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Research Article

A COMPARATIVE CLINICAL STUDY OF *HINGVADI CHURNA* AND *RAJAH-PRAVARTANI-VATI* ON *KASHTARTAVA* W.S.R TO PRIMARY DYSMENORRHOEA

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KEYWORDS: *Kashtartava*, Primary dysmenorrhoea, *Hingvadi Churna, Rajahpravartini Vati.*

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ABSTRACT

Primary dysmenorrhoea can be correlated with *Kashtartava* which is characterized by painful menstruation. According to Ayurveda, pain is an indication of *Vata Vikriti – 'Na hi vaatadrite Shoolam'*. *Apana Vayu* has been given prime importance in Gynecological disorders. Normal menstruation is the function of the *Apanavata*, so painful menstruation is considered as *Apanavatadushti*. *Vyana Vata* has control over the muscles which brings about actions such as contraction, relaxation, extension, flexion etc. According to *Acharya Charaka, Vata* plays a key role in all types of *Yoni Roga*. As *Vata* is the main causative factor, it should be treated first. According to *Acharya Vagbhata* all measures capable of suppressing *Vata* are indicated. Till date, no successful advances have been made in the management of Primary dysmenorrhoea by conventional medicine. The best evidence-based treatments are NSAIDs and hormonal contraceptives but they have a lot of side effects. Owing to the gravity of the situation, need is felt for search of safe/more effective, palatable oral dosage forms to reduce pain during menstrual period. A systematic review of studies in developing countries performed by Harlow and Campbell has revealed that about 25-50% of adult women and about 75% of adolescents experience pain during menstruation. It is a randomized comparative clinical trial with 30 patients fulfilling the inclusion criteria were selected for the trial. The selected patients were randomly divided into 2 groups, 15 patients each. The duration of treatment was from 7th day due date of menstrual cycle to next menstrual cycle for 60 days. The assessment was done after each cycle on 5th day of cycle and follow-up for the next menstrual cycle. The test of significance showed that the efficacy of *Hingvadi churna* is more than *Rajahpravartini vati* in *Kashtartava.*

INTRODUCTION

Dysmenorrhoea is the most common gynaecological problem faced by women during their adolescence which causes significant discomfort and anxiety for the woman as well as family. Dysmenorrhoea itself is not life threatening, but is found to have a profound impact on the daily activities and may result in missing work or school, inability to participate in sports or other activities. Thereby, it may accentuate the emotional distress brought on by the pain[1].

Not less than 50% of women are said to experience some discomfort in relation to menstruation, and 5-10% of girls in their late teens and early twenties are incapacitated for several hours each month. Estimates vary widely because of difference in the criteria of dysmenorrhoea and because most investigations concern only one

section of the community. The incidence of dysmenorrhoea is affected by social status, occupation and age, so groups of school girls, college students, factory workers, and women members of armed forces each provide different statistics.[2]

In Ayurveda dysmenorrhoea is not described as a separate disease entity. It can be because women were not suffering much from this problem those days because of pin pointed *Ritucharya* and *Rajasvalacharya*. Though word *Kashtartava* is not separately described as a disease in Ayurvedic classics there are many other diseases in which *Kashtartava* is considered and is described as a symptom. Hence, this study is particular about the description regarding *Kashtartava* on the basis of scattered classical references.

AIMS AND OBJECTIVES

- To study aetiopathogenesis of *Kashtartava* and to explore the clinical consequences.
- To evaluate the effect of *Hingvadi Churna* in dysmenorrhoea.
- To evaluate the effect of the *Rajah Pravartini vati in* dysmenorrhoea.
- To compare the efficacy of trial drugs in the management of dysmenorrhoea.

MATERIAL AND METHODS

Ethical Clearance

Design of the Study: The method adopted in present study is randomized, clinical, open study.

Selection of Cases: Total 30 clinically diagnosed and confirmed cases of Primary Dysmenorrhoea were registered from the O.P.D./I.P.D., N.I.A. Hospital, Jaipur.

Inclusion Criteria: Participants coming with chief complaint of *Kashtartava* with scanty or average amount of menses, Participants in age group of 14 to 30 years, Participants suffering with *Kashtartava* for more than 2 consecutive cycles.

