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AYURLINE

e-ISSN: 2456-4435
July- Sept. 2021
Vol. 05th Issue:3rd

International Journal of Research in Indian Medicine

Randomized control study of *Chandraprabha vati* in *Kashtartava* with special reference to primary *Dysmenorrhea*.

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ABSTRACT

Due to alteration of food habits like junk food and changing life styles which increases responsibilities and stress of women in society negatively affects the health of women. Prevalence of *dysmenorrhea* is 70.2%[(1)(2)]. Many subjects experienced pain for 1-2 days during menstruation. The most common symptom in both *dysmenorrheic* and non *dysmenorrheic* girls during the menstrual periods was tiredness and another prevalent symptom was back pain. Females experiencing mild pain on an average presented for one and half day a month while moderate and severe forms of *dysmenorrhea* were experienced for 2.1±1.2 and 2.5±1.3 days respectively. Few girls sought pharmacological management(25.5%) and 83.2% depended on non-pharmacological methods. Only 14.2% had sought medical advice[(3)].

Dysmenorrhoea is the most commonest Gynecological problem faced by women during their adolescence as well as adult life which leads to hampering of their routine work such as household chores. Most of the females are uncomfortable and shy to share these things with their family members and doctors and this is the way they suffer themselves by tolerating such pain so not only as a subject but as a need of society, the subject is needed to be studied in detail[(4)(5)].

Keywords: primary *Dysmenorrhoea*, *Chandraprabha vati*, *Rajahpravartini vati*

INTRODUCTION:

Today stress is becoming an inescapable part of modern life. In the incessant quest for material comforts, a woman has been losing her health. Menstruation is a natural

event as a part of the normal process of reproductive life in females. Due to today's sedentary lifestyle, stress and lack of exercise, *Dysmenorrhea* is becoming today's burning problem throughout the world which causes discomfort for women's daily ensuing day to day activities and may result in missing work or school, inability to participate in sports or other activities.

The term *"artava"* denotes two meanings one of them is *antah pushpa* and another is *bahirpushpa*[(6)]. Here, the present study describes *bahir pushpa* that is menstrual blood. Generally, *rakta* reaching uterus and coming out from the genital tract for three days every month is called *artava*. According to *acharya charaka*, from the various kind of food ingested is converted into the *prasada bhaga* and *mala bhaga*. Just after the completion of *jatharagni*and *bhutagnivyapaar*, *prasada bhaga* converts into *ahara rasa* upon which *rasadhtvagni* acts and produces two main parts named as *sthulabhaga* and *sukshma bhaga*[(7)(8)]. Amongst them *sthula bhaga* is used as *upadhatu* i.e. *artava*. Raja is formed from *prasad bhaga* of *Rasa*. In Ayurvedic texts *Kashtartava* (dysmenorrhoea) is not described as a separate disease because women,in that era, were not suffering much from this problem because of pin pointed *Ritucharya* & *Rajasvalacharya.* According to Ayurvedic text, there are many other diseases in which *Kashtartava* is a major symptom. Hence, this study is particular about the description regarding *Kashtartava* on the basis of scattered classical reference[(9)(10)].

Aim –

To study effect of *chandraprabha vati* in the management of *kashtartava*.

Objectives –

Primary Objective –

To conduct clinical trial to assess the effect of *chandraprabha vati* in *kashtartava*.

Secondary Objectives:

1. To study *Kashtartava* according to *ayurveda*.
2. To study Primary *Dysmenorrhea* according to Modern Science.
3. To study the efficacy of *Chandraprabha Vati* in *Kashtartava*.

