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A COMPARATIVE CLINICO-PATHOLOGICAL STUDY OF VISHAMA JWARA (MALARIA FEVER) WITH HERBAL FORMULATIONS DRONAPUSPI GHANA VATI'A' (*LEUCAS ASPERA*) & 'B' (*LEUCAS CEPHALOTES*)

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ABSTRACT

Introduction-In *Ayurveda, jwara* is defined as the state where the body, mind as well as sense organs suffer due to the high temperature. *Vishama jwara* is one type of *jwara,* is an intermittent and complicated type of fever whose signs and symptoms are similar to malaria fever. **Material and methods**-A single blinded clinical study on 14 patients; Group A- 6 patients and Group B- 8 patients were registered from OPD and IPD of Govt. *Ayurvedic* College & Hospital, Balangir. They were presented with headache, malaise, intermittent high grade fever since more than one year. Blood sample showed plasmodium vivax and were diagnosed as case of *Vishama jwara* (malaria fever). They were treated with *Ayurvedic* formulations of *Dronapuspi Ghana vati*'A' *Leucas aspera* in Group-A and *Dronapushpi Ghana vati* 'B'*Leucas cephalotes* in Group-B, 600mg each thrice a day for a period of 10 days respectively. The subjective and objective parameters were assessed 3 days interval in order to find out the efficacy of formulations by adopting statistical evaluation. **Observation and results**-It has been observed that in Group-B, 89.35% patients were improved in clinical features (P <0.001) and PV was negative in 62% thick-thin and QBC blood test within 10 days therapy. In Group-A, 84.59% patients were developed clinically (P<0.01) and blood samples showed negative in

50% PV in blood test. **Conclusion-**The study revealed that the trial drugs (*L. cephalotes),* Group-B is more effective as compare to Group-A *(L .aspera). Maricha*, which helps as antipyretic by its *deepana, pachana, ushana veerya* and *jwarahara* properties. No adverse effect was seen.

KEYWORDS: *Jwara, Vishama jwara*, Malaria, Intermittent fever.

INTRODUCTION

Vishama jwara in *Ayurveda* is an intermittent and complicated type of fever due to vitiation of asthi and *majja* dhatu along with common involvement of *rasa dhatu,*[1] Whose clinical features as fever, chill rigor, headache, bodyache, anorexia, sweating, and weakness. etc are similar to the that of malaria fever.[2] It is of five types such as *satata, santata, anyadushka, tritiyaka* and *chaturthaka w*hich takes *ashraya* in consequently *dhatu* like *rasa, rakta, mansa, meda, asthi and majja.*[1][8][9][10][12]*Tritiyaka vishama jwara* is related to PV malaria.[11][12] Malaria is an endemic disease in most of the tropical countries like India. In 2014 there were 2.14 million confirmed P.vivax cases globally, 18% of which occurred in India. P.vivax accounts for approximately 3rd of all malaria cases in India with around 380,000 confirmed cases in the public in 2014. Plasmodium vivax accounts for 13% of malaria cases in Odisha (about 53,000 cases in 2014).[4][15]

Various formulations of antimalarial drugs are administered in malaria patients and the subsequent evaluation noticed that many drugs were resistant for which major bad impact on global public health. It is found in *Ayurveda classic that Dronapusphi (Leucas aspera & Leucas cephalotes*) is indicated in *Vishama jwara.*[5][7][13] So a clinical trial was conducted with the *Ayurveda* formulation of those drugs along with maricha for each group in the form of *Ghana vati* were given to plasmodium vivax patients and the result was assessed.

AIM ANAD OBJECTIVE

- To study the aetiopathologenesis of malaria in the parlance of vishama jwara and other Ayurvedic concept.
- To find out a non-reactive herbal drugs for the treatment of malaria fever.
- Clinical evaluation of vishama jwara lakshana in relation to clinical features of malaria.
- To evaluates the efficacy of Dronapushpi of two varieties for the treatment of malaria

MATERIALS AND METHODS

Selection of Patients

The total 14 patients (Group A- 06 and Group B- 08) were selected from OPD and IPD of Govt. *Ayurvedic* College Balangir. They had subjective parameter like fever, rigor with chill, headache, bodyache, anorexia, sweating, and weakness along with plasmodium vivax (PV) positive in blood smear.

Inclusive Criteria

- Patients having PV Positive in blood sample
- Along with clinical features of malaria like fever, chill and rigor, headache, bodyache, nausea, vomiting, sweating and weakness.
- Age between 6-70 yrs
- Both sexes were selected for this study.

