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Comparative clinical study of *Alambushadi Churna* and *Dwipanchmuladya Tail Basti* in the management of *Amavata* vis-a–vis Rheumatoid Arthritis

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ABSTRACT

In Ayurvedic text book, *Amavata* symptom is mentioned as swelling, joint pain, numbness, appetite loss, indigestion and fever. In *Charaka Samhita* and *Sushruta Samhita*, *Amavata* is mentioned as a syndrome called *Vatavyadhi*, a diverse group of symptoms that are organized according to the systemic and local manifestations of *Vata Dosha*. According to the *Charaka Samhita* of *Vatavyadhi*, when *Vata* affects the *Asthi* and *Majja* there is painful swelling and immobility of the joints. Hence clinical study is planned to evaluate effect of *Alambushadi Churna* and in the Management of *Amavata* for that 60 Patients having classical symptomatology of *Amavata* have been selected from *Kayachikitsa* OPD and IPD of Sir Sunder Lal Hospital, Institute of Medical Sciences, Banaras Hindu University, Varanasi and divided in two groups. Results of study shows that the sign and symptoms e.g., Loss of appetite, *Angamarda*, *Alasya* etc. due to derangement of *Aam* are observed to be improved in by *Alambushadi Churna* oral dose compared to Methotrexate.

Key words: *Alambushadi Churna, Dwipanchmuladya Taila Basti, Amavata, Aam, Rheumatoid Arthritis.*

INTRODUCTION

Amavata is one such disease where in authors categorized the pain as *Vrischikadamshavata Vedana.*[1] It is a chronic condition involving loss of mobility and enduring pain of the joints with some swelling of the synovial joints. *Amavata* has similarities to many arthritic diseases with specific clinical features associated with Rheumatoid Arthritis (RA).[2] Rheumatoid arthritis is a joint disorder which affects multiple joints at various sites. RA is a chronic systemic inflammatory disease. Persistent synovial inflammation often causes cartilage damage and bone erosions that badly disturbs joint integrity, as an outcome of which one third of patients suffer from working disability by five years.[3] RA is correlated with *Amavata* mentioned in Ayurveda. *Amavata* is a particular type of disease that is mentioned in *Ayurveda* since the period of *Madhav*, under the category of *Vata-Kaphaja* disorder. In spite of the description of multiple drug therapy on *Amavata* in different classics of *Ayurveda*, potential and durable results are not found due to non-removal of the basic cause. Hence, special emphasis should be put into searching for a standard and suitable drug for *Amavata*. In *Amavata*, *Vata* is dominant *Dosha* and *Ama* is the chief pathogenic factor. Ancient *Acharyas* of *Ayurveda* has described sequential employment of *Deepana*, *Pachana*, *Shodhana* and *Shamana* therapies in the management of *Amavata.*[4]

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The rheumatological disorder is a group of diseases that has no specific medical management in any type of therapeutics. Anti-inflammatory, analgesic, steroids and disease modified anti rheumatic drug are required for its management which are not free from its side effect. Many *Ayurvedic* formulations are carried to be effective in *Amavata* however scientific evidence need to be produced, though ample research work has been done on disease *Amavata* but satisfactory result has not been obtained till date. Hence to establish a firm scientific basis for classical *Ayurvedic* formulation is now being felt. The formulations under trial in this study, *Alambushadi Churna* is described in the *Ayurvedic* Text in *Chakradatta Amavataadhikara.*[5] The selected trial drug *Alambusadi Churna* is mentioned by *Acharya Chakrapani* in *Chakradatta* in reference to *Amavata Rogadhikara*. *Alambushadi Churna* is given by oral route. Also *Matra Basti* with *Dwipanchmuladya Taila* is described in the *Ayurvedic* Text in *Chakradatta Niruhadhikara.*[6] In present study *Basti Karma* was selected as *Shodhana Chikitsa*. It is directly mentioned in the *Chikitsa Sutra* of *Amavata* by *Chakradatta* and is considered as *Ardha Chikitsa* in *Ayurvedic* texts.

Design of the study: The study is open-labelled, randomized clinical study.

Aims and Objectives

1. To clinically assess the efficacy of *Alambusadi Churna* in the management *Amavata* vis-à-vis Rheumatoid arthritis.
2. To clinically assess the efficacy of *Dwipanchmuladya Tail Basti* in the management of *Amavata*
3. To compare the clinical efficacy of Interventional group and modern Control group in the management *Amavata* vis-à-vis Rheumatoid arthritis.

Materials and Methods

Preparation of drugs

- All the crude drugs were available in pharmacy of *Rasa Sastra* department. All drugs were tested for their quality and authenticity. *Alambushadi Churna* was prepared following the SOP norms as follows-
- Starting from *Lajjalu*, all the drugs up to *Trivrita* in given quantity were mixed and made into fine *Churna* (powder).