MATERIAL AND METHODS-

Material-

PATIENTS-

70 Patients with *lakshna* of *kashtartava* were selected from OPD of *stree-rog prasuti tantra*.

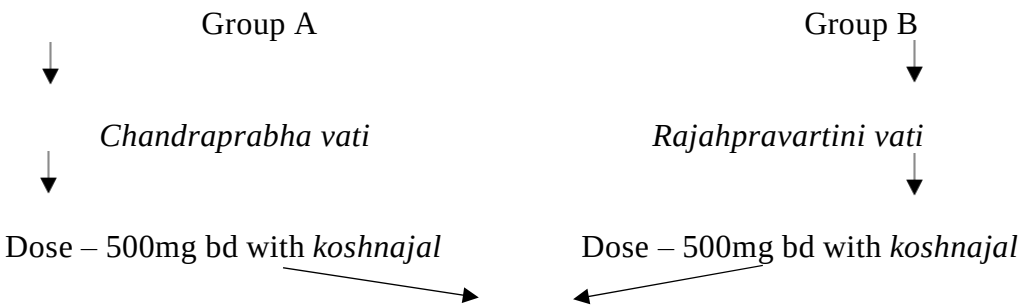
DRUGS- *Chandraprabha vati* and *Rajahpravartini vati* were collected from GMP approved pharmacy.

ANUPAN- Koshnajal

Method-

Diagnosed 70 patients of *kashtartava* were selected on basis of inclusion

and exclusion criteria from opd of *prasutitantra* and *streerog* department. Patients were randomly divided into 2 group of 35 patients each.



Duration : 5 days before menses

Till 2nd day of menses for consecutive 2 cycles.

Observation: 1st and 2nd day of menses for consecutive 2 cycles.

Follow up: 1st and 2nd day of menses of 3rd cycle.

Location of the study: Department of *streerog prasuti tantra* opd.

- Duration of study - 3 menstrual cycles.
- Duration of treatment – 2 menstrual cycles.
- Type of study design - Randamised controlled trial.

Grouping and randomization of patients-sample size

A minimum 70 patients of *kashtartava* were selected and grouped in 2 groups - 35 patients each. Patients of *kashtartava* were selected in opd of *streerog prasuti tantra*. In case of withdrawal or discontinued same number of new patients wereadded. Written informed consent of patients were taken prior to clinical study.

Group A

Total 35 patients were treated with *chandraprabha vati* 500mg BD in *vyanodan kala* for 5 days before menses till 2nd day of menses.

Mode of administration - orally

Each patients observation were taken on 1st and 2nd day of menses for 2 consecutive cycles in *streerog prasuti tantra* opd of hospital. Each patients follow up were taken on 1st and 2nd day of menses of 3rd cycle in *streerog prasuti tantra* opd of hospital.

Group B

Total 35 patients were treated with *rajahpravartini vati* 500mg BD in *vyanodan kala* for 5 days before menses till 2nd day of menses.

Mode of administration - orally

Each patients observation were taken on 1st and 2nd day of menses for 2 consecutive cycles in *streerog prasuti tantra* opd of hospital. Each patients follow up were taken on 1st and 2nd day of menses of 3rd cycle in

streerog prasuti tantra opd of hospital.

Eligibility criteria –

a) Inclusion criteria :-

1. Patients of age group between 12 to 30years.
2. Patients having regular menstrual cycle.
3. Patients coming with chief complaints of lower abdominal pain during Menstruation.

b) Exclusion Criteria :-

1. Patients having k/c/o PID.
2. Patient taking any Hormonal therapy.
3. Patients having k/c/o anatomical or uterine pathology- fibroid, adenomyosis, cervicalstenosis,
4. k/c/o Endometriosis, DUB, Endometrial polyp etc.
5. k/c/o Congenital anomalies of Reproductive system.
6. k/c/o Any pelvic pathology,acute infections.
7. k/c/o PCOD and other medical, surgical Neurological conditions resulting *Dysmenorrhea*.

