

Clinical Evaluation of Combretum Indicum L. Leaf Decoction w.s.r.t Krimi Roga (Anthelmintic Activity)

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ABSTRACT

Krimi roga is one of the common health problem seen in India and developing countries especially in children which gradually leads to malnutrition, adversely affects the physical and mental growth of the children, it can even become the major cause for the death if kept untreated. In Ayurveda totally 20 varieties of Krimis are mentioned and are generally classified into four main group i.e. Malaja, Shleshmaja, Rakthaja, and Pureeshaja. Among these Pureeshaja Krimi is considered as intestinal worms. Folklore practitioners are curing the Krimi roga by using locally available drug, which have to be properly explored and needs systematic documentation to establish their medicinal values and applications. Combretum indicum (L.) is such a miraculous drug but not explored, is being used by the traditional Vaidyas in the treatment of Krimi roga. The study was a comparative clinical study with a total subjects of 40 where 20 patients grouped in to standard group (Albendazole) and the 20 under trial group where the Patra Kashaya of Combretum indicum L. is administered. The study showed statistically significant result where the trial drug is having similar action to that of the standard drug in curing the helminthiasis.

KEY WORDS: Combretum indicum (L.), Krimi, Krimi roga, Helminthiasis

I. INTRODUCTION:

Millions of people across the world are affected with one or the other type of parasitic worms. Helminthiasis is one of the major threat to the public health in developing countries. Life style of the people are the major factor that which kindles the worm infestation. The intestinal parasite infections often causes morbidity and mortality especially in children. The major risk factors of Helminthiasis are rural areas, low socio-economic status, poor sanitation, poor availability of clean water, poor personal hygiene, lack of nail trimming, crowded living conditions, lack of education, lack of health care and inadequate

dwelling condition.^[1] Among all the ailments which are faced by the children the Helminthiasis or the worm infestation is the illness which is ignored by both the physician as well as the parents as this ailment is having less severity of symptoms. The helminthiasis is such an infection which is able to kill the person by obstructing most of the systems.

The damages caused by the Intestinal worms are direct damages. It is done by worm activities such as internal organ blockage or direct pressure effects by growth of parasites^[2]. As per the investigatory statement given by World Health Organisation (WHO), only synthetic drugs are frequently used in the treatment of helminth infections in human beings, but these synthetic drugs are out of reach of millions of people and have a lot of side effects^[3]. Along with the side effects it is reported that there is development of resistance to most commercially available anthelmintic drugs world-wide. Which necessitate the attempts to bring out the best of the anthelmintic drugs to the public health care system. Among world population especially the people residing in rural area commonly depends on the traditional medicinal system pertaining to that specific geographical area from ages as to get cure from many ailments. The Folklore healers are using many plants as medicine in their treatment. Thus it is understood that need of the era is to procure and establish the medicines used by the folklore people in to main stream.

The drug Combretum indicum (L.) is such a plant which is widely available in Kerala as well as in the Dakshina Kannada. Patra Kashaya of this drug is used in order to treat Krimi roga. Thus, in order to identify, evaluate as well as to explore the therapeutic efficacy of the drug Combretum indicum (L.) clinically the present study has been undertaken.

II. MATERIALS AND METHOD

Study design: Randomized comparative clinical study

Sample size estimation: As per the incidence of the disease, the sample size estimation was done and implemented for the clinical study. In the present study 40 patients suffering from Krimi roga (Helminthiasis) fulfilling the diagnostic and inclusion criteria were registered for the comparative clinical study. They were assigned randomly into two equal groups A and B for the study through lottery method.

Sample size: 40 patients diagnosed with Krimi were divided in two groups of 20 each

Duration of treatment: Five days.

Method of sampling: Simple random sampling

Inclusion criteria

- Diagnosed case of Krimi (helminths).
- Patients between the age group of 8-12 yrs.

Specification of nature of study

1. Diagnostic phase
2. Interventional phase
3. Assessment phase

1. Diagnostic phase: Diagnosis was done based on the criteria of assessment and from the result of stool examination. Physical examination was done to find out the pallor.

2. Interventional phase: The study intervened by treatment with the Patra Kashaya of *Combretum indicum* (L.)

Group A: Albendazole is given in a single dose of 400mg at bedtime.

Group B: 1 part of drug is boiled with 16 part of water and it is reduced to 1/4 is given twice daily.