Table 1: Contents of *Alambushadi Churna.*

SN	Name	Botanical Name	Quantity
1.	*Lajjalu*	*Mimosa pudica*	1 part
2.	*Gokshur*	*Tribulus terrestris*	2 part
3.	*Amalaki*	*Emblica officinalis*	3 part
4.	*Haritki*	*Terminalia chebula*	4 part
5.	*Bibhitki*	*Terminalia bellirica*	5 part
6.	*Sunthi*	*Zingiber officinalis*	6 part
7.	*Guduchi*	*Tinosporacardifolia*	7 part
8.	*Trivrita*	*Operculinaturpethum*	28 part

Preparation of Basti

Table 1: Contents of *Dwipanchmuladya Tail Basti*

SN	Name	Botanical name	Quantity
1.	*Belmul twak*	*Aegle marmelos*	1 part
2.	*Gambharimultwak*	*Gmelia arborea*	1 part
3.	*Patalamul)*	*Stereospermum suaveolens*	1 Pala
4.	*Sonapatha*	*Oroxylum Indicum*	1 part
5.	*Arnimul*	*Premna mucronata*	1 part
6.	*Shalparni*	*Desmodium gangeticum*	1 part
7.	*Prishnaiparni*	*Uraria picta*	1 part
8.	*Chotkatari*	*Solanum Surattense*	1 part
9.	*Badikatari*	*Solanum Indicum*	1 part

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10.	*Gokshur*	*Tribulus Terrestris*	1 part
11.	*Tilataila*	*Sesame Oil*	Q.S.

Method of preparation

All the crude drugs were available in pharmacy of *Rasasastra* department. All drugs were tested for their quality and authenticity. *Dwipanchmuladya Taila* was prepared according to *Ayurvedic* Classic Text Book.

Time of administration

It is a *Matra Basti* that can be given after the meals (*Bhukte Cha Api Pradiyate*).

Method of administration of Basti

Patient was advised to lie on an even *Basti* table in left lateral position with straight body and left hand kept as pillow. His right leg was folded at knee joint and made to rest flat over the left leg. Patient's anus and rubber catheter was smeared with oily substance like tail. Rubber catheter was introduced in anus by its 4-6cm part slowly. *Bastidravya* was taken in Asep to pump and forced slowly in one push then after Rubber catheter was taken out slowly.[7]

Selection of cases

Total 60 patients of *Amavata* were randomly selected and divided in 4 groups for the present study, from the *Kayachikitsa* OPD and IPD of Sir Sunder Lal Hospital, Institute of Medical Sciences, Banaras Hindu University, Varanasi. The case selection was random regardless of age, sex, occupation and religion. Both acute and chronic phase of *Amavata* patients were taken for the study, following the criteria of the diagnosis of Rheumatoid Arthritis in Modern Medicine and the clinical features of *Amavata* described in *Madhava Nidana*.

Inclusion criteria

- Age between 20-60 years.
- Diagnosed cases of *Amavata* based on symptoms and signs described in *Nidana* and EULAR 2010.
- Sero positive and sero negative both cases are included.
- Patients with H/O 1-5 years with established disease.

Exclusion criteria

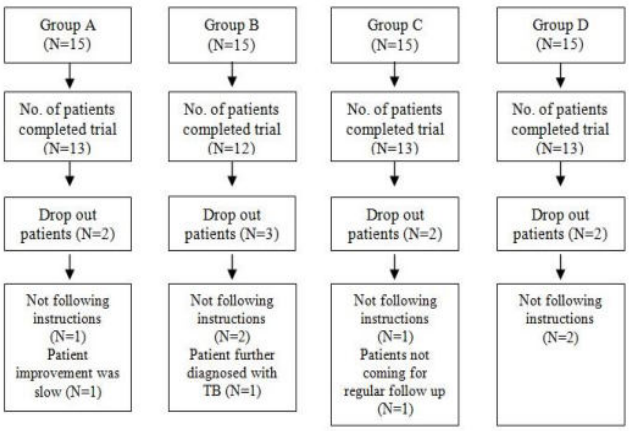
- Patients should not be less than 20 year and more than 60 year.
- Patients of Rheumatic Arthritis, Gouty Arthritis, Septic Arthritis, Osteoarthritis and Ankylosing Spondylitis.
- HIV, Tuberculosis, Hypertension, D.M. and other systemic problem.
- Pregnant and lactating women.

Diagnostic criteria for rheumatoid arthritis

Modern diagnosis is done by the 1987 revised criteria by American college of Rheumatology for diagnosis of Rheumatoid arthritis and Anti-CCP antibody *Ayurvedic* diagnosis of *Amavata* was made on the basis of symptom of *Amavata* described in *Ayurvedic* text book. After thoroughly studied and all the sign and symptoms has been taken into consideration. Among them all the cardinal symptoms have been analysed before and after the treatment.

Study design

Registration and allocation of 60 patients in different groups



Group A

No. of patients	Medicine	Dosage	Duration & follow up
13	*Alambushadi Churna* (Orally)	5g - BD with lukewarm	90 Days with a follow up

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		water	every 1 Month.

