

Comparative Study of Prasarani [*Merremia tridentata* Hallier. f. (Convolvulaceae) and *Paederia foetida* Linn. (Rubiaceae)] in Amavata (Rheumatoid Arthritis)

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ABSTRACT : Prasarani is one of the drugs used for treating Vata Rogas such as Ama Vata, Avabahuka etc. Among the different source plants of Prasarani, the plant *Merremia tridentata* Hallier.f. is mostly used in South India and the plant *Paderia foetida* Linn. in North India, hence taken in the present work for comparative study on Amavata. The disease Amavata resembles with Rheumatoid Arthritis (R.A.). Both the plants *Merremia tridentata* Hallier.f. and *Paderia foetida* Linn. have good effect on the disease Amavata. Among the two, the plant *Paderia foetida* Linn. has a better effect than *Merremia tridentata* Hallier.f. The plant *Merremia tridentata* Hallier.f. has a little more advantage over the plant *Paderia foetida* Linn. which possess offensive odour which will not reduce fully even after boiling.

Key words : Prasarani (*Merremia tridentata* Hallier.f and *Paederia foetida* Linn.), Amavata, Rheumatoid Arthritis.

INTRODUCTION

Prasarani is one of the drugs used for treating Vata Rogas such as Ama Vata, Avabahuka etc. References about Prasarani are found in Agni Purana, Garuda Purana, Charaka Samhita, Sushruta Samhita, Nighantus etc. Various plant sources (species) are being used in the name of Prasarani at different parts of the Country :-

1. *Merremia tridentata* Hallier. f. (Convolvulaceae)
2. *Paederia foetida* Linn. (Rubiaceae)
3. *Convolvulus arvensis* Linn. (Convolvulaceae)
4. *Sida veronicaefolia* Linn. (Malvaceae) etc.

Among these the first two species are being used as Prasarani mostly in South India and North India respectively. Therefore the study has been undertaken to know their effect on Ama Vata as single drug comparative study.

Ama Vata is one of the major Vata Rogas described in Ayurvedic Texts. Acharya Madhavakara described the Nidana Panchaka of Ama Vata first. It is compared to Rheumatoid Arthritis (R.A.), which is a chronic multi systemic disease of unknown etiology with persistent inflammatory synovitis usually involving peripheral joints in a symmetric distribution. It occurs in 1% of the population approximately in between the age group of 35 to 50 years with ratio of 3:1 among women and men.

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Aim of the study :

To compare the effects of the plants *Merremia tridentata* Hallier. f. and *Paederia foetida* Linn. in the form of Kvatha (Internally) and Taila (Externally) on Amavata (R.A.)

MATERIAL & METHODS

Total 30 patients fulfilling the diagnostic criteria were selected from the Department of Dravyaguna, Government Ayurvedic Hospital, Erragadda, Hyderabad and randomly divided into two groups.

Criteria for selection : Based on Ayurvedic Texts and A.R.A Diagnostic criteria for R.A. (1998).

Method of preparation of the Drug :

Kvatha : Kvatha was prepared with 1:8 ratio of dry powder of the whole plant with water and reduced to 1/4th and filtered. The filtrate was used for internal administration.

Taila : Taila was prepared out of Kalka of the drug, Tila taila and Kvatha of the drug in the ratio of 1:4:16 respectively and was reduced to the taila quantity. The decoction is prepared as per the above said procedure.

Duration of the treatment : 42 days.

Dose of Kvatha : 40 ml. (1 pala) of freshly prepared luke warm Kvatha at each time morning and evening in empty stomach.

The selected patients were subjected to thorough clinical examination by following the special case sheet prepared, keeping in view the available description of Amavata and R.A. in Ayurvedic as well as modern literature.

Investigations : Routine investigations for blood, urine and stool were conducted along with the special investigations for RA Factor, Hb%, and E.S.R. in the blood both before and after the drug administration.

Management : The 30 patients diagnosed of Amavata as per the texts were divided into 2 groups viz A and B consisting of 15 patients each.

Group A was treated with the Kvatha (Internally) and Taila (Externally) prepared by the whole plant powder of *Merremia tridentata* Hallier f.

Group B was treated with the Kvatha (Internally) and Taila (Externally) prepared by the whole plant powder of *Paederia foetida* Linn.

Criteria of Assessment :

The effects of therapies were assessed on the basis of the following criteria.

Relief in Signs and Symptoms : As the signs and symptoms are subjective, special scoring pattern has been adopted.

The investigations : RA Factor, Hb%, E.S.R. were repeated after completion of the treatment and were subjected to statistical analysis.

