | S.D. + | S.E. + | t     | P       |
| Duration                  | 14         | 2.07   | 1.86  | 0.214| 10.35 | 0.579  | 0.155 | 13.8   | >0.05  |
| Intensity                 | 14         | 2.28   | 2.00  | 0.29 | 12.50 | 0.611  | 0.163 | 1.7    | >0.05  |
| Associated features       |            |        |       |      |       |        |       |        |
| Nausea                    | 5          | 2.60   | 1.20  | 1.40 | 53.81 | 1.140  | 0.509 | 2.8    | <0.05  |
| Vomiting                  | 0          | -      | -     | -    | -     | -      | -     | -      |
| Breast t.                 | 5          | 2.60   | 1.60  | 1.00 | 38.0  | 0.707  | 0.316 | 3.2    | <0.01  |
| Headache                  | 6          | 2.16   | 1.50  | 0.66 | 30.0  | 0.516  | 0.210 | 3.1    | <0.01  |
| Vertigo                   | 0          | -      | -     | -    | -     | -      | -     | -      |
| Diarrhea                  | 0          | -      | -     | -    | -     | -      | -     | -      |
| Anorexia                  | 6          | 1.83   | 0.83  | 1.00 | 54.60 | 0.894  | 0.365 | 2.8    | <0.01  |
| Nervousness               | 0          | -      | -     | -    | -     | -      | -     | -      |
| Irritability              | 9          | 2.33   | 1.77  | 0.55 | 23.81 | 0.726  | 0.242 | 2.3    | <0.05  |
| Constipation              | 7          | 1.85   | 1.14  | 0.71 | 38.59 | 0.755  | 0.285 | 2.5    | <0.05  |

Overall Effect of Therapy In 46 Patients

Table 7: Effect of therapy on Spasmodic Dysmenorrhea

| Sr. No. | Result          | No. of patients | % age |
|---------|-----------------|-----------------|-------|
| 1.      | Completely Cured| 05              | 15    |
| 2.      | Markedly improved| 21              | 65.60 |
| 3.      | Moderately improved| 06      | 18.75 |
| 4.      | Mildly improved | 0              | 0     |
| 5.      | Unchanged       | 0              | 0     |

Table reveals that maximum number of patients i.e. 65.6% shown marked improvement and 18.75% patients were moderately improved and 15% patients were completely cured, and no patient was unimproved.
Table 8: Effect of therapy on Congestive Dysmenorrhea

| Sr. No. | Result             | No. of patients | % age  |
|---------|--------------------|-----------------|--------|
| 1.      | Completely Cured   | 0               | 0      |
| 2.      | Markedly improved  | 0               | 0      |
| 3.      | Moderately improved| 01              | 7.14   |
| 4.      | Mildly improved    | 03              | 21.43  |
| 5.      | Unchanged          | 10              | 71.42  |

The table indicates that 21.43% patients were mildly improved and 7.14% were moderately improved in case of congestive dysmenorrhea.

Marked improvement was observed in the patients suffering from Spasmodic dysmenorrhea but in case of Congestive dysmenorrhea statistically insignificant results were obtained. Therefore, it is concluded that the drug showed significant results in Primary dysmenorrhea not in Congestive dysmenorrhea.

Probable mode of action of Chaturbeja churna

Chaturbeja churna has predominantly katu rasa, snigdha guna and ushna virya with vata-hara karma which pacified the vata dosha mainly due to ushna virya. Also have garbhshadhi and shoohal properties. Due to the garbhshaya shodhaka and sankochaka (ebolic) action of the Kalajaji it abolishes margavrodha i.e. sanga thus alleviating the vata dosha. Further, the prepared Churna has bitter (Katu) taste, thus having mukhashodhaka and agnívardhaka properties. So, it increases appetite, digestion and reduces nausea and vomiting. In formulations, component drugs have synergistic and antagonistic actions and net effect is seen in the final formulation.

As mentioned in Charaka, some drugs act by Rasa, some by Virya, some by Guna, some by Virya and some act by Prabhava. Also, the drug acts by that factor which predominates the others in its composition.

Probable mode of action of Kaishore guggulu

The Probable mode of action of Kaishore guggulu on Kashtartava can be explained as follows –

1. Effect on Dosha: Kaishore guggulu encounters vata, pitta and kapha dosha by virtue of its madhura rasa, kshaya rasa, tikta rasa respectively. Therefore, it acts as tridoshhara. Maximum constituents of drug have madhurvipaka, by virtue of which it is anulomaka thus relieving pratiloma gati of apana vayu thus causing samyaka akunchan prasaran.