Group B

No. of patients	Medicine	Dosage	Duration & follow up
12	*Matra Vasti* By *Dwipanchmuladhya Taila*	60 ml/day for 7 days	90 Days with a follow up every 1 Month.

Group C

No. of patients	Medicine	Dosage	Duration & follow up
13	*Alambushadi Churna* (Orally)	5g BD with lukewarm water	90 Days with a follow up every 1 Month.
	Matra Vasti By *Dwipanchmuladhya Taila*	60 ml/day for 7 days	90 Days with a follow up every 1 Month.

Group D

No. of patients	Medicine	Dosage	Duration & follow up
13	Methotrexate Folic Acid	5 mg OD weekly 5mg OD Weekly	90 Days with a follow up every 1 Month.

Parameters for the assessment of improvement

The effect of therapeutic regimen was assessed with the help of certain parameters stating the clinical, biochemical, and immunological status of the disease. Follow up findings were compared with the initial / basal observations and the data subjected to the suitable statistical analysis.

Following parameters were selected as the criteria for assessing the improvement.

- Assessment change of functional status and physiological factors of these patients before and after the treatment.
- Clinical assessment of disease severity. This is done by estimating the severity in specific symptoms of disease and joint inflammation index.
- Laboratory investigations conducted before, during follow ups and after the treatment.

Clinical assessment of *Amavata*

A. Assessment of functional status

1. Walking time
2. Grip power and pressing power
3. Foot pressure

B. Clinical assessment of the disease

Clinical assessment of the disease, its severity, extent and grades of inflammation were objectively done in terms of pain swelling tenderness, deformity, general function capacity and stiffness of the joints.

1. Pain
2. Swelling
3. Stiffness
4. General Function Capacity
5. Tenderness

C. Haematological investigations - Anti CCP, EULAR and RA.

Observation and Results

Table 2: Pain

Group	Score	BT		F1		F2		AT		Within the group comparison Friedman Test
		No. of pt.	%	No. of pt.	%	No. of pt.	%	No. of pt.	%	
A	0	0	0.0	0	0.0	0	0.0	0	0.0	$\chi 2$=37.554
	1	0	0.0	0	0.0	0	0.0	4	30.8	p=0.000

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	2	0	0.0	0	0.0	6	46.2	5	38.5	
	3	5	38.5	6	46.2	7	53.8	4	30.8	
	4	8	61.5	7	53.8	0	0.0	0	0.0	
B	0	0	0.0	0	0.0	0	0.0	0	0.0	$\chi 2=32.556$ p=0.000
	1	0	0.0	0	0.0	0	0.0	5	41.7	
	2	0	0.0	2	16.7	5	41.7	6	50.0	
	3	3	25.0	7	58.3	7	58.3	1	8.3	
	4	9	75.0	3	25.0	0	0.0	0	0.0	
C	0	0	0.0	0	0.0	0	0.0	5	38.5	$\chi 2=37.331$ p=0.000
	1	0	0.0	0	0.0	3	23.1	7	53.8	
	2	0	0.0	4	30.8	8	61.5	1	7.7	
	3	6	46.2	8	61.5	2	15.4	0	0.0	
	4	7	53.8	1	7.7	0	0.0	0	0.00	
D	0	0	0.0	0	0.0	0	0.0	8	61.5	$\chi 2=37.984$ p=0.000
	1	0	0.0	0	0.0	7	53.8	5	38.5	
	2	0	0.0	2	15.4	6	46.2	0	0.0	
	3	6	46.2	9	69.2	0	0.0	0	0.0	
	4	7	53.8	2	15.4	0	0.0	0	0.0	
Inter group comparison among the groups Kruskal Wallis test		$\chi 2=1.515$ P=0.679		$\chi 2=9.981$ P=0.019 (S)		$\chi 2=21.472$ P=0.000 (HS)		$\chi 2=27.265$ P=0.000 (HS)		

Table 3: Swelling

Group	Score	BT		F1		F2		AT		Within the group comparison Friedman Test
		No. of pt.	%	No. of pt.	%	No. of pt.	%	No. of pt.	%	
A	0	0	0.00	0	0.00	0	0.00	3	23.1	$\chi 2=35.605$ p=0.000
	1	0	0.00	0	0.00	4	30.8	9	69.2	
	2	4	30.8	7	53.8	9	69.2	1	7.7	

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	3	9	69.2	6	46.2	0	0.00	0	0.00	
B	0	0	0.00	0	0.00	0	0.00	1	8.3	$\chi2$=30.810 p=0.000
	1	0	0.00	0	0.00	5	41.7	8	66.7	
	2	3	25.0	9	75.0	7	58.3	3	25.0	
	3	9	75.0	3	25.0	0	0.00	0	0.00	
C	0	0	0.00	0	0.00	0	0.00	9	69.2	$\chi2$ =36.378 p=0.000
	1	0	0.00	0	0.00	9	69.2	4	30.8	
	2	5	38.5	11	84.6	4	30.8	0	0.00	
	3	8	61.5	2	15.4	0	0.00	0	0.00	
D	0	0	0.00	0	0.00	0	0.00	8	61.5	$\chi2$=35.845 p=0.000
	1	0	0.00	1	7.7	10	76.9	5	38.5	
	2	5	38.5	9	69.2	3	23.1	0	0.00	
	3	8	61.5	3	23.1	0	0.00	0	0.00	
Inter group comparison among the groups Kruskal Wallis test		$\chi2$=0.707 P=0.872		$\chi2$=3.478 P=0.324		$\chi2$=7.383 P=0.61		$\chi2$=15.605 P=0.001		