Scoring Pattern :

a) Pain in joints	Score
No pain	0
Mild pain	1
Moderate pain, but no difficulty in movement	2
Moderate pain, with pain during movement	3
Much difficulty in moving the body parts	4
b) Stiffness in joints	Score
No Stiffness	0
0 - 5 Minutes	1
5 - 120 Minutes	2
2 - 8 hours	3
More than 8 hours	4
c) Tenderness in joints	Score
No tenderness	0
Subjective experience of tenderness	1
Winching of face on pressure	2
Winching of face on pressure and withdrawal of the affected part	3
Resists touch	4

d) Swelling in joints	Score
No swelling	0
Slight swelling	1
Moderate swelling	2
Marked swelling	3
e) General Symptoms	Score
Presence of symptoms	2
Relief of symptoms	1
Absence of symptoms	0
No improvement in symptoms	2

Assessment :

Effect of the treatment was assessed on the basis of the following criteria.

Complete Remission : 100% relief in signs and symptoms.

Marked Improvement : More than 75% relief in signs and symptoms.

Moderate Improvement : 50% to 75% relief in signs and symptoms.

Partial Improvement : 25% to 50% relief in signs and symptoms.

No Improvement : Less than 25% relief in signs and symptoms.

OBSERVATIONS & RESULTS

Effect on Main Symptoms : A relief of 54.76% and 66.67% from Joint Pain; 64.71% and 69.70% from Swelling; 68.29% and 75.00% from Stiffness; 62.50% and 69.77% from Tenderness were observed after the treatment in Group A and Group B respectively with the highly significant level of $p < 0.001$. They are shown in Table No. 1.

Overall Effect on Main Symptoms : Complete remission was not observed in any of the patients. Marked improvement was observed in 4 patients (26.67%) in Group A and 5 patients (33.33%) in Group B; Moderate improvement was observed in 7 patients (46.67%) in Group A and 9 patients (60.00%) in Group B; Partial improvement was observed in 3 patients (20.00%) in Group A and 1 patient (06.67%) in Group B. No improvement was observed in 1 patient (06.67%) in Group A. The over-all effects for main symptoms of Amavata are shown in Table No.2.

Effect on General Symptoms : A relief of 50.00% and 61.11% ($p < 0.02$ and $p < 0.01$) from Jvara; 53.33%

and 66.77% ($p < 0.001$ and $p < 0.001$) from Agnimandya; 40.00% and 50.00% ($p < 0.01$ and $p < 0.01$) from Angamarda; 42.31% and 48.83% ($p < 0.001$ and $p < 0.001$) from Nidra viparyaya; 78.57% and 85.71% ($p < 0.001$ and $p < 0.001$) from Gourava; 80. The 77% and 76.92% ($p < 0.001$ and $p < 0.001$) from Vibandha are observed after the treatment. They are shown in Table No. 3.

Over all Effect on General Symptoms : Complete remission was not observed in any of the patients. Marked

improvement was observed in 3 patients (20.00%) in Group A and 4 patients (26.67%) in Group B; Moderate improvement was observed in 8 patients (53.33%) in Group A and 8 patients (53.33%) in Group B; Partial improvement was observed in 2 patients (13.33%) in Group A and 2 patients (13.33%) in Group B. No improvement was observed in 2 patients (13.33%) in Group A and 1 patient (06.67%) in Group B. The overall effects for General Symptoms of *Amavata* are shown in Table No. 4.

TABLE NO. 1 : EFFECT ON MAIN SYMPTOMS :

Symptoms & Groups	Mean score				S.D. ±	S.E. ±	d.f.	t'	p
	BT	AT	D	% of change					
Joint pain									
Group A	2.8	1.27	1.53	54.76	1.13	0.29	14	5.3	< 0.001
Group B	3.0	1.00	2.00	66.67	1.07	0.28	14	7.14	< 0.001
Swelling									
Group A	2.27	0.80	1.47	64.71	0.74	0.19	14	7.74	< 0.001
Group B	2.20	0.67	1.53	69.70	0.52	0.13	14	11.80	< 0.001
Stiffness									
Group A	2.73	0.87	1.86	68.29	1.19	0.31	14	6.00	< 0.001
Group B	2.93	0.73	2.20	75.00	0.94	0.24	14	9.20	< 0.001
Tenderness									
Group A	2.67	1.00	1.67	62.50	0.98	0.25	14	6.70	< 0.001
Group B	2.87	0.87	2.00	69.77	0.76	0.20	14	10.00	< 0.001

