



ROLE OF BHARANGYADI KWATH IN THE CASES OF VISHAM JWARA (MALARIA)

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ABSTRACT

Malaria is a protozoal disease transmitted by the Anopheles mosquito, caused by minute parasitic protozoa of the genus Plasmodium, which infect human and insect hosts alternatively. There are four species of the genus plasmodium responsible for the malaria parasite infections that commonly infect man, *P.falciparum*, *P.vivax*, *P.malariae* and *P.ovale*. The most important of these is *P.falciparum* because it can be rapidly fatal and is responsible for the majority of malaria related deaths. Malaria effects mainly poor, underserved and marginalized populations in remote rural areas which are characterized by inadequate control measures and limited access to health care. Higher malaria prevalence has been reported among ethnic and tribal groups living in remote forested and border areas. Treatment for Malaria is primarily aimed at personal protective measures that prevent mosquitoes from biting and transmitting malaria, chemo-prophylaxis, anti-malarial drug of choice and blood schizonticides are the first-line drugs for the treatment of malaria. In *Ayurveda*, the symptoms, etiopathogenesis of Malaria resembles with *Visham Jwara*. Treatment includes administration of *Shodhan Karma* and certain *Shaman Yogas*. The crude drugs of *Bharangyadi* prepared in the form of decoctions is found to be useful in treating *Vishamjwara*, as the active principals contained within is found to have anti-pyretic, anti-bacterial, anti-emetic, digestive, hepato-protective and laxative properties. Total 50 patients diagnosed as *Vishamjwara* (Malaria) of any socio-economic status, age group of 20-60 years and irrespective of sex were randomly selected for clinical study. The drug *Bharangyadi Kwath* was orally given for one month of duration. *Bharangyadi Kwath* is very effective, safe and good result yielding drug for treatment of *Vishamjwara* (Malaria) as the drug is – *Vatakaphashamak*, *Deepan*, *Pachan*, *Amapachan*, *Jwarangna*, *Trishnahar*, *Krimighna*, *Rasayan* easily available, cheaper and with no side and adverse effect. The outcome revealed a better therapeutic efficacy of *Bharangyadi Kwath* in *Vishamjwara* (Malaria).

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INTRODUCTION

Malaria is a protozoal disease transmitted by the Anopheles mosquito, caused by minute parasitic protozoa of the genus Plasmodium, which infect human and insect hosts alternatively.

There are four species of the genus plasmodium responsible for the malaria parasite infections that commonly infect man, *P.falciparum*, *P.vivax*, *P.malariae* and *P.ovale*. The most important of these is *P.falciparum* because it can be rapidly fatal and is responsible for the majority of malaria related deaths.

Malaria is a febrile illness characterized by fever and related symptoms. However it is very important to remember that malaria is not a simple disease of fever, chills and rigors. Malaria continues to pose a major public health threat in India, Particularly due to *P. falciparum* which is prone to complications. In India about 27 % population lives in malaria high transmission (1 Case/ 1000 Population) areas and about 58% in low transmission (0-1 case/1000 population) Areas. Malaria affects females and males equally. Children of all ages living in non-malarious areas are equally susceptible to malaria. People of all races are affected, with some exceptions. Malaria affects mainly poor, underserved and marginalized populations in remote rural areas which are characterized by inadequate control measures and limited access to health care. Higher malaria prevalence has been reported among ethnic and tribal groups living in remote forested and border areas. Malaria has demonstrated the relationship between health and socio-economic development. It is generally accepted that malaria has disappeared from most developed countries as a result of socio-economic development. The ill-ventilated and ill-lighted house provide ideal indoor resting place for mosquitoes, malaria is acquired in most instances by mosquito bites within the house. India's geographic position and climatic conditions had been, for long, favorable to the transmission of malaria. It is a seasonal disease; the maximum prevalence is from July to November. Temperature affects the life cycle of the malaria parasite. The optimum temperature for the development of the malaria parasite in the insect vector is between 20°C to 30°C (68° to 86°F) the parasite ceases to undergo development in the mosquito if the mean temperature i.e. below 16°C temperature and higher than 30°C lethal to parasite. A relative humidity of 60% is considered necessary for mosquitoes to live their normal span of life. When relative humidity is high, mosquitoes are more active and they feed more voraciously. If the humidity is low, mosquitoes do not live long.