Table 4: Joint Stiffness

Group	Score	BT		F1		F2		AT		Within the group comparison Friedman Test
		No. of pt.	%	No. of pt.	%	No. of pt.	%	No. of pt.	%	
A	0	0	0.00	0	0.00	0	0.00	1	7.7	$\chi2$=34.189 p=0.000
	1	0	0.00	0	0.00	5	38.5	9	69.2	
	2	4	30.8	9	69.2	8	61.5	3	23.1	
	3	9	69.2	4	30.8	0	0.00	0	0.00	
B	0	0	0.00	0	0.00	0	0.00	2	16.7	$\chi2$=28.372 p=0.000
	1	0	0.00	1	8.3	8	66.7	8	66.7	
	2	6	50.0	10	83.3	3	25.0	2	16.7	
	3	6	50.0	1	8.3	1	8.3	0	0.00	
C	0	0	0.00	0	0.00	0	0.00	5	38.5	$\chi2$=34.902 p=0.000

	1	0	0.00	1	7.7	9	69.2	8	61.5	
	2	7	53.8	9	69.2	4	30.8	0	0.00	
	3	6	46.2	3	23.1	0	0.00	0	0.00	
D	0	0	0.00	0	0.00	0	0.00	5	38.5	$\chi2$= 35.690 p=0.000
	1	0	0.00	1	7.7	11	84.6	8	61.5	
	2	4	30.8	10	76.9	2	15.4	0	0.00	
	3	9	69.2	2	15.4	0	0.00	0	0.00	
Inter group comparison among the groups Kruskal Wallis test		$\chi2$=2.363 P=0.001		$\chi2$=2.716 P=0.438		$\chi2$=5.866 P=0.118		$\chi2$=8.345 P=0.039		

Table 5: Walking Time

Group	Score	BT		F1		F2		AT		Within the group comparison Friedman Test
		No. of pt.	%	No. of pt.	%	No. of pt.	%	No. of pt.	%	
A	0	0	0.00	0	0.00	0	0.00	1	7.7	$\chi2$=34.091 p=0.000
	1	0	0.00	0	0.00	8	61.5	11	84.6	
	2	5	38.5	11	84.6	5	38.5	1	7.7	
	3	8	61.5	2	15.4	0	0.00	0	0.00	
B	0	0	0.00	0	0.00	0	0.00	4	33.3	$\chi2$=32.774 p=0.000
	1	0	0.00	0	0.00	9	75.0	8	66.7	
	2	6	50.0	11	91.7	3	25.0	0	0.00	
	3	6	50.0	1	8.3	0	0.00	0	0.00	
C	0	0	0.00	0	0.00	2	15.4	10	76.9	$\chi2$=35.619 p=0.000
	1	1	7.7	3	23.1	9	69.2	3	23.1	
	2	6	46.2	10	76.9	2	15.4	0	0.00	
	3	6	46.2	0	0.00	0	0.00	0	0.00	
D	0	0	0.00	0	0.00	0	0.00	10	76.9	$\chi2$=36.885 p=0.000
	1	0	0.00	1	7.7	11	84.6	3	23.1	
	2	5	38.5	11	84.6	2	15.4	0	0.00	
	3	8	61.5	1	7.7	0	0.00	0	0.00	
Inter group comparison		$\chi2$=1.257		$\chi2$=6.771		$\chi2$=3.901		$\chi2$=18.437		

among the groups Kruskal Wallis test	P=0.739	P=0.80	P=0.272	P=0.000		

Table 6: Grip Power

Group	Score	BT		F1		F2		AT		Within the group comparison Friedman Test
		No. of pt.	%	No. of pt.	%	No. of pt.	%	No. of pt.	%	
A	0	0	0.00	0	0.00	0	0.00	1	7.7	$\chi 2$=33.956 p=0.000
	1	0	0.00	1	7.7	6	46.2	12	92.3	
	2	5	38.5	10	76.9	7	53.8	0	0.00	
	3	8	61.5	2	15.4	0	0.00	0	0.00	
B	0	0	0.00	0	0.00	0	0.00	1	8.3	$\chi 2$=31.912 p=0.000
	1	0	0.00	0	0.00	8	66.7	10	83.3	
	2	6	50.0	11	91.7	4	33.2	1	8.3	
	3	6	50.0	1	8.3	0	0.00	0	0.00	
C	0	0	0.00	0	0.00	0	0.00	7	53.8	$\chi 2$=35.619 p=0.000
	1	0	0.00	1	7.7	11	84.6	6	46.20	
	2	6	46.2	12	92.3	2	15.4	0	0.00	
	3	7	53.8	0	0.00	0	0.00	0	0.00	
D	0	0	0.00	0	0.00	0	0.00	7	53.8	$\chi 2$=35.542 p=0.000
	1	0	0.00	2	15.4	8	61.5	6	46.2	
	2	5	38.5	10	76.9	5	38.5	0	0.00	
	3	8	61.5	1	7.7	0	0.000	0	0.00	
Inter group comparison among the groups Kruskal Wallis test		$\chi 2$=0.500 P=0.919		$\chi 2$=1.963P=0.580		$\chi 2$=4.209 P=0.240		$\chi 2$=12.743 P=0.005		

