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"IMPACT OF BHAVANA SAMSKARA ON THERAPEUTIC EFFECT WITH SPECIAL REFERENCE TO KASISA PURIFIED BY DIFFERENT BHAVANA DRAVYAS AND THEIR EFFECT IN HAEMOGLOBIN LEVEL - A COMPARATIVE STUDY" **Research Article**

"IMPACT OF BHAVANA SAMSKARA ON THERAPEUTIC EFFECT WITH SPECIAL REFERENCE TO *KASISA* PURIFIED BY DIFFERENT *BHAVANA DRAVYAS* AND THEIR EFFECT IN HAEMOGLOBIN LEVEL - A COMPARATIVE STUDY"

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ABSTRACT

Purpose: Our *Acarays* have mentioned more than one *Sodhana Dravya* for most of the *Sodhya Dravyas*. *Kasisa* is an ideal drug to study the effect of *Bhavana Dravya*, as there are different *Bhavana Dravyas* mentioned for *Kasisa Sodhana* and *Kasisa* can be used with out *Marana*. The potential of *Bhavana Dravya* may get significantly reduced after *Marana*. *Kasisa* is remarked as a proven *Rasa Dravya* used in *Pandu Roga*. **Method:** To evaluate the comparative efficacy in *Pandu Roga*, clinical study has been undertaken. This study incorporate an openlabel comparative clinical study on 60 diagnosed case of low haemoglobin level of age 06-15years. Group A and group B(20 patients each) were treated with *Bhirngaraja Swarasa* and *Nimbu Swarasa Bhavita Kasisa* respectively while the group C was given the standard drug Ferrous Sulphate tablet. **Results:** On clinical study there is statistically significant difference ($p=0.038$) in overall Symptom score between three groups after treatment($p<0.05$). Mean change in symptom score was highest in group A(3.55=39.6% relief). In Group C it is 3.40 (31.91% reilef)and in Group B it is 2.30(29.68% relief). The mean value of change in Hb% in Group A, Group B and Group C is 1.86(19.89%), 1.74(18.57%) and 1.44(15.34%) respectively. **Conclusion:** Considering the improvement in Hb% and overall effect in symptoms *Bhringaraja Soditha Kasisa* is proved to be better than other groups.

Key words: Bhavana, *Kasisa*, Bhringaraj Nimbu etc.

INTRODUCTION

Samskara is the processing by which some natural *Gunas* of the

Dravya changes and some *Gunas* are added to the *Dravyas*. Our *Acaryas* have mentioned more than one

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Sodhana Dravya for most of the *Sodhya Dravyas*. In the present study, the influence of different *Bhavana Dravyas* on therapeutic potential of *Kasisa* is highlighted. Total outcome of *Bhavan*¹ depends on number of factors like *Bhavana Dravya*, *Bhavya Dravya*, *Bhavana Vidhi*, number and duration of *Bhavana* and *Subhavita Laksana*.

Kasisa is an ideal drug to study the effect of *Bhavana Dravyas*, as there are different *Bhavana Dravyas* mentioned for *Kasisa Sodhana* and *Kasisa* can be used with out *Marana*, by that we can access the effect of *Bhavana Dravyas*. If we are doing *Marana*, the property of *Bhavana Dravyas* may not be clearly understood as the potential of *Bhavana Dravya* may get significantly reduced after *Marana*.

According to W.H.O., anaemia is one of the conditions among the top ten selected risks to the health. Globally, anaemia affects 1.62 billion which corresponds to 24.8% of the population. 25.4% prevalence is there in school going age. So, *Pandu Roga*, has been selected for the clinical trial.

MATERIALS AND METHODS COLLECTION AND AUTHENTICATION OF RAW DRUGS.

Eclipta alba Hassk^{2,3}, *Citrus limon*(Linn.)Burm. F^{4,5} and *Kasisa*(Ferrous sulphate) were collected from the local market of Kerala and identified.

METHOD OF PREPARATION OF TRIAL DRUG.⁶

Two batches of *Kasisa*, each batch weighing 500mg was subjected to 7 *bhavana* with *Bhringaraja Swarasa* and *Jambira Nimbu Swarasa* separately. The dried *Kasisa* was again powdered and weighed. Added equal quantity of IP grade talcum powder and was passed through sieve no 60-80 to obtain a homogeneous blend and packed manually in 320mg hard gellatin capsule.

CLINICAL STUDY STUDY DESIGN

This is an openlabel, single arm, randomized, efficacy study to evaluate different *bhavana dravya* in *Kasisa Shodhana*.