Exclusion Criteria: Participants suffering from secondary dysmenorrhoea, STIs, systemic diseases, Participants having organic pathology of uterus and adnexa e.g. Fibroid uterus, carcinoma of endometrium etc, Participants having Dysfunctional Uterine Bleeding, Participants with H/O Thyroid dysfunction.

Investigations: Laboratory investigations were carried out before treatment to rule out any other pathological conditions

Haematological: CBC, HIV, HbsAg, VDRL, Random blood sugar, Monteux test (if needed), Thyroid profile (if needed).

Urine: Routine and microscopic examination.

Sonography (U.S.G.): For uterine and adnexal study (if needed) to rule out any pathology or lesion.

Posology: Patients included in the present study are randomly divided into following two groups:

	Group-A	**Group-B**
Drug	*Hingvadi Churna*	*Rajah-Pravartini-Vati*
Dose	3gm twice a day with lukewarm water	500mg twice a day with lukewarm water
Route	Oral	Oral
Duration	For two consecutive menstrual cycle/60 days	For two consecutive menstrual cycle/60 days

Duration for clinical trial

The trial will be carried out for 60days in two consecutive menstrual cycles.

Follow up study

Case will be followed during trial fortnightly for 2 consecutive menstrual cycles. Clinical assessment will be done after completion of third consecutive menstrual cycles.

Criteria of Assessment

Assessment of Pain (Dysmenorrhoea): A special Scoring Pattern was applied in symptoms:

Pain Intensity	**Grade**
Absent	0
Mild (pain do not interfere with daily activity)	1
Moderate (daily activity hampers, relieves with analgesics)	2
Severe (do not relieved by analgesics)	3

Duration	**Grade**
Absent	0
Pain for one day (for few hours)	1
Pain for one day (for whole day)	2
Pain for>or=2 days	3

Nature of Pain	Grade
Absent	0
Occasional	1
Dull	2
Spasmodic	3

Menstrual Flow Duration	Grade
1 day	0
< or =2 days	1
3-4 days	2
> or =5 days	3

Menstrual Flow Amount	Grade
Scanty (spotting)	0
Average (1-2 pads)	1
Normal (3-4 pads)	2
Excessive (5 pads or more)	3

Visual Analog Scale

Worst pain

Imaginable and further it is assessed as follows

7 - 10	Severe Pain	Grade 0
6 - 4	Moderate Pain	Grade 1
1 - 3	Mild Pain	Grade 2
0	No Pain	Grade 3

Associated complaints: Total 10 complaints

7 -10	grade 0
4 - 6	grade 1
1 - 3	grade 2
0	grade 3

Rating Scale for the Assessment of Improvement in the Symptoms After Therapy

Percentage of Relief Effect

No relief	0% relief in the signs and symtoms
Mild relief	(1 to ≤ 25%) relief in the signs and symtoms
Moderate Relief	(>25 to ≤ 50%) relief in the signs and symtoms
Significant relief	(>50 to ≤ 75%) relief in the signs and symtoms
Excellent Relief	(>75%) relief in the signs and symtoms

Statistical Evaluation of results

Further the effect of the treatment of signs and symptoms were analyzed statistically by Mean, SD, and SE, 'paired Wilcoxon signed rank test 'and' unpaired Mann-Whitney test for non-parametric study.

OBSERVATIONS AND RESULTS

Table 1: Shows the pattern of clinical recovery in various Subjective Parameters of *Kashtartava* in 15 patients treated with *Hingvadi Churna* orally- Group A by Wilcoxon-ranks test matched-pairs signed-ranks test

S No	Symptoms	Mean		Dif.	% of Relief	SD	SE	P	Results
		BT	AT						
1.	Pain Intensity	2.40	3.40	1.00	83.33%	0.654	0.169	<0.0001	H.S.
2.	Pain Duration	2.33	0.40	1.93	82.85%	0.798	0.206	<0.0001	H.S.
3.	Nature of Pain	2.53	0.73	1.80	71.06%	0.676	0.174	<0.0001	H.S.
4.	Flow Duration	1.60	1.73	-0.13	8.33%	0.639	0.165	> 0.05	N.S.
5.	Flow Amount	1.46	1.53	-0.06	4.54%	0.593	0.153	> 0.05	N.S.
6.	Associated Symptoms	2.06	0.53	1.53	74.16%	0.639	0.165	<0.0001	H.S.
7.	VAS Scale	2.60	0.60	2.00	76.92%	0.925	0.239	<0.0001	H.S.