In *Ayurveda*, the symptoms, etiopathogenesis resembles with *Vishamjwara*. *Vishamajwara* is irregular (inconsistent) in its *Arambha* (nature of onset commitment), *Kriya* (action production of symptoms) and *Kala* (time of appearance) and possesses *Anushanga* (persistence for long periods). *Bahya* (external) as *Jeevanu* (parasite or microbes), *Mithya Ahara Vihara* (defective food and habits) and the internal factors are vitiated *Dosha* and *Dushya* are causes for *Vishamajwara*. Treatment includes *Langhan*, *Vaman*, *Virechan*, *Basti*, *Anjana*, *Dhupana* and *Shamanaushadhi* comprises with *Kwath*, *Pana*, *Churna*, *Ghrita*, *Asav-arista* and *Krimighna* drugs. In *Yogratnakar* a decoction of the *Bharangyadi Kwath* is recommended for the treatment of *Vishamjwara*. It is a combination of *Jwaranghna* and *Krimighna* drugs. *Bharanghi* and *Kiratatikta* are proved as *Vishamgwaraghna*. *Guduchi*, *Parpatak* and *Bruhati* are having *Jwaranghna* properties. *Shunthi* and *Pippali* are used as *Amapachana*. *Mustak* is used as *Trishnahar* and *Krimighna*. *Dhamasa* is having *Dahaprashaman* and *Kustha* is having *Raktashodhak* Property. The combination of these drugs shows the *Vishamjwaraghna* properties. The aim of this clinical study was to evaluate the effectiveness of *Bharangyadi kwath* in the cases of *Vishamjwara* (Malaria).

Methodology of the research work

The research study entitled "Role of *Bharangyadi Kwath* in the cases of *Vishamjwara* (Malaria) was an observational clinical trial done with herbal formulations of *Bhrangyadi Kwath*.

Methods of collection of Data

- A clinical study of patients attending the OPD was made and patients fulfilling the criteria of diagnosis as per the research paper were selected for the study.
- A clinical evaluation of patients was done by collection of data through information obtained by history, physical examination and laboratory tests including Malaria Parasite test.
- The data which were obtained by the clinical trial will be summarized and analyzed through statistical measures.

Inclusion Criteria

- Patients with classical features of *Vishamjwara* explained in classical texts.
- Patients of any socio-economic status, both sexes and all ethnic origins.
- Patients with age group of 20-60 years.
- Peripheral smear test for Malaria Parasite - Positive.

Exclusion Criteria

- Patients with uncontrolled metabolic and other systemic disorders.
- Psychiatric illness and pregnant women.
- Patients having cerebral Malaria

Criteria for Selection of Drug

Bhrangyadi kwath has been mentioned in the treatment of *Vishamjwara*. The crude drugs of *Bharangyadi Kwath* prepared in the form of decoctions is found to be useful in treating *Vishamjwara*, as the active principles is found to have anti-pyretic, anti-bacterial, anti-emetic, digestive, hepato-protective and laxative properties. The raw drugs are easily available and low cost compared to other therapy. Hence, *Bharangyadi Kwath* was selected for research study.

Method of preparation

Bharangyadi Kwath

The crude drugs of *Bharangyadi Kwath* were collected and added water in proportion of 1:4, boiled until ¼ remaining. Dose – 40 ml BD

Route of Administration - Oral

Duration – One month

Diagnostic Criteria - It mainly emphasized on signs and symptoms of *Vishamjwara* (Malaria). Routine laboratory investigation like Hb%, TLC, DLC, ESR, Blood Sugar (Random), Peripheral smear for Malaria Parasite and Urine examination was made to rule out other pathological conditions.

Diet Regimen - While prescribing the diet of the patients, concept of *Pathya-Apathya* related to *Jwara* was kept in mind; light diet was advised as per the status of Agni.

Research Design - Patients were randomly selected consisting of 50 patients excluding dropouts with pre, mid and post test study design.

Criteria for Assessment - The assessment was made before, during and after the treatment on scoring of cardinal signs and symptoms of *Vishamjwara*. Results were analyzed statistically as per the assessment chart. Scoring pattern was developed according to severity of symptoms. (Severe – 3, Moderate – 2, Mild – 1, Absent – 0)

Presenting Symptoms

- | | | | |
|--------------------|-------------------|-----------|-----------|
| 1. Aniyamita Jwara | 2. Shirshool | 3. Aruchi | 4. Vepan |
| 5. Chardi | 6. Parshvashool | 7. Tandra | 8. Anidra |
| 9. Yakritvridhhi | 10. Pleehavridhhi | | |

Associate Symptoms

- | | | |
|---------------|------------------------|-----------|
| 1. Angagaurav | 2. Trishna | 3. Pralap |
| 4. Glani | 5. DravaMala Pravritti | |

Assessment of total effect: The total effect of therapy was assessed as;