Table 7: Angamarda

Group	Score	BT		F1		F2		AT		Within the group comparison Friedman Test
		No. of pt.	%	No. of pt.	%	No. of pt.	%	No. of pt.	%	
A	0	0	0.0	0	0.0	0	0.0	1	7.7	$\chi 2$=33.393 p=0.000
	1	0	0.00	0	0.00	8	61.5	10	76.9	
	2	5	38.5	11	84.6	5	38.5	2	15.4	

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	3	8	61.5	2	15.4	0	0.00	0	0.00	
B	0	0	0.00	0	0.00	0	0.00	5	41.7	$\chi2$=32.528 p=0.000
	1	0	0.00	1	8.3	6	50.0	7	58.3	
	2	4	33.3	9	75.0	6	50.0	0	0.00	
	3	8	66.7	2	16.7	0	0.00	0	0.00	
C	0	0	0.00	0	0.00	0	0.00	8	61.5	$\chi2$=35.410 p=0.000
	1	0	0.00	1	7.7	11	84.6	5	38.5	
	2	6	46.2	12	92.3	2	15.4	0	0.00	
	3	7	53.8	0	0.00	0	0.00	0	0.00	
D	0	0	0.00	0	0.00	0	0.00	6	46.2	$\chi2$=35.690 p=0.000
	1	0	0.00	0	0.00	9	69.2	6	46.2	
	2	5	38.5	11	84.6	4	30.8	1	7.7	
	3	8	61.5	2	15.4	0	0.00	0	0.00	
Inter group comparison among the groups Kruskal Wallis test		$\chi2$=0.434 P=0.933		$\chi2$=2.980 P=0.395		$\chi2$=3.507 P=0.320		$\chi2$=9.486 P=0.023		

Table 8: Aruchi

Group	Score	BT		F1		F2		AT		Within the group comparison Friedman Test
		No. of pt.	%	No. of pt.	%	No. of pt.	%	No. of pt.	%	
A	0	0	0.00	0	0.00	0	0.00	1	7.7	$\chi2$=33.491 p=0.000
	1	0	0.00	0	0.00	4	30.8	10	76.9	
	2	4	30.8	9	69.2	9	69.2	2	15.4	
	3	9	69.2	4	30.8	0	0.00	0	0.00	
B	0	0	0.00	0	0.00	0	0.00	3	25.0	$\chi2$=35.292 p=0.000
	1	0	0.00	0	0.00	6	50.0	6	50.0	
	2	4	33.3	8	66.7	6	50.0	3	25.0	
	3	8	66.7	4	33.3	0	0.00	0	0.00	
C	0	0	0.00	0	0.00	0	0.00	9	69.2	$\chi2$=36.328 p=0.000
	1	0	0.00	3	23.1	8	61.5	4	30.8	
	2	5	38.5	9	69.2	5	38.5	0	0.00	

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	3	8	61.5	1	7.7	0	0.00	0	0.00	
D	0	0	0.00	0	0.00	0	0.00	6	46.2	$\chi 2=35.043$ p=0.000
	1	0	0.00	2	15.4	7	53.8	7	53.8	
	2	5	38.5	10	76.9	6	46.2	0	0.00	
	3	8	61.5	1	7.7	0	0.00	0	0.00	
Inter group comparison among the groups Kruskal Wallis test		$\chi 2=0.246$ P=0.970		$\chi 2=8.318$ P=0.040		$\chi 2=2.621$ P=0.454		$\chi 2=13.049$ P=0.005		