SUBJECTIVE PARAMETERS:

S.no	***Pramukhlakshanas***	NO(0)	MILD(1)	MODERATE (2)	SEVERE (3)
1.	*Adhoudar shool*				
2.	*Kati shool*				
3.	*Vedanakalavadhi*				
4.	*Rajahstrava pramana*				

ASSOCIATED SYMPTOMS

S.no	**Associated symptoms**	NO(0)	MILD(1)	MODERATE(2)	SEVERE(3)
1.	Nausea				
2.	Vomiting				
3.	Diarrhoea				

Gradation of *Pramukha Laxanas*

Observation	**No (0)**	**Mild (1)**	**Moderate (2)**	**Severe (3)**
1)Adho udar shool	No pain	Mild(Nagging , annoying, interferering little with activities of daily living)	Moderate (interferes significantly with activities of daily living)	Severe (disabling, unable to perform activities of daily living)

2)Kati shool	No pain	Mild (Nagging , annoying, inter ferering little with activities of daily living)	Moderate (interferes significantly with activities of daily living)	Severe(disablin, unable to perform activities of daily living)
3)Vedana kalavadhi	Absent	Mild(first 24hrs ofmenses)	Moderate(24 to48 hrs of menses)	Severe(48 to 72 hrsof menses)
4)Rajahstrava pramana	Normal(1-2 pads/24hrs)	Mild(2-3 pads/24hrs)	Moderate(3-4 pads/24 hrs)	Severe(>5 pads/24hrs)

Gradations of Associate features

Observation	**No (0)**	**Mild (1)**	**Moderate (2)**	**Severe (3)**
1)Nausea	Absent	Occasionally	12-24 hours of menses	24-48 hours of menses
2)Vomitting	Absent	Occasionally	1-2 times per day.	More than 2 times per day.
3)Diarrhoea	Absent	Occasionally	1-2 times per day.	More than 2 times per day.

OBJECTIVE PARAMETERS:

Pain Assessment Objective Criteria

GRADE	DEGREE	DESCRIPTION
0	None	Palpation is not painful even when asked about it.
1	Mild	Palpation is painful only when asked about it.
2	Moderate	Patient winces on palpation.
3	Severe	On palpation, Patient is clearly distressed, tries to withdraw the limb.

Investigation :

CBC-(if necessary)

Criteria for withdrawal of patients:

1. Patient unable to tolerate the medication.
2. Any Adverse drug reaction.
3. Patient fail to report for follow up or irregular medication.
4. Patient not willing to continue further treatment

Observation and result-

1. *Adho udarshool*

Group	Mean score			Median diff.	IQR of diff. Q3 – Q1	Sample size	Wilcoxon signed rank test (T+)	P Value
	B.T	A.T	Dif					
GroupA	1.74	0.46	1.29	1.00	1.0 (2.0 - 1.0)	35	528.00	< 0.001
GroupB	1.77	0.26	1.51	1.00	1.0 (2.0 - 1.0)	35	561.00	< 0.001

Using one tailed Wilcoxon signed rank test, to test the hypothesis –
H0 : Median reduction in *adho udar shool* score after treatment is zero. H1 : Median reduction in *adho udar shool* score after treatment is greater than zero.

For group A, the median reduction in *adho udar shool* score after treatment is significant (P-value < 0.001) at 5% level of significance. **i.e. it can be said that there is significant reduction in *adho udar shool* for group A.**

For group B, the median reduction in Adho udar shool score after treatment is significant (P-value < 0.001) at 5% level of significance. **i.e. in group B, there is significant reduction in *adho udar shool.***

Comparative Analysis of Groups:

Using Mann-Whitney U test, to test the hypothesis –
H0 : Reduction in *adho udar shool* score for group A and group B are equal(equally distributed).
H1 : Reduction in *adho udar shool* score for group A and group B are not equal(not equally distributed)

Group	Median difference (bef–aft)	Mean of difference (bef-aft)	S.D. of difference (bef-aft)	Mann-Whitney U statistic	P- Value
Group A	1.00	1.29	0.71	505.00	0.164
Group B	1.00	1.51	0.74		

Reductions in *adho udar shool* score for group A and group B was not significantly different (p –value = 0.164) at 5% level of significance.