Exclusive Criteria

- Patient having parasitemia other than Plasmodium. vivax,
- Systemic illness (carcinoma, CVA) & taking allopathic antimalarial drugs
- Below 5 yrs age and above 70 yrs age,
- Pregnant and lactation mother were excluded from this study.

Drugs Selection criteria

- The drugs having jwarahara, vishamajwarahara, jantughana, amahara and vedaniya properties. Described in *Ayurvedic* classic named as *leucas aspera* and *leucas cephalotes* were selected for clinical trial.[5][7][13][18][20][21]
- Another drugs *maricha* was added in clinical trial for its *deepana*, *pacana*, *jwaraghana*, *vishamajwarapratibandhaka* properties.[5]

Pathological investigation criteria

- DC, TLC, Hbgm%, MP smear (thick & thin), MP (ICT, Ag Test) and QBC test had been advised to the selected patients.[15]

Aassessment criteria

- The subjective parameters like fever, chill with rigor, headache, bodyache, nausea, vomiting, sweating, weakness and objective parameters like DC,TLC, Hbgm%, MP (ICT

and Antigen), QBC blood smear (thick and thin) were assessed in 3 days interval and grading was noted according to patients preform and favorable shift to back(4 to 0).

- The result was assessed by statistical evaluation.

Treatment criteria

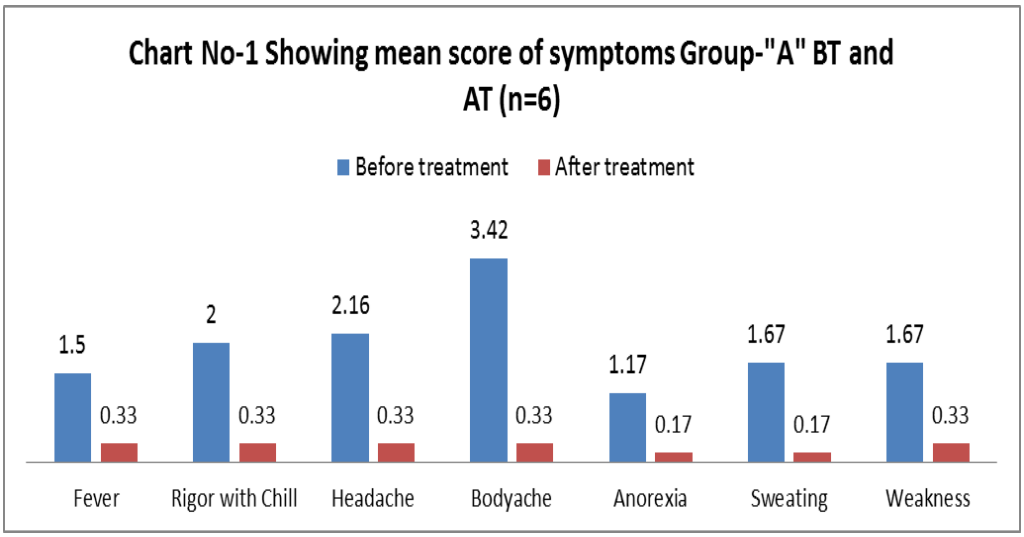
- The group-'A' and group-'B' patients were advised to take *Dronapushpi Ghana Vati* 'A' *(Leucas aspera)* and 'B'(*Leucas cephalotes)* 2 tab (600mg) each thrice a day after food respectively.
- Depending upon the degree of temperature antipyretic medicine was given in both the groups.
- Duration- 10 days.

OBSERVATION AND RESULT

Table No- I Effect of *Dronapushpi Ghana Vati* "A"*(Leuca saspera)* in clinical features (n=6).

Sign & Symptoms	Mean score		% of Relief	S.D. (±)	S.E. (±)	't'	P
	BT	AT					
Fever	1.5	0.33	78%	0.37	0.15	6.78	<0.01
Rigor with chill	2	0.33	83.5%	0.47	0.19	8.78	<0.001
Headache	2.16	0.33	84.72%	0.41	0.167	9.8	<0.001
Body ache	3.42	0.33	90.4%	0.47	0.19	8.79	<0.001
Anorexia	1.17	0.17	85.47%	0	0	1	N.S
Sweating	1.67	0.17	89.82%	1.59	0.65	2.30	<0.10
Weakness	1.67	0.33	80.23%	0.47	1.19	1.11	N.S

(BT=Before Treatment, AT= After Treatment, SD= Standard Deviation, SE= Standard Error, P= Probability of t values at 5 degrees of freedom. N.S- Not Significant).