Highly significant results are shown on Pain Intensity, Pain Duration, Nature of Pain, Associated symptoms and VAS Scale. Results on Flow Duration and amount of flow were not significant.

Table 2: Shows the pattern of clinical recovery in various Associated Symptoms of *Kashtartava* in 15 patients treated with *Hingvadi Churna* orally- Group A by Wilcoxon matched-pairs signed-ranks test

S.No	Symptoms	Mean		Dif.	% of Relief	SD	SE	P	Results
		BT	AT						
1.	Nausea	0.80	0.13	0.66	83.33%	0.48	0.12	<0.001	H.S.
2.	Vomiting	0.40	0.13	0.26	66.67%	0.45	0.11	> 0.05	N.S.
3.	Fatigue	0.86	0.13	0.73	84.60%	0.45	0.11	<0.001	H.S.
4.	Headache	0.60	0.20	0.40	66.66%	0.50	0.13	< 0.05	S.
5.	Fainting	0.26	0.13	0.13	49.98%	0.35	0.09	> 0.05	N.S.
6.	Sweat	0.53	0.13	0.40	75.00%	0.50	0.13	< 0.05	S.
7.	Diarrhoea	0.20	0.06	0.13	66.65%	0.35	0.090	> 0.05	N.S.
8.	Constipation	0.80	0.33	0.46	58.33%	0.51	0.13	< 0.05	S.
9.	Vaginal Discharge	0.13	0.06	0.06	50.01%	0.25	0.06	> 0.05	N.S.
10.	Breast Tenderness	0.80	0.20	0.60	75.00%	0.50	0.13	< 0.001	H.S.
11.	Giddiness	0.80	0.13	0.67	83.33%	0.48	0.12	< 0.001	H.S.

Highly significant results are shown on Nausea, Fatigue, Breast tenderness and Giddiness. Significant results obtained on Sweat, Headache and Constipation. Results on Fainting, Vaginal discharge, Vomiting and Diarrhoea were Non-significant.

Table 3: Shows the pattern of clinical recovery in various Subjective Parameters of *Kashtartava* in 15 patients treated with *Rajah Pravartini Vati* orally Group B by Wilcoxon matched-pairs signed-ranks test

S.No	Symptoms	Mean		Dif.	% of Change	SD	SE	P	Results
		BT	AT						
1.	Pain Intensity	2.467	1.333	1.133	53.91%	0.7432	0.1919	<0.0001	H.S.
2.	Pain Duration	2.467	1.133	1.333	54.03%	0.7237	0.1869	< 0.0001	H.S.
3.	Nature of Pain	2.333	0.93333	1.400	60.00%	0.6325	0.1633	<0.0001	H.S.
4.	Associated Symptoms	2.000	0.6000	1.400	70%	0.7368	0.1902	<0.0001	H.S.
5.	VAS Scale	2.467	0.9333	1.533	62.14%	0.6399	0.1652	< 0.0001	H.S.
6.	Flow Duration	1.733	2.133	-0.400	-23.08%	0.6325	0.1633	>0.05	N.S.
7.	Flow Amount	1.533	1.929	-0.4286	-26.66%	0.7559	0.2020	>0.05	N.S.

Highly significant results are shown on Pain Intensity, Pain Duration, Nature of Pain, Associated symptoms and VAS Scale. Results on Flow Duration and Flow Amount were Non-significant.