Thus, **both treatment A and treatment B can be considered as equally efficacious in reducing Adho udar shool.**

Adho udar shool		0		1		2		3	
		No.	%	No.	%	No	%	No	%
Group	BT	0	0.00%	14	40.00%	16	45.71%	5	14.29%

A	**AT**	20	57.14%	14	40.00%	1	2.86%	0	0.00%
Group B	**BT**	0	0.00%	12	34.29%	19	54.29%	4	11.43%
	AT	26	74.29%	9	25.71%	0	0.00%	0	0.00%

2. *Katishool*

Group	**Mean score**			**Median diff.**	**IQR of diff. Q3 – Q1**	**Sample size**	**Wilcoxon signed rank test (T+)**	**P Value**
	B.T	**A.T**	**Dif**					
GroupA	1.70	0.40	1.30	1.00	1.0 (2.0 - 1.0)	30	378.00	< 0.001
GroupB	1.62	0.45	1.17	1.00	0.0 (1.0 - 1.0)	29	435.00	< 0.001

Using one tailed Wilcoxon signed rank test, to test the hypothesis – H0 : Median reduction in *katishool* score after treatment is zero.
H1 : Median reduction in *katishool* score after treatment is greater than zero.

For group A, the median reduction in *katishool* score after treatment is significant (P-value < 0.001) at 5% level of significance. **i.e. it can be said that there is significant reduction in *katishool* for group A.**

For group B, the median reduction in *Katishool* score after treatment is significant (P-value < 0.001) at 5% level of significance. **i.e. in group B, there is significant reduction in *katishool.***

Comparative Analysis of Groups:

Using Mann-Whitney U test, to test the hypothesis –
H0 : Reduction in *katishool* score for group A and group B are equal (equallydistributed)
H1 : Reduction in *katishool* score for group A and group B are not equal(not equally distributed)

Group	**Median difference (bef–aft)**	**Mean of difference (bef-aft)**	**S.D. of difference (bef-aft)**	**Mann-Whitney U statistic**	**P- Value**
Group A	1.00	1.30	0.70	493.50	0.277
Group B	1.00	1.17	0.47		

Reductions in *katishool* score for group A and group B was not significantly different (p –value = 0.277) at 5% level of significance.

Thus, **both treatment A and treatment B can be considered as equally efficacious in reducing *Katishool*.**

Katishool		0		1		2		3	
		No.	%	No.	%	No	%	No	%
Group A	BT	5	14.29%	13	37.14%	13	37.14%	4	11.43%
	AT	23	65.71%	12	34.29%	0	0.00%	0	0.00%
Group B	BT	6	17.14%	14	40.00%	12	34.29%	3	8.57%
	AT	23	65.71%	11	31.43%	1	2.86%	0	0.00%

3. *Vedana kalavadhi*

Group	Mean score			Median diff.	IQR of diff. Q3 – Q1	Sample size	Wilcoxon signed rank test (T+)	P Value
	B.T	A.T	Dif					
GroupA	1.69	0.40	1.29	1.00	1.0 (2.0 - 1.0)	35	496.00	< 0.001
GroupB	1.83	0.37	1.46	2.00	1.0 (2.0 - 1.0)	35	528.00	< 0.001

Using one tailed Wilcoxon signed rank test, to test the hypothesis –

H0 : Median reduction in *vedana kalavadhi* score after treatment is zero.

H1 : Median reduction in *vedana kalavadhi* score after treatment is greaterthan zero.