It had been observed that in group-'A' the clinical feature of fever, rigor with chill, headach and bodyache were improved 78%, 83.5%, 84.72%, and 90.4% respectively and were statistically significant (P<0.001). The symptoms of sweating was also improved 89.82% which was also statistically less significant (P<0.01). But it is revealed that anorexia (85.47%) and weakness (80.23%) were clinically improved but statistically insignificant (P<0.10).

Table No: 02 Effect of Dronapushpi Ghana vati (Leucas aspera) On MP Test Group-A.

No of patients with MP +ve	No of patients with MP -ve
BT	AT
6	3

[BT= Before Treatment, AT= After Treatment]

In hematological parameters out of 6 patients, 3 patients were observed PV Positive (tableno-02) after treatment but they were clinically improved.

Table No: 3 Effect of *Dronapushpi Ghana Vati* "B" (*Leucas cephalotes)* in clinical features (n=8).

Sign & Symptoms	Mean score		% of Relief	S.D. (±)	S.E. (±)	't'	P
	BT	AT					
Fever	2.5	0.25	90%	0.43	0.15	15	<0.001
Rigor with chill	2.12	0.25	88.2%	0.32	0.11	17	<0.001
Headache	2.89	0.38	86.85%	0.5	0.18	10.38	<0.001
Body ache	2.12	0.25	88.2%	0.49	0.18	10.38	<0.001
Anorexia	1.25	0.12	90.4%	0.32	0.11	17	<0.001
Sweating	1.89	0.12	93.65%	0.49	0.16	11.68	<0.001
Weakness	2.12	0.25	88.2%	0.49	0.18	10.38	<0.001

(BT=Before treatment, AT=After Treatment, S.D=Standard deviation, S.E= Standard Error, P= Probability of t values at 7 degrees of freedom).

It had been observed that the clinical features of group B patients were improved more than 85% as showed inTableNo-3 and ChartNo-02. As regard to statistcal evaluation, the clinical features of fever, chill and rigor, headach, nausea, sweating and weakness were statistically highly significant (P<0.001).

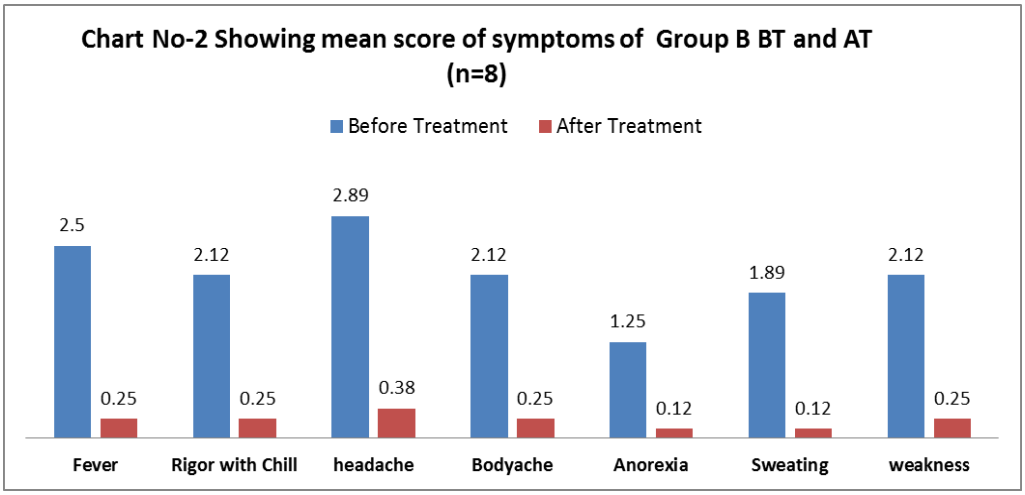


Table No: 04 Effect of Dronapushpi ghana vati (Leucas cephalotes) On MP Test Group-B.

No of patients with MP +ve	No of patients with MP -ve
BT	AT
8	3

[BT=Before Treatment, AT= After Treatment]

Parameters out of 8 patients; In hematological 3 patients were plasmodium vivax MP (ICT) positive test after treatment but clinically improved.

Table No: 5 Effect of *Dronapushpi Ghana vati* "A" (*Leucas aspera)* on Hematological values (n=6).