2. Effect on Dushya, Agni & Ama: Most of drugs are deepana, pachana, laghu, ruksha, ushna and tikth. So, they encounter agnimandya & potentiate the weakened dhatwagni and help in amapachana thereby alleviate dushit rasa and artava.

3. Effect on Srotas: Due to amapachana and maargaan Vivrunoti action of katu-rasa, all the involved channels are dilated. So the Srotorodha is removed and rasa- rakta- artavavaha srotovishodhana occurs.

4. Effect on Vyadhi: Many of the drugs are garbhshaya sankochak, rajorodhnashak, shothhar and vedanasthapak by virtue of prabhava which lead to garbhshaya shuddhi and thus helps in easy passage of artava (Menstruation). Also due to deepan pachan properties drug has relieving effect on associated features like Aruchi, Malasanga, Chhardi, Hrillas, Bhrama etc. Drugs like Guduchi, Guggulu, Triphala, Sunthi, Pippali and Vidanga are Rasayana (72.73%). So, they work as a Naimittika Rasayana, enhance the nature of relief & stop the recurrences.

In nut shell in Kaishore guggulu maximum ingredients have katu rasa & laghu, ruksha and ushna virya, katu vipaka, vata-kapha shamak, amapachana, dhatu shodhan properties. These properties of formulation help to breakdown the pathogenesis of the disease.
The drugs showed significant spasmolytic activity probably mediated through calcium channel blockade. Thus, relieves the pain by direct action on the myometrium. Anti-oxidant activity of the drugs by free-radical scavenging enhances the immunity and general strength of the body. It increases the pain threshold and facilitates better pain tolerance capacity. The drug alters prostaglandin production probably by altering arachidonic acid metabolism. Thus, has anti-inflammatory action and relieves the pain. It inhibits platelet aggregation, thus preventing clot formation. The drugs contain various minerals (Iron, Calcium, Phosphorus etc.) and vitamins (A, B, C) which are also necessary to maintain good health and proper functioning of the body systems. Thus, all these contribute to better health and improved psychology of the patients, allowing them better pain tolerance and even healthier stress-free life.

CONCLUSION

From the present study it can be concluded that 60-70% women suffer from Kashtartava out of which 20-25% remains incapacitated for 1-3 days during each cycle but only 5-8% seek medical advice. Kashtartava can occur in the patient of any age group during her entire reproductive period. Primary dysmenorrhea is mostly found in younger age group (21-30 years) among which students are commonest. Secondary dysmenorrhea is prevalent in the late thirties especially in married and nulliparous females. The drugs Chaturbeej churna and Kaischore guggulu mentioned in Ayurvedic classics relieve Kashtartava by virtue of their Rasapanchaka, Prabhava and Karma. The drugs were well tolerated by the patient. No undue adverse effects were noted in any patient.

Both the drugs showed marked improvement in the intensity, duration and associated symptoms of Spasmodic dysmenorrhea only whereas no improvement was observed in the Congestive dysmenorrhea.