For group A, the median reduction in *vedana kalavadhi* score after treatmentis significant (P-value < 0.001) at 5% level of significance. **i.e. it can be said that there is significant reduction in *vedana kalavadhi* for groupA.**

For group B, the median reduction in *Vedana kalavadhi* score after treatment is significant (P-value < 0.001) at 5% level of significance. **i.e. in group B, there is significant reduction in *vedana kalavadhi.***

Comparative Analysis of Groups:

Using Mann-Whitney U test, to test the hypothesis –

H0 : Reduction in *vedana kalavadhi* score for group A and group B are equal(equally distributed)

H1 : Reduction in *vedana kalavadhi* score for group A and group B are not equal(not equally distributed)

Group	Median difference (bef–aft)	Mean of difference (bef-aft)	S.D. of difference (bef-aft)	Mann-Whitney U statistic	P- Value
Group A	1.00	1.29	0.71	526.50	0.271
Group B	2.00	1.46	0.70		

Reductions in *vedana kalavadhi* score for group A and group B was not significantly different (p –value = 0.271) at 5% level of significance**.** ***kalavadhi*.**

Thus,**both treatment A and treatment B can be considered as equally efficacious in reducing *Vedana***

Vedana kalavadhi		0		1		2		3	
		No.	**%**	**No.**	**%**	**No**	**%**	**No**	**%**
Group A	**BT**	0	0.00%	14	40.00%	18	51.43%	3	8.57%
	AT	21	60.00%	14	40.00%	0	0.00%	0	0.00%
Group B	**BT**	0	0.00%	10	28.57%	21	60.00%	4	11.43%
	AT	24	68.57%	9	25.71%	2	5.71%	0	0.00%

4. *Rajastrav praman*

Group	**Mean score**			**Median diff.**	**IQR of diff. Q3 – Q1**	**Sample size**	**Wilcoxon signed rank test (T+)**	**P Value**
	B.T	**A.T**	**Dif**					
GroupA	2.19	0.76	1.43	1.00	1.0 (2.0 - 1.0)	21	231.00	< 0.001
GroupB	1.35	0.52	0.83	1.00	0.5 (1.0 - 0.5)	23	153.00	< 0.001

Using one tailed Wilcoxon signed rank test, to test the hypothesis –
H0 : Median reduction in *rajastrav praman* score after treatment is zero.
H1 : Median reduction in *rajastrav praman* score after treatment is greater than zero.
For group A, the median reduction in *rajastrav praman* score after treatment is significant (P-value < 0.001) at 5% level of significance. **i.e. it can be said that there is significant reduction in *rajastrav praman* for groupA.**

For group B, the median reduction in *Rajastrav praman* score after treatment is significant (P-value < 0.001) at 5% level of significance. **i.e. in group B, there is significant reduction in *rajastrav praman*.**

Comparative Analysis of Groups:

Using Mann-Whitney U test, to test the hypothesis –
H0 : Reduction in *rajastrav praman* score for group A and group B are equal(equally distributed)
H1 : Reduction in *rajastrav praman* score for group A and group B are not equal(not equally distributed)

Group	**Median difference (bef–aft)**	**Mean of difference (bef-aft)**	**S.D. of difference (bef-aft)**	**Mann-Whitney U statistic**	**P- Value**
Group A	1.00	1.43	0.51	360.00	0.001
Group B	1.00	0.83	0.58		

Reductions in *rajastrav praman* score for group A is significantly higher (p –value = 0.001) than that in group B at 5% level of significance**.** Thus, **treatment A can be considered as more efficacious in reducing *Rajastrav praman* as compared to treatment B.**

Rajastrav praman		**0**		**1**		**2**		**3**	
		No.	**%**	**No.**	**%**	**No**	**%**	**No**	**%**
Group A	**BT**	14	40.00%	17	48.57%	4	11.43%	0	0.00%
	AT	20	57.14%	14	40.00%	1	2.86%	0	0.00%
Group B	**BT**	12	34.29%	15	42.86%	8	22.86%	0	0.00%
	AT	23	65.71%	12	34.29%	0	0.00%	0	0.00%

5. Nausea

Group	**Mean score**			**Median diff.**	**IQR of diff. Q3 – Q1**	**Sample size**	**Wilcoxon signed rank test (T+)**	**P Value**
	B.T	**A.T**	**Dif**					
GroupA	1.82	0.59	1.23	1.00	1.0 (2.0 - 1.0)	22	190.00	< 0.001
GroupB	1.71	0.62	1.08	1.00	1.0 (2.0 - 1.0)	24	190.00	< 0.001

Using one tailed Wilcoxon signed rank test, to test the hypothesis – H0 : Median reduction in nausea score after treatment is zero.