Table 4: Shows the pattern of clinical recovery in various Associated Symptoms of *Kashtartava* in 15 patients treated *with Rajah Pravartini Vati* orally Group B by Wilcoxon matched-pairs signed-ranks test

S.No.	Symptoms	Mean		Dif.	% of Relief	SD	SE	P	Results
		BT	AT						
1.	Nausea	0.66	0.13	0.53	79.99%	0.51	0.13	< 0.001	H.S.
2.	Vomiting	0.53	0.26	0.26	50.00%	0.45	0.11	> 0.05	N.S
3.	Fatigue	0.93	0.20	0.73	78.57%	0.45	0.11	< 0.001	H.S.
4.	Headache	0.46	0.06	0.40	85.7%	0.50	0.13	< 0.05	S.
5.	Fainting	0.20	0.06	0.13	66.65%	0.35	0.09	> 0.05	N.S.
6.	Sweat	0.66	0.13	0.53	79.99%	0.51	0.13	< 0.001	H.S.
7.	Diarrhoea	0.13	0.06	0.06	50.01%	0.25	0.06	> 0.05	N.S.
8.	Constipation	0.53	0.26	0.26	50.00%	0.45	0.11	> 0.05	N.S.
9.	Vaginal Discharge	0.33	0.20	0.13	39.99%	0.35	0.09	> 0.05	N.S.
10.	Breast Tenderness	0.66	0.20	0.46	70.00%	0.51	0.13	< 0.05	S.
11.	Giddiness	0.80	0.40	0.40	50.00%	0.50	0.13	< 0.05	S.

Highly significant results are shown on Nausea, Fatigue and Sweat. Significant results obtained on Headache, Breast tenderness and Giddiness. Results on Fainting, Vomiting, Diarrhoea, Constipation and Vaginal discharge were Non-significant.

Table 5: Inter Group Comparison in Associated Symptoms of *Kashtartava* by Mann-Whitney Test

Symptoms	Group	Mean Dif.	S.D.±	S.E.±	P	Result
Nausea	Group A	0.6667	0.4880	0.1260	>0.05	N.S.
	Group B	0.3333	0.4880	0.1260		
Vomiting	Group A	0.2667	0.4577	0.1182	>0.05	N.S
	Group B	0.2667	0.4577	0.1182		
Fatigue	Group A	0.7333	0.4577	0.1182	>0.05	N.S
	Group B	0.7333	0.4577	0.1182		
Headache	Group A	0.2667	0.4577	0.1182	>0.05	N.S
	Group B	0.3333	0.4880	0.1260		
Fainting	Group A	0.1333	0.3519	0.09085	>0.05	N.S
	Group B	0.1333	0.3519	0.09085		
Sweat	Group A	0.4000	0.5071	0.1309	>0.05	N.S
	Group B	0.5333	05164	0.1333		
Diarrhoea	Group A	0.1333	0.3519	0.09085	>0.05	N.S
	Group B	0.06667	0.2582	0.06667		
Constipation	Group A	0.4667	0.5164	0.1333	>0.05	N.S
	Group B	0.2667	0.4577	0.1182		
Vaginal Discharge	Group A	0.06667	0.2582	0.06667	>0.05	N.S
	Group B	0.1333	0.3519	0.09085		
Breast Tenderness	Group A	0.6000	0.5071	0.1309	>0.05	N.S.
	Group B	0.4667	0.5164	0.1333		
Giddiness	Group A	0.6667	0.4880	0.1260	>0.05	N.S.
	Group B	0.4000	0.5071	0.1309		

Non-significant results were obtained in both groups. That shows that results in both groups were almost same.

Table 6: Inter Group Comparison in Subjective Parameters of *Kashtartava* by Mann-Whitney Test

Symptoms	Group	Mean Dif.	S.D.±	S.E.±	P	Result
Pain Intensity	Group A	2.000	0.6547	0.1690	< 0.001	H.S.
	Group B	1.133	0.7432	0.1919		
Pain Duration	Group A	1.933	0.7988	0.2063	>0.05	N.S.
	Group B	1.333	0.7237	0.1869		
Nature of Pain	Group A	1.800	0.6761	0.1746	>0.05	N.S.
	Group B	1.400	0.6325	0.1633		
Flow Duration	Group A	-0.1333	0.6399	0.1652	>0.05	N.S.
	Group B	-0.4000	0.6325	0.1633		
Flow Amount	Group A	-0.0667	0.5936	0.1533	>0.05	N.S.
	Group B	-0.4000	0.7368	0.1092		
Associated Symptoms	Group A	1.533	0.6399	0.1652	>0.05	N.S.
	Group B	1.400	0.7368	0,1902		
VAS Scale	Group A	2.000	0.9258	0.2390	< 0.001	H.S.
	Group B	0.9333	0.7988	0.2063		

Non-significant results were obtained in Pain Duration, Nature of Pain, Flow Duration and Flow Amount and associated symptoms. While highly significant result obtained in Pain intensity and VAS Scale in which Group A is better than Group B.