Table 9: Trishna

Group	Score	BT		F1		F2		AT		Within the group comparison Friedman Test
		No. of pt.	%	No. of pt.	%	No. of pt.	%	No. of pt.	%	
A	0	0	0.00	0	0.00	0	0.00	1	7.7	$\chi 2=32.135$ p=0.000
	1	0	0.00	0	0.00	6	46.2	10	76.9	
	2	6	46.2	10	76.9	6	46.2	2	15.4	
	3	7	53.8	3	23.1	1	7.7	0	0.00	
B	0	0	0.00	0	0.00	0	0.00	3	25.0	$\chi 2=32.654$ p=0.000
	1	0	0.00	0	0.00	8	66.7	9	75.0	
	2	4	33.3	9	75.0	4	33.3	0	0.00	
	3	8	66.7	3	25.0	0	0.00	0	0.00	
C	0	0	0.00	0	0.00	2	15.4	9	69.2	$\chi 2=35.154$ p=0.000
	1	0	0.00	3	23.1	8	61.5	4	30.8	
	2	6	46.2	9	69.2	3	23.1	0	0.00	
	3	7	53.8	1	7.7	0	0.00	0	0.00	
D	0	0	0.00	0	0.00	1	7.7	8	61.5	$\chi 2=34.342$ p=0.000
	1	0	0.00	4	30.8	11	84.6	5	38.5	
	2	7	53.8	8	61.5	1	7.7	0	0.00	
	3	6	46.2	1	7.7	0	0.00	0	0.00	
Inter group comparison among the groups		$\chi 2=1.063$ P=0.786		$\chi 2=8.029$ P=0.045		$\chi 2=8.111$ P=0.044		$\chi 2=15.054$ P=0.002		

Kruskal Wallis test					

Table 10: Alasya

Group	Score	BT		F1		F2		AT		Within the group comparison Friedman Test
		No. of pt.	%	No. of pt.	%	No. of pt.	%	No. of pt.	%	
A	0	0	0.00	0	0.00	0	0.00	3	23.1	t =30.961 p=0.000
	1	0	0.00	3	23.1	8	61.5	7	53.8	
	2	6	46.2	8	61.8	4	30.8	3	23.1	
	3	7	53.8	2	15.4	1	7.7	0	0.00	
B	0	0	0.00	0	0.00	0	0.00	2	16.7	t =30.360 p=0.000
	1	0	0.00	1	8.3	5	41.7	7	58.3	
	2	5	41.7	8	66.7	7	58.3	3	25.0	
	3	7	58.3	3	25.0	0	0.00	0	0.00	
C	0	0	0.00	0	0.00	0	0.00	9	69.2	t =35.147 p=0.000
	1	1	7.7	4	30.8	11	84.6	4	30.8	
	2	4	30.8	6	46.2	2	15.4	0	0.00	
	3	8	69.2	3	23.1	0	0.00	0	0.00	
D	0	0	0.00	0	0.00	0	0.00	6	46.2	t =34.565 p=0.000
	1	0	0.00	2	15.4	9	69.2	6	46.2	
	2	4	30.8	9	69.2	4	30.8	1	7.7	
	3	9	69.2	2	15.4	0	0.00	0	0.00	
Inter group comparison among the groups Kruskal Wallis test		$\chi2$=0.650 P=0.885		$\chi2$=1.218 P=0.749		$\chi2$=4.993 P=0.172		$\chi2$=10.507 P=0.015		

Table 11: Gaurav

Group	Score	BT		F1		F2		AT		Within the group comparison Friedman Test
		No. of pt.	%	No. of pt.	%	No. of pt.	%	No. of pt.	%	
A	0	0	0.00	0	0.00	0	0.00	0	0.00	$\chi2$=32.215 p=0.000
	1	0	0.00	0	0.00	4	30.8	11	84.6	

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	2	4	30.8	10	76.9	9	69.2	2	15.4	
	3	9	69.2	3	23.1	0	0.00	0	0.00	
B	0	0	0.00	0	0.00	0	0.00	3	25.0	$\chi 2$=30.240 p=0.000
	1	0	0.00	1	8.3	4	33.3	6	50.0	
	2	4	33.3	8	66.7	8	66.7	3	25.0	
	3	8	66.7	3	25.0	0	0.00	0	0.00	
C	0	0	0.00	0	0.00	2	15.4	10	76.9	$\chi 2$=305.462 p=0.000
	1	0	0.00	2	15.2	9	69.2	3	23.1	
	2	7	53.8	11	84.6	2	15.4	0	0.00	
	3	6	46.2	0		0	0.00	0	0.00	
D	0	0	0.00	0	0.00	1	7.7	6	46.2	$\chi 2$=33.956 p=0.000
	1	0	0.00	2	15.4	8	61.5	7	53.8	
	2	6	46.2	10	76.9	4	30.8	0	0.00	
	3	7	53.8	1	7.7	0	0.00	0	0.00	
Inter group comparison among the groups Kruskal Wallis test		$\chi 2$=1.844 P=0.605		$\chi 2$=5.617 P=0.132		$\chi 2$=12.070 P=0.007		$\chi 2$=17.837 P=0.000		

Table 12: Jwara

Group	Score	BT		F1		F2		AT		Within the group comparison Friedman Test
		No. of pt.	%	No. of pt.	%	No. of pt.	%	No. of pt.	%	
A	0	0	0.00	0	0.00	0	0.00	1	7.7	$\chi 2$=29.909 P=0.000
	1	0	0.00	3	23.1	6	46.2	10	76.9	
	2	6	46.2	8	61.5	6	46.2	2	15.4	
	3	7	53.8	2	15.4	1	7.7	0	0.00	
B	0	0	0.00	0	0.00	0	0.00	3	25.0	$\chi 2$=29.722 P=0.000
	1	0	0.00	4	33.3	7	58.3	9	75.0	
	2	8	66.7	8	66.7	5	41.7	0	0.00	
	3	4	33.7	0	0.00	0	0.00	0	0.00	