Duration of treatment: 5 days

Follow up: After the completion of 5 days of treatment, patients were observed for 28 days and stool examination was done.

Total Study duration: 33 days.

Diet and restriction: The patients were advised to avoid the unhygienic food and environment.

3. Assessment phase

The effect of treatment was assessed by the clinical observation and on the basis of investigation reports. Further analysis done by statistical analysis. For pre-post comparison Wilcoxon Signed Rank Test and Cochran test is used. For between group comparisons Mann-Whitney U test is applied.

Assessment criteria

a) Gudakandu

Absent - 0

Mild -1

Moderate -2

Severe -3

b) Pandu

Normal Absent - 0

Paleness on the face Mild -1

Discolouration on the face Moderate -2

Discolouration all over the body Severe -3

c) Udara shola

Normal Absent -0

Occasional pain Mild -1

Constant pain Moderate -2

Cries due to pain Severe -3

d) Karshya

Absent - 0

Mild -1 Moderate -2

Severe -3

e) Aruchi

Absent -0

Mild -1

Moderate -2

Severe -3

f) Passing worms in stools

Absent -0

Mild -1

Moderate -2

Severe -3

G) Presence of ova in stool examination

Absent - 0

Present - 1

Analysis of overall effect of the treatment.

Assessment of the total effect of therapy made by analysing the data of observations of signs and symptoms before and after the treatment and fixed as follows

1. Cured - Complete relief in the signs and symptoms.
2. Markedly improved - Patients showing more than 90% relief.
3. Moderately improved - Relief between 60-90% in signs and symptoms.
4. Partially improved - Relief between 30-60% in signs and symptoms.
5. No Change - Either no change or less than 30% relief.

III. OBSERVATION AND RESULT

Considering the Signs and Symptoms of the Krimi Roga and its assessment criteria, the number of patients are categorised as follows which is depicted in the table No:1

Table No 1: Distribution of patients based on Signs and Symptoms

Signs and Symptoms	Group A	Group B	Total	Percentage
Gudakandu	20	19	39	97.5%
Pandu	17	17	34	85%
Udara shola	19	18	37	92.5%
Karshya	19	19	38	95%
Aruchi	18	19	37	92.5%
Passing worms in stool	20	17	37	92.5%
Presence of ova in stool examination	20	20	40	100%

The result of the present clinical study are as follows:

Group A: There is a statistically significant change in all the signs and symptoms except Karshya & Pandu as shown in the table No.2

Group B: There is statistically significant change in all the signs and symptoms except Karshya & Pandu as shown in the table No.3

The effect on presence of ova in stool examination in group A and group B showed the success of the treatment. (Shown in table No.4, 5). There is no statistically significant difference in signs and symptoms of Krimi roga in between Group A and Group B except in the case of Karshya and Passing worms in the stool (Shown in table No.6). The overall effect of the treatment is shown in table No.7.

Table no 2: Effect of Standard drug (albendazole) on signs and symptoms of krimi: group A

Signs and symptoms	Mean		SD	%	WSRT value	"p" value
	BT	AT				
Gudakandu	1.70	0.00	0.733	100	-4.062	<0.001
Pandu	0.85	0.70	0.366	17.64	-3.000	<0.003
Udarashoola	1.25	0.00	0.550	100	-3.977	<0.001
Karshya	0.95	0.80	0.224	15.78	-2.236	<0.025
Aruchi	0.90	0.00	0.308	100	-4.359	<0.001
Passing worms in stool	0.95	0.00	0.224	100	-4.123	<0.001

Table no 3: Effect of trial drug (Combretum indicum (L.) in signs and symptoms of krimi: group B

Signs and symptoms	Mean		SD	%	WSRT value	"p" value
	BT	AT				
Gudakandu	1.80	.00	0.61559	100	-4.062	<0.001
Pandu	.85	.40	0.36635	52.94	-3.000	<0.003
Udarashoola	1.80	.00	0.69585	100	-3.977	<0.001

Karshya	.95	.70	0.22361	25	-2.236	<0.025
Aruchi	.95	.00	0.22361	100	-4.359	<0.001
Passing worms in stool	.85	.00	0.36635	100	-4.123	<0.001

Table no 4: Effect of standard drug (Albendazole) on stool examination :group A

Descriptive Statistics					
	N	Mean	S.D	Minimum	Maximum
Presence of ova in stool examination BT	20	1.00	.000	1	1
Presence of ova in stool examination AT	20	.20	.410	0	1