Table 7: Shows the % Improvement of Symptoms in Both Groups

S.NO.	Cardinal Symptoms	Result in Percentage	
		Group A	**Group B**
1	Nausea	83.33%	79.99%
2	Vomiting	66.67%	50.00%
3	Fatigue	84.60%	78.57%
4	Headache	66.66%	85.7%
5	Fainting	49.98%	66.65%
6	Sweat	75.00%	79.99%
7	Diarrhoea	66.65%	50.01%
8	Constipation	58.33%	50.00%
9	Vaginal Discharge	50.01%	39.99%
10	Breast Tenderness	75.00%	70.00%
11	Giddiness	83.33%	50.00%
12	Pain Intensity	83.33%	53.91%
13	Pain Duration	82.85%	54.03%
14	Nature of Pain	71.06%	60.00%
15	Flow Duration	08.33%	23.08%
16	Flow Amount	04.54%	26.66%
17	Associated Symptoms	74.16%	70%
18	VAS Scale	76.92%	62.14%
	Average % of relief	**63.05**%	**52.84**%

Average Percentage of relief

Comparing the symptomatic improvement in both groups it was found that Average percentage of relief was higher in 'Group A' i.e. 63.05%, followed by 'Group B' i.e., 52.84%. It shows that effect of therapy was more in Group A in comparison to Group B.

Table 8: Overall Effect of Therapy

S.No.	Effect of therapy	Result	Group A		Group B	
			No.	%	No.	%
1	Mild	(0 to 25%)	00	0.00%	00	0.00%
2	Moderate	(>25 to 50%)	01	06.66%	11	73.33%
3	Significant	(>50 to 75%)	11	73.33%	04	26.66%
4	Excellent	(>75%)	03	20.00%	00	0.00%

DISCUSSION

Mode of action of *Hingvadi Churna*[8]

Drugs of *Hingvadi Churna* have predominantly *Tikta, Katu, Kashaya* and *Amla Rasa. Tikta Rasa* has *Agni Vardhaka*, *Ruchya* and *Mukha Shodhaka* properties, so it increases appetite and improves digestion. *Kashaya Rasa* has the property of *Asravishodhana (Raktadushtihara*). *Amla Rasa* of *Matulung,* has properties like *Agnideeptikrut, Pachana* and *Rochana* which improves digestion, increases appetite. Its *Hridya* property reduces nausea and vomiting. *Amla Rasa* also has the property of *Muda Vata Anulomana* (*Mudam-Ananulomagam, Vata Mutra Purishaanaam Anulomanam*). *Katu Rasa, Usna Virya* and *Katu Vipaka* of *Yavakshar* increases appetite and improves digestion which brings about *Srotoshodhana*.

Laghu and *Ruksha* gunas of the drugs of pacify *Kapha* vitiation if any. *Sara, Ushna, Tikshna* and *Sookshma* properties of the drugs in the formulation remove *Avarana (Kapha)* and thus allow normal movement of *Apana Vata. Hingvadi Churna* mostly contains drugs having *Ushna Virya* which pacifies vitiated *Vata.* Most of the drugs in the *Yoga* have *Katu Madhura Vipaka* which also pacifies vitiated *Vata*. *Vata Anulomana*, *Shulahara, Shothahara, Srotovishodhana* properties of drugs of *Hingvadi churna* facilitates normal flow of *Vata* i.e. *Anuloma Gati* of *Apanavata*.

Mode of action of *Rajah Pravirtini Vati*[9]

It is effective in *Artavavikara*. *Hingu, Kumari, Tankan and Kasis* are the main ingredients of *Rajah Pravirtini Vati*. *Hingu (Ferula Asafoetida Linn)* has *Shoolahara* (colic pain reliever) and *Vatanulomana* (facilitator of downward movement of *Vata*) property which helps in normalising the function of *Apanvata*, which is main causative factor of *Kashtartava. Hingu* has anti flatulent and digestive properties & counteracts spasmodic disorders and may probably supress the secretion of progesterone hormone[3]. The gum resin contains the coumarins, 5-hydroxy-umbelliprenin, assafoetidin etc[4].