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C	0	0	0.00	1	7.7	6	46.2	9	69.2	$\chi 2$=31.660 P=0.000
	1	2	15.4	8	61.5	6	46.2	4	30.8	
	2	8	61.5	4	30.8	1	7.7	0	0.00	
	3	3	23.1	0	0.00	0	0.00	0	0.00	
D	0	0	0.00	0	0.00	1	7.7	4	30.8	$\chi 2$=31.800 p=0.00
	1	0		5	38.5	9	69.2	9	69.2	
	2	8	61.5	7	53.8	3	23.1	0	0.00	
	3	5	38.5	1	7.7	0	0.00	0	0.00	
Inter group comparison among the groups Kruskal Wallis test		$\chi 2$=4.038 P=.257		$\chi 2$=7.609 P=0.55		$\chi 2$=14.408 P=0.002		$\chi 2$=13.061 P=0.005		

Table 13: Apaka

Group	Score	BT		F1		F2		AT		Within the group comparison Friedman Test
		No. of pt.	%	No. of pt.	%	No. of pt.	%	No. of pt.	%	
A	0	0	0.00	0	0.00	0	0.00	1	7.7	$\chi 2$=30.083 p=0.000
	1	0	0.00	2	15.4	5	38.5	10	76.9	
	2	6	46.2	9	69.2	8	61.5	2	15.4	
	3	7	53.8	2	15.4	0	0.00	0	0.00	
B	0	0	0.00	0	0.00	0	0.00	4	33.3	$\chi 2$=25.105 p=0.000
	1	1	8.3	6	50.0	8	66.7	6	50.0	
	2	7	58.3	3	25.0	3	25.0	2	16.7	
	3	4	33.3	3	25.0	1	8.3	0	0.00	
C	0	0	0.00	1	7.7	6	46.2	10	76.9	$\chi 2$=31.088 p=0.000
	1	6	46.2	10	76.9	7	53.8	3	23.1	
	2	7	53.8	2	15.4	0	0.00	0	0.00	
	3	0	0.00	0	0.00	0	0.00	0	0.00	
D	0	0	0.00	0	0.00	4	30.8	8	61.5	$\chi 2$=31.702 p=0.000
	1	4	30.8	10	76.9	9	69.2	5	38.5	

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	2	7	53.8	3	23.1	0	0.00	0	0.00	
	3	2	15.4	0	0.00	0	0.00	0	0.00	
Inter group comparison among the groups Kruskal Wallis test		$\chi2$=15.714 P=0.001		$\chi2$=15.549 P=0.001		$\chi2$=22.971 P=0.000		$\chi2$=15.359 0.002		

Table 14: Anti CCP

Group	Anti CCP Mean ± SD		Within the group comparison Wilcoxon Signed Rank test
	BT	AT	
A	76.55±160.088	70.33±146.357	Z=-2.758, P=0.006
B	74.94±163.620	49.97±93.868	Z=-2.293, P=0.022
C	131.03±140.061	87.62±98.557	Z=-3.111, P=0.002
D	52.86±13.356	26.41±7.419	Z=-3.181, P=0.001
Between the group comparison Kruskal Wallis test	$\chi2$=15.461 P=0.001	$\chi2$=7.303 P=0.063	

Table 15: RA test

Group	RA Mean ± SD		Within the group comparison Wilcoxon Signed Rank test
	BT	AT	
A	59.70±109.735	57.883±106.7949	Z=-1.992, P=0.046
B	64.36±39.344	45.208±22.3579	Z=-2.347, P=0.019
C	80.42±46.740	69.262±83.1046	Z=-2.040, P=0.041
D	77.77±16.146	47.308±18.7189	Z=-3.184, P=0.001
Between the group comparison Kruskal Wallis test	$\chi2$=6.650 P=0.084	$\chi2$=2.845 P=0.416	

Table 16: EULAR

Group	EULAR Mean±SD		Within the group comparison Paired t test (BT-AT)
	BT	AT	
A	8.31±1.182	6.77±0.725	t=6.325, P=0.000

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B	7.92±1.379	5.83±1.030	t=10.795, P=0.000
C	7.62±1.446	5.15±1.068	t=10.119, P=0.000
D	7.46±1.330	5.31±1.032	t=8.641, P=0.000
Between the group comparison One way ANOVA	F=1.011 P=0.396	F=7.312 P=0.000	
Post Hoc Test			
A vs C		P=0.001	
A vs D		P=0.002	