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SELECTION OF PATIENT.

All patient fulfilling the inclusion criteria were selected from medical camp irrespective of caste, religion and economic status with written consent.

INCLUSION CRITERIA.

- Children between 6 -15 years of age, irrespective of sex, socio-economic status.
- Patients with hemoglobin percentage 11gm/dL and below.

EXCLUSION CRITERIA:

- Children under any specific medication will be excluded.
- Children having any congenital deformity and prolonged illness will be excluded.
- Patients having Hb% below 5gm/dL will be excluded.
- Girls who attained menarche will be excluded.

GROUPING AND TREATMENT

60 patients were divided randomly into 3 groups, each containing 20 patients. Group A and group B were treated with *Bhirngaraja Swarasa Bhavita Kasisa* and *Nimbu Swarasa Bhavita Kasisa* respectively while group

C was given the standard drug Ferrous Sulphate tablet.

The study was cleared by the institutional ethics committee. Written consent was taken from the parent or guardian of each patient willing to participate before the start of the study. Treatment schedule was continued for 42 days.

ASSESSMENT PARAMETERS

BEFORE AND AFTER TREATMENT

1. Laboratory Parameters - Haemoglobin Percentage.
2. The predominant signs and symptoms of Pāṇḍu like *Hrdyaspandana*, *Srama*, *Śhwāsa*, *Daurbalya* and *Pāṇḍuta*.

Statistical Analysis

The efficacy of the drugs were determined from a statistical analysis of the pre and post treatment symptom scorings. (Paired -t test). For comparing the subjective parameters between groups- Chi Square test is used. For comparing the effect on Haemoglobin between groups and over all assessment – ANOVA is used.

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OBSERVATION

Preparation Of *Bhringaraja Swarasa*. 3.5 liter of *Bhringaraja Swarasa* was obtained from 5.5 kg of fresh *Bhringaraja Pancanga* (without *Moola*). Thus yield of *Swarasa* was 63.63%.

Preparation Of *Jambira Swarasa*.

3.5 liter of *Jambira Swarasa* was obtained from 9 kg of fresh *Jambira*. Thus yield of *Swarasa* was 38.8%.

RESULTS

Effect Of Therapy Based On Assesment Criteria.

**Table:1-Showing Comparision Of Change In *Panduta* In Group A, B And C.
(Chi Square test)**

Change in <i>Pandu</i> BT-AT	Group						χ^2	Df	P
	A		B		C				
	N	%	N	%	N	%			
No change	1	5	10	50	2	10	21.831	6	0.001
Mild improvement	16	80	10	50	14	70			
Moderate improvement	2	10	0	0	0	0			
Good improvement	1	5	0	0	4	20			
Total	20	100	20	100	20	100			

Table:2-Comparison of change in *Swasa* in Group A, B and C. (BT-AT) .(Chi Square test)

Change in <i>Swasa</i> (BT-AT)	Group						χ^2	Df	P
	A		B		C				
	N	%	N	%	N	%			
No change	11	55	13	65	9	45	1.616	2	0.446
Mild improvement	9	45	7	35	11	55			
Total	20	100	20	100	20	100			

Table:3-Comparison Of Change In *Srama* In Group A, B And C.(Chi Square test)

Change in <i>Srama</i> BT-AT	Group						X ²	Df	P
	A		B		C				
	N	%	N	%	N	%			
No change	9	45	8	40	10	50	0.404	2	0.817
Mild improvement	11	55	12	60	10	50			
Total	20	100	20	100	20	100			

Table : 4- Comparision Of Change In *Dourbalya* In Group A, B And C. (Chi Square test)

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Change in <i>Dourbalya</i> (BT-AT)	Groups						χ^2	df	P
	A		B		C				
	N	%	N	%	N	%			
No change	8	40	11	55	11	55	2.876	4	0.579
Mild improvement	11	55	9	45	9	45			
Moderate improvement	1	5	0	0	0	0			
Total	20	100	20	100	20	100			

Table:5-Comparision Of Change In Palpitation(*Hridaya Spandana*) In Group A, B And C (Chi Square test)

Change in Palpitation (BT-AT)	Groups						χ^2	df	P
	A		B		C				
	N	%	N	%	N	%			
No change	7	35	13	65	8	40	4.352	4	0.360
Mild improvement	12	60	6	30	11	55			
Moderate improvement	1	5	1	5	1	5			
Total	20	100	20	100	20	100			

Table:6-Comparision Of Change In Hb% In Group A, B And C.