Kumari (*Aloe barbadensis* Mill.) has a characteristic bitter taste and used mainly as purgative, improves digestion; the cathartic properties of aloes are attributed to the presence of a mixture of glycosides called 'aloin'[5]. *Kumari* also contains beeta-sitosterol and has the anti-prostaglandin activity[6]. Cathartic property of this relives the obstruction in the pathways of *Vayu*, and there by relieves spasm.

Hingu, Tankana, Kasis are *Artavajanana* drugs. *Kasis* helps in *Rakta Dhatu Vriddhi*, which improve the uterine blood circulation (reduced blood circulation is a cause for dysmenorrhoea.) *Balya* (strength promoting) *(Kumari, Hingu, Tankana, Kasis) Rasayana (Kumari*) drugs give strength to uterine musculature for easy expulsion of *Raja*. *Tankana* is *Garbhashaya sankochaka* (improves the tonicity of uterine muscle) drug helps in normal harmonization during contraction.

Comparing the symptomatic improvement in both groups it was found that overall relief was higher in Group A followed by Group B i.e. 03 (20.00%) patients having excellent relief, 11 (73.33%) patients showed significant relief, 01 (6.66%) patient showed moderate relief. In Group B 01 (04.00%) patient showed excellent relief, 04 (26.66%) patients showed significant relief, 11 (73.33%) patients showed moderate relief. So the effect of therapy was more in Group A in comparison to Group B.

It is may be due to the Ingredients of *Hingvadi churna* are mainly *Katu-tikt Rasa*, *Ushna Virya* and having *Sukshma, Snigdha* and *Vikasi Guna* which are the properties of *Vatanulomana* (facilitator of downward movement of *Vata*), *Shoola prashamana* (colic pain reliever) and *Vedana sthapana*.

The drug *Hingvadi Churna* provided relief in all the cardinal features of *Kashtartava*. All 15 patients in Group A showed improvement in symptoms of *Kashtartava* as most of the parameters were statistically significant. Improvement in associated symptoms of diarrhea was statistically insignificant. Presence of associated symptoms like nausea, vomiting, faintness, diarrhea etc. indicate the involvement of other *Doshas* also in *Kashtartava*.

In Group B, Highly significant results are shown on Pain Intensity, Pain Duration, Nature of Pain, Associated symptoms, VAS Scale. Significant results obtained on Flow Amount. Results on Flow Duration were insignificant. Highly significant results are shown on Nausea and Sweat. Significant results obtained on Vomiting, Fatigue, Headache, Constipation, Vaginal discharge and Breast tenderness while Results on Fainting and Diarrhoea were insignificant.

It is may be due to the fact that *Rajah Pravirtini Vati* has *Katu* (pungent)-*Tikta* (bitter) *Rasa, Laghu* (light), *Snighdha* (unctuous) *and Tikshna* (sharp) *Guna, Katu Vipaka* and *Ushna Virya* (active potency). *Tikta* (bitter) taste and *Tikshna* (sharp) property of drug removes *the Srotoavarodha* and facilitates flow of *Vata*; *Katu Vipaka* and *Ushna Virya* pacifies the aggravated *Vata* and thus allows the painless flow of *Artava*.

CONCLUSION

Therapeutic Effect of Group-A (*Hingvadi churna* orally) Patients of this group showed relief by improvement in 83.33% in pain intensity, 82.85% in pain duration, 71.06% in nature of pain, 8.33% in menstrual flow duration, 4.54% in menstrual flow amount, 74.16% in associated symptoms and 76.92% in VAS scale.

Therapeutic Effect of Group-B (*Rajah-Pravartini Vati* orally) Patients of this group showed relief by improvement in 53.91% in pain intensity, 54.03% in pain duration, 60.00% in nature of pain, -23.08% in menstrual flow duration, -26.66% in menstrual flow amount, 70.00% in associated symptoms and 62.14% in VAS scale.

Comparing the symptomatic improvement in both groups it was found that Average percentage of relief was higher in Group A i.e. 63.05%, followed by Group B i.e., 52.84%. It shows that effect of therapy was more in group B in comparison to group A.

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