Assessment	Score
Complete cure	100%
Marked Relief	75-99%
Moderate Response	50 to 75%
Mild Improvement	25-50%
No response	0-25%

OBSERVATION

The effect of *Bharangyadi Kwath* was studied in 50 patients suffering from *Vishamjwara* (Malaria), fulfilling the inclusion criteria. The observations were as follows : Maximum number of patients were obtained in the age group of 31-40 years that is 36% followed by 32% patients in the age group of 51-60 years, 20% patients in the age group of 20-30 and 12% patients in the age group of 41 to 50 years. Male patients were 58% and female patients were 42%. Most of the patients 30% were Housewives and 28% were manual labors and the maximum numbers of patients 48% were from Middle income group. Most of the patients 62% were taking mixed type of diet. 52% of patients were having *Mandagni* and 38% were having *Mridu Kosta*. 52% patients were of *Satata* type, 16% *Santata*, 18% *Annedushkya* and 14% having *Tritiyak* type of *Vishamjwara*.

RESULTS

The drug *Bharangyadi Kwath* provided a highly significant ($P < 0.001$) effect on the symptom; *Aniyamita Jwara*, *Shirshool*, *Aruchi*, *Vepan*, *Chardi*, *Parshvashool*, *Tandra* and *Anidra*. In *Yakritvridhhi* and *Pleehavridhhi* the treatment showed not significant ($P > 0.05$) effect. In associate symptoms *Angagaurav*, *Trishna*, *Pralap* and *Glani* the treatment showed highly significant ($P < 0.001$) effect and in *DravaMala Pravritti* the treatment showed more significant ($P < 0.01$) effect. The relief percentage in individual symptoms of *Vishamjwara*

Drug Name	Latin Name	Family	Useful Part
Bharangi	Clerodendrum serratum	Verbenaceae	Root & Leaves
Mustak	Cyperus rotundus	Cyperaceae	Rhizome
Pittapapada	Fumaria officinalis	Fumariaceae	Whole plant
Dhamasa	Fagonia arabica	Zygophyllaceae	Whole plant
Sunthi	Zingiber officinale	Zingiberaceae	Rhizome
Chirayata	Swertia chirata	Gentianaceae	Whole plant
Kustha	Saussurea lappa	Compositae	Root
Pippali	Piper longum	Piperaceae	Fruit
Brihati	Solanum indicum	Solanaceae	Root & Fruit
Guduchi	Tinospora cordifolia	Menispermaceae	Stem

Effect of Bharangyadi Kwath on symptoms of 50 patients of *Vishamjwara* (Malaria)

Symptoms	Mean		Mean Diff.	Relief %	SD	SE	't'	P
	BT	AT						
<i>Aniyamita Jwara</i>	2.52	0.60	1.92	76.19	0.40	0.06	19.21	<0.001
<i>Shirshool</i>	2.34	0.52	1.82	77.77	0.48	0.07	18.50	<0.001
<i>Aruchi</i>	2.46	0.48	1.98	80.48	0.47	0.07	18.90	<0.001
<i>Vepan</i>	1.66	0.34	1.32	79.51	0.94	0.13	7.38	<0.001
<i>Chardi</i>	1.52	0.34	1.18	77.63	0.92	0.13	6.63	<0.001
<i>Parshvashool</i>	0.90	0.20	0.70	77.77	0.89	0.13	4.61	<0.001
<i>Tandra</i>	0.92	0.18	0.74	80.43	0.92	0.13	4.61	<0.001
<i>Anidra</i>	2.12	0.44	1.68	79.24	0.68	0.10	11.58	<0.001
<i>Yakritvridhhi</i>	0.22	0.12	0.10	45.45	0.30	0.04	1.17	>0.05
<i>Pleehavridhhi</i>	0.30	0.16	0.14	46.66	0.35	0.05	1.50	>0.05

Effect of Bharangyadi Kwath on associate symptoms of *Vishamjwara* (Malaria)

Symptoms	Mean		Mean Diff.	Relief %	SD	SE	't'	P
	BT	AT						
<i>Angagaurav</i>	1.76	0.32	1.44	81.18	0.81	0.11	9.52	<0.001
<i>Trishna</i>	2.28	0.40	1.88	82.45	0.52	0.07	18.96	<0.001
<i>Pralap</i>	1.08	0.20	0.88	81.48	0.85	0.12	5.74	<0.001
<i>Glani</i>	1.58	0.26	1.32	83.54	0.89	0.13	8.05	<0.001
<i>Dravamala pravritti</i>	0.44	0.10	0.34	77.27	0.52	0.07	3.52	<0.01