Sign & Symptoms	Mean score		% of Relief	S.D. (±)	S.E. (±)	't'	P
	BT	AT					
TLC	7116.7	7700	8.19	157.23	64.18	9.089	<0.001
Hbgm%	12.4	12.64	1.93	0.18	0.08	3	<0.05

(BT=Before treatment, AT=After Treatment, S.D=Standard deviation, S.E= Standard Error, P= Probability of t values at 5 degrees of freedom).

It was observed that TLC was with in normal limit in both groups (tableNo-05 and 06) and there was mean increased in 1.93gm% hemoglobin which was statistically less significant (P<0.05) in group "A" but in group "B" the mean hemoglobin was increased by 0.94 gm%. This was statistically insignificant (Table No-06).

Table No: 6 Effect of *Dronapushpi Ghana Vati* "B" (*Leucas cephalotes)* on Hematological values (n=8).

Sign & Symptoms	Mean score		% of Relief	S.D. (±)	S.E. (±)	't'	P
	BT	AT					
TLC	7200	7450	3.47	204.8	72.62	2.23	<0.10
Hbgm%	10.6	10.7	0.94	0.14	0.05	1.4	>0.10

(BT=before treatment, AT=After Treatment, S.D=Standard deviation, S.E= Standard Error, P= Probability of t values at 7 degrees of freedom).

DISCUSSION

In the trial drugs *dronapushpi Ghana vati (L.aspera & L. cephalotes)* contain *dronapushpi & Maricha.* In group-'A' which have *deepana pachana, yakriduttejaka, krimighana, Jwarahara, Vishamajwaraghana, Kamalahara, Sothahara, Jantughana, Amahara,* and *Bhedaniya* Properties. Both of drugs in *'Dronapushpi Ghana vati'* are having *Katu rasa,* and specific action of *Katu rasa* is *Deepana, Pacana,* and *Krimighana. Mandagni* is the motive cause for jwara (vishama jwara). So drug increases the *Jatharangni* and *Dhathavagni* up to normal level. Both *dravyas* possess *Laghu, Rukshya, Teekshana guna* and *Katu, tikta Madhura rasa*. So the drugs also possess *srota shudhikara* property as result it is able to clarify the *srotas. Ushna veerya* of both the drugs of *Dronapushpi Ghana vati (Leuas aspera)* decrease the headach, bodyache, chill and rigor alleviating *vatadosha*. These drugs have *vatakaphahara* and *tridoshasa samaka* properties helpful in treating *tridoshaja vishamajwara*.

In Group-'B' the trial drugs *Dronapushpi Ghana vati (Leucas cephalotes)* also *kaphapittahara* and *tridoshasamaka* properties. It has *madhura vipaka* so it's more effective then trial 'A' drugs.

PROPERTIES OF DRUGS

Table no: 07 Properties of drugs of *Dronapushpi Ghana vati (Leucas aspera).*[20][21]

Name	*Rasa*	*Guna*	*Veerya*	*Vipaka*	*Karma*
Dronapushpi (Leusac aspera)	*Katu, swadu*	*Guru Rookshya Teekshana*	*Ushna*	*Katu*	*Jwarahara Vishamajwaraghana Kamalahara Sothahara Jantughana Amahara Bhedaniya*
Maricha	*Katu*	*Laghu Tishna Rukshya*	*Ushna*	*Madhura*	*Deepana Pachana Yakriduttejaka Krimighana Jwaraghana Vishamajwaraghana*

Table No: 8 Properties of drugs of *Dronapushpi Ghana vati (Leucas cephalotes).*[20][21]

Name	*Rasa*	*Guna*	*Veerya*	*Vipaka*	*Karma*
Dronapushpi (Leucas cephalotes)	*Madhura, Lavana, Tikta*	*Guru Rukshya*	*Ushna*	*Madhura*	*Deepana Ruchya Jantughana Vishaghana Krimighana Raktasodhaka Jwaraghana Vishamajwarahara*

CONCLUSION

Vishama jwara (malaria fever) showed significant improvement in both groups after receiving the *Ayurvedic* formulation *Dronapushpi Ghana Vati 'A'* (*leucas aspera*) and *Dronapushpi Ghana Vati* 'B' (*lucas cephalotes)".* No adverse effect was observed in both groups during the treatment. Thus these studies reveal that the above said trail drugs can be used as safe and effective for plasmodium Vivax malaria. Study can be done in more samples for more period of time for better result and fore more scientific validation.

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