H1 : Median reduction in nausea score after treatment is greater than zero. For group A, the median reduction in nausea score after treatment is significant (P-value < 0.001) at 5% level of significance. **i.e. it can be said that there is significant reduction in nausea for group A.**

For group B, the median reduction in Nausea score after treatment is significant (P-value < 0.001) at 5% level of significance. **i.e. in group B, there is significant reduction in nausea.**

Comparative Analysis of Groups:

Using Mann-Whitney U test, to test the hypothesis –

H0 : Reduction in nausea score for group A and group B are equal (equallydistributed)

H1 : Reduction in nausea score for group A and group B are not equal(not equally distributed)

Group	**Median difference (bef–aft)**	**Mean of difference (bef-aft)**	**S.D. of difference (bef-aft)**	**Mann-Whitney U statistic**	**P- Value**
Group A	1.00	1.23	0.75	286.50	0.596
Group B	1.00	1.08	0.72		

Reductions in nausea score for group A and group B was not significantly different (p –value = 0.596) at 5% level of significance**.** Thus, **both treatment A and treatment B can be considered as equally efficaciousin reducing Nausea.**

Nausea		0		1		2		3	
		No.	%	No.	%	No	%	No	%
Group A	BT	13	37.14%	8	22.86%	10	28.57%	4	11.43%
	AT	22	62.86%	13	37.14%	0	0.00%	0	0.00%
Group B	BT	11	31.43%	11	31.43%	9	25.71%	4	11.43%
	AT	20	57.14%	15	42.86%	0	0.00%	0	0.00%

6. Vomiting

Group	Mean score			Median diff.	IQR ofdiff. Q3 – Q1	Sample size	Wilcoxon signed rank test (T+)	P Value
	B.T	A.T	Dif					
GroupA	1.53	0.60	0.93	1.00	0.0 (1.0 -1.0)	15	78.00	0.001
GroupB	1.59	0.65	0.94	1.00	0.0 (1.0 -1.0)	17	105.00	< 0.001

Using one tailed Wilcoxon signed rank test, to test the hypothesis – H0 : Median reduction in vomiting score after treatment is zero.
H1 : Median reduction in vomiting score after treatment is greater than zero. For group A, the median reduction in vomiting score after treatment is significant (P-value = 0.001) at 5% level of significance. **i.e. it can be said that there is significant reduction in vomiting for group A.**

For group B, the median reduction in Vomiting score after treatment is significant (P-value < 0.001) at 5% level of significance. **i.e. in group B, there is significant reduction in vomiting.**

Comparative Analysis of Groups:

Using Mann-Whitney U test, to test the hypothesis –
H0 : Reduction in vomiting score for group A and group B are equal (equallydistributed)
H1 : Reduction in vomiting score for group A and group B are not equal(not equally distributed)

Group	Median difference (bef–aft)	Mean of difference (bef-aft)	S.D. of difference (bef-aft)	Mann-Whitney U statistic	P- Value

Group A	1.00	0.93	0.59	126.50	0.982
Group B	1.00	0.94	0.56		

Reductions in vomiting score for group A and group B was not significantly different (p –value = 0.982) at 5% level of significance**.** Thus, **both treatment A and treatment B can be considered as equally efficaciousin reducing Vomiting.**

Vomiting		**0**		**1**		**2**		**3**	
		No.	**%**	**No.**	**%**	**No**	**%**	**No**	**%**
Group A	**BT**	20	57.14%	9	25.71%	4	11.43%	2	5.71%
	AT	27	77.14%	7	20.00%	1	2.86%	0	0.00%
Group B	**BT**	18	51.43%	9	25.71%	6	17.14%	2	5.71%
	AT	25	71.43%	9	25.71%	1	2.86%	0	0.00%