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REFERENCES

1. Berek’s and Novak’s gynaecology 15th edition, Jonathan S. Berek, Deborah L. Berek, page 992
2. D.C. Dutta Text book of Gynecology, 6th edition, Edited by Hiralal Konar, page 171
3. Hawkins and Bourne, Shaw’s text book of Gynecology 16th edition, edited by VG Padubidri, Shirish N. Daftary.
4. Agnivesa, Charaka samhita with Ayurveda Deepika Commentary of Chakrapani, edited by Vaidya Yadavji Trikamji Acharya, Chaukambha Surbharati Prakashan Varanasi, Chiktis sthan chapter 30 verse 9, 2013; p639.
5. Srimadvagbhata, Ashtanga Hridayam, Chaukambha Sanskrit Pratishthan Delhi, Uttar sthan chapter 33 verse 29, 2013; p1129.
6. Agnivesa, Charaka samhita with Ayurveda Deepika Commentary of Chakrapani, edited by Vaidya Yadavji Trikamji Acharya, Chaukamhha Surbharati Prakashan Varanasi, Chiktis sthan chapter 30 verse 25, 2013; p635.
7. Sushruta, Sushruta samhita, Sahna commentary, Nibandha Sangrah edited by Vaidya Jadhavji Trikamji Acharya, Chaukambha Orientalia Varanasi, Uttar tantra chapter 38 verse 9, 2012; p669.
8. Srimadvagbhata, Ashtanga Hridayam, Chaukambha Sanskrit Pratishthan Delhi, Uttar sthan chapter 33 verse, 2013; p1130.
9. Sri Bhavmisra, Bhavaprakasa, vol.2 edited with the Vidyotini Hindi Commentary, by Pandit Sri Brahma Sanskara Misra, Chaukambha Sanskrit Bhawan Varanasi, Madhyam Khanda chapter 70 verse 6, p758.
10. Agnivesa, Charaka samhita with Ayurveda Deepika Commentary of Chakrapani, edited by Vaidya Yadavji
Trikamji Acharya, Chaukhambha Surbharati Prakashan Varanasi, Chikitsa sthan chapter 30 verse 14, 2013; p635.
11. Agnivesa, Charaka samhita with Ayurveda Deepika Commentary of Chakrapani, edited by Vaidya Yadavji Trikamji Acharya, Chaukhambha Surbharati Prakashan Varanasi, Chikitsa sthan chapter 30 verse 14, 2013; p635.
12. Bhavmisra, Bhavaprakasa Nighantu- Hindi Commentary by K.C. Chunekar, edited by G.S. Pandey, Chaukhambha Bharti Academy Varanasi, Haritakyadi Varga, verse 98-99, 2013; p39.
13. Kaviraj Govinddas Sen, Bhaishjaya Ratnavali, with Siddhiprada Hindi commentary by Prof. Siddhi Nandan Mishra, Chaukhambha Surbharati Prakashan Varanasi, Vol. 1 chapter 27, verse 104-113; p382.
14. Bhavmisra, Bhavaprakasa Nighantu- Hindi Commentary by K.C. Chunekar, edited by G.S. Pandey, Chaukhambha Bharti Academy Varanasi, Haritakyadi Varga, verse 98-99, 2013; p39.
15. Bhavmisra, Bhavaprakasa Nighantu- Hindi Commentary by K.C. Chunekar, edited by G.S. Pandey, Chaukhambha Bharti Academy Varanasi, Haritakyadi Varga, verse 98-99, 2013; p32.
16. Agnivesa, Charaka samhita with Ayurveda Deepika Commentary of Chakrapani, edited by Vaidya Yadavji Trikamji Acharya, Chaukhambha Surbharati Prakashan Varanasi, Sutra sthan chapter 26 verse 71, 2013; p148.
17. Bhavmisra, Bhavaprakasa Nighantu- Hindi Commentary by K.C. Chunekar, edited by G.S. Pandey, Chaukhambha Bharti Academy Varanasi, Haritakyadi Varga, verse 98-99, 2013; pg 195 shloka 38-41.
18. Agnivesa, Charaka samhita with Ayurveda Deepika Commentary of Chakrapani, edited by Vaidya Yadavji Trikamji Acharya, Chaukhambha Surbharati Prakashan Varanasi, Sutra sthan chapter 26 verse 42, 2013; p144.
19. Dravya guna vigyan by Prof. P. V. Sharma, Chaukhambha Bharti Academy Varanasi, vol 2,2012;pg 57
20. Seyed Hassan, Hejazian Seyyed, Majid Bagheri, Fatemeh Safari- Spasmolytic and antispasmodic action of Trachyspermum ammi essence on rat’s ileum contraction- proceedings of North American Journal of Medical Sciences 2014 Dec; 6(12): 643–647. PMCID: PMC4290054 PMID: 25590053
21. Singh N, Kumar S, Singh P, Raj HG, Piper longum Linn. extract inhibits TNF-alpha-induced expression of cell adhesion molecules by inhibiting NF-kappa B activation and microsomal lipid peroxidation- proceedings of International journal of phytotherapy and phytopharmacology. 2008 Apr ; 15(4):284-91. PMID: 17689945
22. Leung’s encyclopedia of common natural ingredients Pdf 3rd edition, p287.
23. Ganesh Chandra Jagetia and Shaival Kamalaksha Rao. Evaluation of cytotoxic effects of dichloromethane extract of Guduchi (tinospora cordifolia) on cultured hela cells - proceedings of evidence based compliment alternative medicine.2006June; 3(2):267-272. PMCID:PMC1475936
24. Ahmed RS, Seth V, Banerjee BD- Influence of dietary ginger (Zingiber officinale Rosc) on antioxidant defence system in rat: comparison with ascorbic acid- proceedings of Indian Journal of Experimental Biology. 2000 Jun; 38(6):284-91. PMID:1111653

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