DISCUSSION

Relief in pain may be due to *Ushnavirya* property of drug like *Shunthi, Guduchi, Trivrit* help in *Ama pachan*, thereby reducing pain. This may be due to decreased PGE2 release inside the joint space. Reliefin Swelling may be due to drug like *Vibhitaki, Haritaki, Guduchi* having *Ushnavirya* property, thereby reducing the swelling. This relief in swelling may be due to inhibition of IL-1, IL-6 and TNF-α. Relief in Joint stiffness occurs due to predominance of *Vata Dosha*. Therefore *Vatahara* drug like *Trivit*, *Shunthi* having *Ushna* property, thereby reducing joint stiffness. Morning stiffness is the common manifestation in RA. After receiving treatment by the patients there will be reduction in joint stiffness, thereby enhancing the walking time. As per *Ayurvedic* text, *Vasti* is said to be the major procedure to reduce *Vata* and stiffness is mainly related to *Vata Dosha*. That is why those patients who receive *Vasti* show better result. Administration of *Vasti* pacified *Vata Dosha*, thereby enhancing grip power. *Ama* is the causative factor of *Amavata*. *Kaphahara* property of drug like *Amalaki*, *Vibhitaki* reduces the *Ama* and hence get relief from *Angamarda*. *Aruchi* occurs due to vitiation of *Kapha Dosha*. After receiving treatment by *Ushna Virya* property like *Shunthi*, *Vibhitaki* produce *Ruchikar* effect. Relief in *Trishna* due to *Vata Pitta Dosha*. In order to reduce the *Trishna* drug like *Lajjalu*, *Gokshur* having *Shitavirya* property and *Vata Pitta Shamak* nature they reduces *Trishana*. Relief in *Alasya* due to *Kapha Dosha*. After receiving treatment by *Ushnavirya* drug like *Shunthi*, *Guduchi* reduces *Kapha Dosha* and ultimately reduces *Alasya*. *Gaurav* occurs due to *Ama Dosha*. After receiving treatment by *Ushna Virya* drug like *Shunthi*, *Guduchi*, *Trivrit* reduces *Ama Dosha* and ultimately reduces *Gaurav*. There was a significant reduction in Anti CCP in both groups. It may be due to reduction in inflammation of disease. Macrophage migration inhibitory factor (MIF) and vascular endothelial growth factor, as crucial parameter of angiogenesis and inflammation, were evaluated to identify the role of cyclic citrullinated peptic antibodies (Anti ccp) during angiogenesis in rheumatoid arthritis.[8,9] There was a significant reduction in RA factor titre in both groups. It may be due to breaking of pathogenesis of disease by *Dipana* and *Pachana* property of *Alambhushadi Churna*. Serum IgM RF has been found in 75-80% of patients with RA; therefore, a negative result does not exclude the presence of disease. It is also found in other connective tissue, such as primary Sjogrens systemic lupus erythematosus, Hepatitis B and C and in chronic infection.[10] Also there was a significant reduction in EULAR in both groups. Ingredients of *Alambhushadi Churna* are *Alambhusha* (*Lajjalu), Gokshur, Haritaki, Bibhitaki, Amalaki, Shunthi, Amrita, Trivrutta* in the having highest concentration of *Trivrutta* with their *Kapha Vata Shamaka* and *Virechan* properties thus help in reducing the swelling in the joints. All the properties of the drugs of *Alambushadi Churna*, *Ama* and *Vata Dosha* is treated and thus relief in the cardinal symptoms of the disease was found. *Guduchi*

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is also proved to have antirheumatic, anti-inflammatory, and immunomodulatory properties. *Sunthi* is beneficial for rheumatic and musculoskeletal disorders. Provide relief from pain and swelling *Shunthi* with its *Ushnavirya* help in digestion of *Ama* and improve the Agni. *Triphala* has *Rasayana*, *Tridoshahara* and *Virechana* properties which helps in reducing the swelling in the joints. Trivrit is considered best among laxative drug. The laxative effect of *Trivrit* is mainly due to the presence of turpentine. *Gokshuru* with its diuretic property help in reducing the swelling of joints. Also it is *Vata* and *Kapha Shamaka.*[11]. *Dwipanchmuladya Taila Matra Basti* is the type of *Sneha Basti* described in *Bhav Prakash Amavata Chikitsa*. As a whole the qualities of *Matra Basti* can be considered as *Laghu, Snigdha, Ushna, Tikshna*. Majority of the drugs are having *Vata-Kapha Shamaka* action. Owing to this property, antagonism to *Kapha* and *Ama* the *Basti* help in significant improvement in sign and symptom of disease.

Conclusion

Disease *Amavata* can be correlated to Rheumatoid Arthritis, which is one among the chronic destructive polyarthritic systemic disease. The exact aetiology of the disease remains unknown, but the pathognomic *Nidana* like *Ama* is believed to be acts as autoantigen, which triggers the immunological reaction in genetically susceptible individuals. The sign and symptoms e.g., Loss of appetite, *Angamarda*, *Alasya* etc. due to derangement of *Aam* are observed to be improved in by *Alambushadi Churna* oral & *Matravasti* regime as compared to Methotrexate. There was neither any side effect produced nor any side effect observed during the trial drug therapy. We have observed that in group C oral intake of *Alambushadi Churna* and *Matravasti* by *Dwipanchmuladhya Taila* is effective in treating all the sign and symptoms and other associated *Lakshanas* of the disease.

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