Table 2. Effect of Bharangyadi Kwath on Blood Examinations

Parameters	BT	AT	Diff.	SD	SE	't'	P
MP test	1.00	0.26	0.74	0.44	0.06	11.81	<0.001
Hb%	13.09	13.58	0.49	0.37	0.05	1.94	>0.05
ESR	15.04	9.24	5.80	3.30	0.47	7.13	<0.001
TLC	7038	6917	121	82.74	11.70	0.97	>0.05
Neutrophil	58.38	63.06	4.68	2.66	0.38	5.82	<0.001
Lymphocyte	34.82	29.98	4.84	2.87	0.41	6.26	<0.001
Eosinophil	4.32	5.20	0.88	0.98	0.14	4.43	<0.001
Monocyte	2.48	1.76	0.72	0.54	0.08	5.81	<0.001
Blood Sugar (Random)	107.60	120.20	12.60	4.11	0.58	5.27	<0.001

Effect of Bharangyadi Kwath on Temperature

Mean of Temperature (in degree Fahrenheit)				
BT	7 Days	14 Days	21 Days	AT
102.41	101.49	100.51	99.55	98.64

Overall effect of Bharangyadi Kwath in 50 patients of Vishamjwara (Malaria)

Result	Number of Patients	Percentage
Complete Cure	12	24%
Marked Relief	10	20%
Moderate Response	28	56%
Mild Improvement	00	0

(Malaria) revealed a better therapeutic efficacy of *Bharangyadi Kwath*. The overall assessment showed 24% patients got complete cure, 20% were showed marked relief and 56 were showed moderate response after completion of the treatment.

DISCUSSION

Jwara is the king of all diseases and *Ayurveda* mentioned as the synonym of the disease or a febrile condition. It afflicts body, mind and sense organs, regulates the well being of life. The disease *Vishamajwara* is included under the *Jwara Roga*. *Vishamajwara* is a *Sannipataja Jwara*, a most popular *Ayurvedic* term in turn of modern medical terminology correlated to malarial fever, is a protozoan disease caused by genus plasmodium and transmitted to man by certain species of infected female anopheles mosquito. It is characterized by *Visamarambha* (irregular onset) *Visama kriya* (alternative feeling of hot and cold) and *Visamakala* (irregular duration of sufferings) of *Jwara*. The major cardinal symptoms are Fever with chill and rigor. The other symptoms are Headache, dizziness or vertigo, with or without fever, may present with altered behavior, mood changes, hallucinosis or even acute psychosis. *Bharangyadi Kwath* is prepared from ten crude herbal drugs. The majority of drugs are *Tikta*, *Katu* and *Kashaya Rasatmaka*. *Tikta Rasa* is *PittaKapha Shamak*. *Katu Rasa* is *Amapachak*. Hence combination of these drugs having *Tikta* and *Katu Rasa* are useful in *Vishamjwara*. In *Bharangyadi Kwath* 60% durgs are having *Ushna Veerya*. Thus *Sweda-avarodh* is pacified by *Ushna Veerya*. *Bharangi* and *Kiratikta* are having *Vishamjwaraghna prabhava*. *Guduchi*, *Parpatak* and *Bruhati* are having *Jwaraghna* properties. *Shunthi* and *Pippali* are used as *Amapachana*. *Mustak* is used as *Trishnahar* and *Krimighna*. *Dhamasa* is having *Dahaprashaman* and *Kustha* is having *Raktashodhak* Property. The combination of these drugs causes potent anti-pyretic, anti-bacterial, anti-emetic, digestive, hepato-protective and laxative properties. *Bharangyadi Kwath* provided complete cure in 24%, marked relief in 20%, and moderate response in 56% of the patients.

Bharangyadi Kwath shows significant improvement in the subjective and objective parameters.

Conclusion

The following conclusions can be drawn from the observations of the present study:

- *Bharangyadi kwath* brought out a highly significant result in symptoms of *Vishamjwara* (Malaria).
- The clinical study shows highly significant result with subjective and objective parameters suggesting that *Bharangyadi Kwath* is effective in the management of *Vishamjwara* (Malaria).
- The drug *Bharangyadi Kwath* is very effective, safe and good result yielding drugs for treatment of *Vishamjwara* (Malaria) as it is having – *Vatakaphashamak*, *Deepan*, *Pachan*, *Amapachan*, *Jwarangna*, *Trishnahar*, *Krimighna*, *Rasayan* properties, easily available, cheaper and with no side and adverse effect.

Though this study was carried out in limited patients for a limited period, the mass study programming is needed for further huge database statistical study.

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