Table no 5: Effect of trial drug (C. indicum (L.)in stool examination:Group B

Descriptive Statistics					
	N	Mean	S.D	Minimum	Maximum
Presence Of Ova In Stool Examination BT	20	1.00	.000	1	1
Presence Of Ova In Stool Examination AT	20	.05	.224	0	1

Table no 6: Comparative effect of treatment in both group

Signs and Symptoms	Mean Difference		Percentage Relief %		U value	Z score	"p" Value
	GroupA	Group B	Group A	Group B			
GudaKandu	1.70000	1.80952	100	100	173	-826	0.409
Pandu	.15000	.47619	17.64	52.94	140	-2.044	0.041
Udara-shoola	1.25000	1.71429	100	100	108.500	-2.739	0.006
Karshya	.15000	.23810	15.78	26	180	-0.781	0.435
Aruchi	.90000	.95238	100	100	190	-0.593	0.553
Passing worms in the stool	.95000	.85714	100	100	180	-1.041	0.298
Stool examination	.80000	.95238	80	95	170	-1.416	0.157

Table no 7: Overall effect of the treatment

Effect of Therapy	Group A	Group B
Cured 100 % Relief	01	04
Markedly Improved >75% Relief	15	13
Moderately Improved 50-75 % Relief	04	03
Partially Improved 25-50 % Relief	00	00

No Change <25 % Relief	00	00
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IV. DISCUSSION

In Krimi roga samprapthi, it is evident that the KaphaDosh plays important role. In other words Krimi roga is a Kaphapradhanavyadhi with the involvement of Vata and involvement of Rasa, Purisha and Raktha, which causes the Srotodushti 'Sanga'. It is understood that the drug which pacifies the kapha and does the pachana of Ama and deepana of Agni, Shodhana of Srotas that which is being obstructed should be ideally prescribed to cure the Krimi Roga. As the drug is having Kashaya and Tiktha as Pradhana Rasa and Amla as Anurasa and Katuvipaka and Laghu and Ruksha Guna, all these are antagonistic to Kapha, especially tiktarasa is well understood for curing all sort of Krimi, further Katu Vipaka and and Ruksha Guna are Krimighna too, more over the katuvipaka as well as Amla rasa helps in Deepana, Pachana and Srotosodhana. Thus in total the drug possess the Krimighna properties.

The analgesic potentials of Alkaloids,^[4] Steroids,^[5] have been reported in various studies. Therefore the analgesic activity of Combretum indicum (L.) may be due to presence of these components in the leaf of trial drug. According to Elijah Luken et al, the presence of protein, carbohydrate as well as the starch will be helping in gaining body mass. This might be the reason of action of the drug Combretum indicum (L.) in karshya.^[6] According to Herbert Kolodziej et al Presence of Gallo tannins reduces inflammation, having immune modulatory action^[7] This might be preventing further infection and thus it cures small abrasions of mucosal linings by the administration of the Drug Combretum indicum(L.). According to Kotkar et al; there is purgative effect for Alkaloid and resin .This might be helping in the proper evacuation of the worms by the administration of the Drug Combretum indicum(L.). Presence of resin is proved to have anthelmintic activity as well as analgesic activity and it also exhibits the purgative action, antispasmodic action, carminative as well as laxative effect.^[8] A.gurib-Fakim et al; It is proved that the tannins present in the leaf extract of the drug Combretum indicum (L.) has larvicidal activity^[9]. This might be helping in proper eradication of Krimi by the administration of the drug Combretum indicum (L.)

V. CONCLUSION

The data reported in this study confirms and authenticates the traditional use of test drug "Eeshwarahoovu" which is botanically identified as Combretum indicum (L.) in the treatment of Helminthiasis. It is observed that there is markedly reduction in the ova after the treatment. Statistical analysis further proved that Patra Kashaya of Combretum indicum (L.) has significant action in curing helminthiasis and has the similar effects to that of Standard where percentage wise the trial drug was showing more effect. On comparison between the groups, there is no statistically significant difference between the groups in all signs and symptoms, except in Karshya. Increased thirst is noticed in the patients during the study in the trial groups. As, no other side effects were seen, this drug can be used for treating Krimiroga, and for further clinical practices safely.

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