	N	Change in Hb% BT- AT		ANOVA	
		Mean	Sd	F	P
Group A	20	1.86	0.48	2.181	.122
Group B	20	1.74	0.78		
Group C	20	1.44	0.65		

Table:7-Showing Comparision Of Overall Symptom Score (BT-AT) In Three Groups.

	N	Change in Symptom score BT- AT		ANOVA	
		Mean	Sd	F	P
Group A	20	3.50	1.64	3.453	.038
Group B	20	2.30	1.42		
Group C	20	3.0	1.82		

difference between the three groups after treatment in Hb%.

DISCUSSION

Haemoglobin

The mean value of change in Hb% in Group A, Group B and Group C is 1.86, 1.74 and 1.44 respectively. There is statistically no significant

Pāṇḍuta:

Varṇa and *Prabha* are the properties of *Raktadhātu* and *Pitta Dōṣa*, particularly the *Bhrājaka* and *Ranjaka Pitta*. It is also the property of *Ōjas* as

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more and more *Ājakṣaya*, *Raktakṣaya* and *Pitta prakōpa* occurs the patients becomes *Hataprabha* or *Pāṇḍuta* appears.

Daurbalyata:

Daurbalya may be due to *Dhātukṣaya*, *Ājakṣaya* as well as *Raktālpata* which causes the debility to do any thing. If we consider it from Modern point of view the cells in the Blood are responsible for supplying oxygen to body tissues. The oxygen is very necessary for the normal metabolic activities. When there is condition is decrease in number of RBCs, metabolic activities hastened and if this condition persists for a long period, debility appears.

Hridayaspandanam

Hridayaspandanam or Palpitation in *Pāṇḍu Rōga* is due to lack of proper nourishment and *Raktālpata* due to which heart has to pump quickly so as to provide rapid blood flow to body tissues. The reason for good result in all the groups may be given as the, Hb levels are increased due to *Raktavardhaka* properties of these

compounds, so oxygen carrying capacity of RBCs is increased and heart does not need to pump so quickly any more.

Śwāsa :

Dyspnoea on exertion or *Śwāsa* in *Pāṇḍu Rōga* is due to lack of proper nourishment and *Raktālpata* due to which lungs have to work quickly so as to provide rapid blood flow to body tissues.

Srama

The % relief in *Srama* from Group A, B and C was 31.43%, 28.57% and 29.41% respectively and was highly significant. There is statistically no significant difference between the three groups after treatment in *Srama*. The maximum number of patients with mild improvement in *Srama* was found in group B(60%).

Over All Symptom Score

There is statistically significant difference ($p=0.038$) in overall Symptom score between three groups after treatment($p<0.05$). Mean change in symptom score was highest in group A(3.50). In Group C it is 3.45 and in Group B it is 2.30.

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Mode of action of the drugs.

Kasisa contains iron as well as trace elements. *Bhringaraja* having *Balya* action and it is indicated in *Pandu Roga*. *Bhringaraja* is hepatoprotective and thereby it can act at *Kostagni* level. *Bhringaraja* can correct liver metabolism which normalizes the absorption and metabolism in turn cures anaemia. At the same time hepatoprotective nature of *Bhringaraja* can reduce RBC destruction and liver failure related anaemia. The drugs which act in liver is also effective in *Dhatwagni* level.

Nimbu Swarasa acts as catalyst for the absorption of Iron at the *Dhatwagni* level and so, it exhibits better response in improvement of general symptoms. *Nimbu* can provide an acidic environment and thereby promoting iron absorption. Vitamin C and gastric intrinsic factor also play an important factor in iron absorption. Alkalinity is an inhibitory factor in iron absorption. In iron deficiency state, iron store depletion refers to an imbalance between normal physiological demand and the level of dietary iron intake. And

in this state absorption of dietary iron is increased through Supplement of oral iron preparations which causes increase in iron absorption leading to synthesis of haemoglobin.

CONCLUSION

Analitical study reveals that *Sodhana Dravya* can influence the physico-chemical properties. *Bhringaraja Swarasa Śōdhita Kāsisa* group shows, better results as compared to *Jambēra Swarasa Śōdhita Kāsisa* and Ferrous Sulphate tablet, both in subjective and objective parameters. Improvement in Hb% was more in *Jambēra Swarasa Śōdhita Kāsisa* than Ferrous Suphate tablet. No observable side effects were noted in all the three groups. Herbal ingredients present in the *Sodhana Dravya* play an important role in increasing the bioavailability of iron. Based on the results of this research work it may be concluded that, we can select the *Sodhana Dravya* depending on the disease condition.

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