TABLE NO. 2 : OVER-ALL EFFECT ON MAIN SYMPTOMS :

Grade	Group A		Group B	
	No. of Patients	%	No. of Patients	%
Complete Remission	00	00.00	00	00.00
Marked Improvement	04	26.67	05	33.33
Moderate Improvement	07	46.67	09	60.00
Partial Improvement	03	20.00	01	06.67
No Improvement	01	06.67	00	00.00
Total	15	100.00	15	100.00

TABLE NO. 3 : EFFECT ON GENERAL SYMPTOMS

Symptoms & Groups	Mean score				S.D. ±	S.E. ±	d.f.	t'	p
	BT	AT	d	% of change					
Jvara									
Group A	2.00	1.00	1.00	50.00	0.93	0.33	7	3.03	< 0.02
Group B	2.00	0.78	1.22	61.11	0.83	0.28	8	4.36	< 0.01
Agnimandya									
Group A	2.00	0.93	1.07	53.33	0.88	0.23	14	4.65	< 0.001
Group B	2.00	0.67	1.33	66.67	0.82	0.21	14	6.33	< 0.001
Angamarda									
Group A	2.00	1.20	0.80	40.00	0.63	0.20	9	4.00	< 0.01
Group B	2.00	1.00	1.00	50.00	0.67	0.21	9	4.76	< 0.01

Contd....

Nidra viparyaya

Group A	2.00	1.15	0.85	42.31	0.69	0.19	12	4.47	<0.001
Group B	2.00	1.08	0.92	48.83	0.67	0.19	11	4.84	<0.001

Gourava

Group A	2.00	0.43	1.57	78.57	0.53	0.20	6	7.85	<0.001
Group B	2.00	0.29	1.71	85.71	0.49	0.18	6	9.50	<0.001

Vibandha

Group A	2.00	0.38	1.62	80.77	0.65	0.18	12	9.00	<0.001
Group B	2.00	0.46	1.54	76.92	0.66	0.18	12	8.56	<0.001

TABLE NO. 4 : OVER-ALL EFFECT ON GENERAL SYMPTOMS :

Grade	Group A		Group B	
	No. of Patients	%	No. of Patients	%
Complete Remission	00	00.00	00	00.00
Marked Improvement	04	26.67	05	33.33
Moderate Improvement	07	46.67	09	60.00
Partial Improvement	03	20.00	01	06.67
No Improvement	01	06.67	00	00.00
Total	15	100.00	15	100.00

DISCUSSION & CONCLUSION

Prasarani is one of the well-known herbs indicated by Ayurvedic texts for treating Vata rogas and *Amavata*. The plant is in medicinal use since Samhitha Period. Among the different source plants of *Prasarani*, the plant *Paderia foetida* Linn. is mostly used in North India and the plant *Merremia tridentata* Hallier.f. in South India and hence taken in the present work for comparative study on *Amavata*. The disease *Amavata* resembles with R.A.

Both the plants *Merremia tridentata* Hallier.f. and *Paderia foetida* Linn. have good effect on the disease *Amavata*. Among the two, the plant *Paderia foetida* Linn. has a better effect than the plant *Merremia tridentata* Hallier.f.

The plant *Merremia tridentata* Hallier.f. has a little more advantage over the plant *Paderia foetida* Linn. which possess offensive odour which can be not reduced fully even after boiling.

Probable mode of action : Due to Tikta rasa and Ushna veerya, it does Ama pachana; by Guru guna and Ushna veerya, it pacifies Vata dosha. Due to Sara guna, it reduces stiffness in the joints; by acting as Vatanulomaka, it reduces Shotha and may be due to anti oxidant property, it eliminates toxins, acts as Balya, Vrishya and Sandhanakara.

Due to limitation of number of cases and duration of the trial, there is need to conduct further study in this regard on larger sample to improve this preliminary study and there is a scope to compare the other source plants of *Prasarani* pharmacognostically and clinically.

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हिन्दी सारांश

प्रसारणी वनौषधि का आमवात पर तुलनात्मक अध्ययन

एन. राजशेखर, पी. पी. शर्मा एवं पी. वसंथ

प्रसारणी वातव्याधि की चिकित्सा में उपयुक्त है। दक्षिण भारत में इसे मेरेमिया ट्रायडेन्टटा नाम से तथा उत्तर भारत में पेदेरिया फीटीडा नाम से जाना जाता है। प्रस्तुत लेख में प्रसारणी के इन दो प्रभेदों का आमवात पर चिकित्सकीय दृष्टि से तुलनात्मक अध्ययन किया गया है।