7. Diarrhoea

Group	**Mean score**			**Median diff.**	**IQR of diff. Q3 – Q1**	**Sample size**	**Wilcoxon signed rank test (T+)**	**P Value**
	B.T	**A.T**	**Dif**					
GroupA	1.65	0.60	1.05	1.00	0.0 (1.0 - 1.0)	20	153.00	< 0.001
GroupB	1.73	0.59	1.14	1.00	0.8 (1.8 - 1.0)	22	190.00	< 0.001

Using one tailed Wilcoxon signed rank test, to test the hypothesis – H0 : Median reduction in diarrhoea score after treatment is zero.
H1 : Median reduction in diarrhoea score after treatment is greater than zero.

For group A, the median reduction in diarrhoea score after treatment is significant (P-value < 0.001) at 5% level of significance. **i.e. it can be said that there is significant reduction in diarrhoea for group A.**

For group B, the median reduction in Diarrhoea score after treatment is significant (P-value < 0.001) at 5% level of significance. **i.e. in group B, there is significant reduction in diarrhoea.**

Comparative Analysis of Groups:

Using Mann-Whitney U test, to test the hypothesis –
H0 : Reduction in diarrhoea score for group A and group B are equal (equallydistributed)
H1 : Reduction in diarrhoea score for group A and group B are not equal(not equally distributed)

Group	Median difference (bef–aft)	Mean of difference (bef-aft)	S.D. of difference (bef-aft)	Mann-Whitney U statistic	P- Value
Group A	1.00	1.05	0.60	204.00	0.651
Group B	1.00	1.14	0.64		

Reductions in diarrhoea score for group A and group B was not significantly different (p –value = 0.651) at 5% level of significance.

Thus, **both treatment A and treatment B can be considered as equally efficacious in reducing Diarrhoea.**

Diarrhoea		0		1		2		3	
		No.	%	No.	%	No	%	No	%
GroupA	BT	15	42.86%	9	25.71%	9	25.71%	2	5.71%
	AT	24	68.57%	10	28.57%	1	2.86%	0	0.00%
Group B	BT	13	37.14%	9	25.71%	10	28.57%	3	8.57%
	AT	23	65.71%	11	31.43%	1	2.86%	0	0.00%

8. Pain assessment

Group	Mean score			Median diff.	IQR of diff. Q3 – Q1	Sample size	Wilcoxon signed rank test (T+)	P Value
	B.T	A.T	Dif					
GroupA	1.46	0.37	1.09	1.00	0.0 (1.0 - 1.0)	35	465.00	< 0.001
GroupB	1.63	0.31	1.31	1.00	1.0 (2.0 - 1.0)	35	528.00	< 0.001

Using one tailed Wilcoxon signed rank test, to test the hypothesis –

H0 : Median reduction in pain assessment score after treatment is zero. H1 : Median reduction in pain assessment score after treatment is greaterthan zero.

For group A, the median reduction in pain assessment score after treatment is significant (P-value < 0.001) at 5% level of significance. **i.e. it can be said that there is significant reduction in pain as per pain assessmentcriterion for group A.**

For group B, the median reduction in Pain assessment score after treatment is significant (P-value < 0.001) at 5% level of significance. **i.e. in group B, there is significant reduction in pain as per pain assessment criterion.**

Comparative Analysis of Groups:

Using Mann-Whitney U test, to test the hypothesis –
H0 : Reduction in pain assessment score for group A and group B are equal(equally distributed)
H1 : Reduction in pain assessment score for group A and group B are not equal(not equally distributed)

Group	Median difference (bef–aft)	Mean of difference (bef-aft)	S.D. of difference (bef-aft)	Mann-Whitney U statistic	P- Value
Group A	1.00	1.09	0.61	495.50	0.122
Group B	1.00	1.31	0.63		

Reductions in pain assessment score for group A and group B was not significantly different (p –value = 0.122) at 5% level of significance.

Thus, **both treatment A and treatment B can be considered as equally efficacious in reducing Pain.**

Pain assessment		0		1		2		3	
		No.	%	No.	%	No	%	No	%
Group A	BT	20	57.14%	9	25.71%	4	11.43%	2	5.71%
	AT	27	77.14%	7	20.00%	1	2.86%	0	0.00%
Group B	BT	18	51.43%	9	25.71%	6	17.14%	2	5.71%
	AT	25	71.43%	9	25.71%	1	2.86%	0	0.00%

Discussion

Summary of the Analysis

Parameter	Group A	Group B	Comparative efficacy
Adho udar shool	Significant	Significant	Equally effective
Katishool	Significant	Significant	Equally effective
Vedana kalavadhi	Significant	Significant	Equally effective
Rajahstravpraman	Significant	Significant	Group A
Nausea	Significant	Significant	Equally effective
Vomitting	Significant	Significant	Equally effective
Diarrhoea	Significant	Significant	Equally effective
Pain assessment	Significant	Significant	Equally effective

Parameter	Group A	Group B
Adho udar shool	74.76%	84.76%
Katishool	76.67%	79.31%

Vedana kalavadhi	75.24%	81.43%
Rajahstrav praman	65.87%	60.87%
Nausea	65.91%	61.11%
Vomitting	63.33%	61.76%
Diarrhoea	65.00%	66.67%
Pain assessment	75.71%	81.43%
Average % improvement	**70.31%**	**72.17%**

Distribution of patients according to relief:

Overall Effect (patient wise)	**No. of patients**			
	Group A		**Group B**	
	Count	**%**	**Count**	**%**
Excellent improvement	19	54.29%	22	62.86%
Moderate improvement	08	22.86%	09	25.71%
Mild improvement	07	20.00%	03	08.57%
Unchanged	01	2.86%	01	02.86%
Total	**35**	**100.00%**	**35**	**100.00%**

In group A, 19 patients (54%) realized excellent improvement, 8 patients (23%) were moderately improved, 7 patients (20%) were seen with mild improvement while 1 patient (3%) remained unchanged.
In group B, 22 patients (63%) realized excellent improvement, 9 patients (26%) were moderately improved, 3 patients (9%) were seen with mild improvement while 1 patient (3%) remained unchanged.

CONCLUSION:

At the end of the study , following conclusions can be drawn on the basis ofobservation made results achieved-

1. It is concluded from the present study that *Chandraprabha Vati* is efficientin *Kashtartava*.
2. It is noted that , the symptoms *rajahstrav praman*, nausea and vomiting is better relieved by *Chandraprabha vati*(trial drug) than *Rajahpravartini vati* (control drug).
3. Whereas *adhoudarshool, kati shool, vedana kalavadhi*, diarrhoea and pain assessment score symptoms better relieved by *Rajahpravartini vati*.
4. After the present study , it concluded that *Chandraprabha vati* and *Rajahpravartini vati* both has shown equal result.
5. There is no any side effect of *Chandraprabha vati* reported or observedduring study.
6. Present study indicates that the treatment is safe, effective and harmless.
7. Thus from the present study it is concluded that *Chandraprabha*

vati isuseful in *kashtartava*.

8. It plays significant role in reducing *rajahstrav praman*, nausea and vomiting of *kashtartava* by its properties.

Limitations-

Since the clinical study was conducted on a limited numbers of patients,itmay not be claimed as final ,more detailed study may be needed in this regard to established the efficacy of *Chandraprabha Vati*.

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Conflict of Interest: Non

Source of funding: Nil

Cite this article:

Randomized control study of Chandraprabha vati in Kashtartava with special reference to primary Dysmenorrhea.

Iram Bano Sayed,

Ayurline: International Journal of Research In Indian Medicine 2021; 5(3):01- 17