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ORIGINAL RESEARCH ARTICLE

A Study of *Amavatari Rasa* and *Rasnadi Gugglu* in the Management of *Amavata* W. S. R. to Rheumatoid Arthritis

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ABSTRACT

The present study was aimed to assess the effectiveness of *Amavatari rasa and Rasanadi guggulu in Amavata* and compare the effect of these two preparations in the treatment. A total of 30 patients of *Amavata* were registered for the present study and were randomly divided into 2 groups. In group A- *Amavatari Rasa* 125 mg BD per day was given for 14 days, while in group B- *Rasnadi Guggulu* 250 mg BD per day was given for 14 days. The effect of therapy in both groups was assessed by a specially prepared pro forma. The results of the study showed that both the groups showed significant relief in symptoms; however, comparing the overall effect of the therapies, *Amavatari Rasa* proved to be more effective than *Rasnadi Guggulu*.

1. INTRODUCTION

Rheumatoid arthritis (RA) is a chronic systemic disease that affects the joints, connective tissues, muscles, tendons, and fibrous tissue. It tends to strike during the most productive years of adulthood, between the ages of 20 and 40 and is a chronic disabling condition often causing pain and deformity.[1] In Ayurveda, the disease has been described in detail in several Ayurvedic literature after Madhav, Madhavakara was the first author who described *Amavata* as a separate disease in his book Madhava Nidana which was previously known as Rogaviniścaya.[2] The prevalence varies between 0.3% and 1% and is more common in women and in developed countries.[2] The changing lifestyle of human beings by means of dietetic and behavioral patterns plays a major role in the manifestation of several diseases and *Amavata* is one among these.[3] The clinical presentation of *Amavata* closely mimics the special variety of rheumatological disorders called RA, similarities in clinical features such as pain, swelling. Stiffness, fever, and general debility are almost identical.[4] According to the nature of the disease, it is essential to work on such therapy which has *Ama and Vatahara* properties.[5] Āyurveda offers a holistic approach to the management of a disease, it emphasizes inclusion of both *Samśodhana and Samśamana* therapies for the management of a disease. The *Sattvājaya* approach has been described to manage the psychological component of any disease.[6] At the same time, Āyurveda never undermines the importance of *Nidāna Parivarjana* and *Pathya-Apathya,* that is, specific dietary approach during the management of a disease. The relatively lower therapeutic response in *Āmavāta* by the Āyurveda mode of therapy may be because of the current style of half-hearted practice. The present study has been conducted with the same intention and has been designed to include all the essential components of basic concepts of Āyurveda i.e. *Samśodhana and Samśamana Cikitsā* regarding the management of Āmavāta.[7] The *Ayurveda* approach toward the treatment of *Amavata* is the need of the hour as no system is successful in providing the complete cure for the disease, so *Amavata* is a challenging and burning problem of medical science. Due to the wide spectrum of diseases, much prevalence in society, and a lack of effective management, the disease has been chosen for the present study. A clinical study was planned to assess the clinical effectiveness of *Amavatari rasa and Rasanadi guggulu* and to compare the effect of these two therapies in the treatment of the condition. In the study, in both groups, *Amavatari rasa*[8] and *Rasanadi guggulu*[9] have been selected. Due to its *Amapachaka and Vatashamaka* properties, it helps to disrupt the *Samprapti of Amavata.* All the raw drugs for the purpose of research work were collected from the Pharmacy of the National Institute of Ayurveda, Jaipur. The correct identity and authenticity of raw materials were confirmed by studying

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their organoleptic and powder microscopy and then comparing them with the characters mentioned in Ayurvedic Pharmacopeia of India.

1.1. Aims and Objectives

- To establish the Āyurveda treatise in the management of Āmavāta.
- Clinical evaluation of the efficacy of *Amavatari Rasa and Rasnadi Guggulu* in management of *Āmavāta* W.S.R. to RA.
- To provide safe and cost-effective drugs to society.

2. MATERIALS AND METHODS

2.1. Selection of Cases

A total of 30 patients of *Āmavāta* were randomly selected for the present study from the Kayachikitsa outpatient department (OPD), Rasashastra OPD, Pañcakarma OPD, and IPD department of the National Institute of Ayurveda, Jaipur. The case selection was random regardless of age, sex, occupation, and socio-economic conditions. A regular record of assessment of all patients was maintained according to the pro forma prepared for the purpose as per CCRAS protocol.

2.2. Inclusion Criteria

The following criteria were included in the study:

- Patients between the age of 18–60 years of either sex or signs and symptoms of *Āmavāta.*
- Patients classified as RA as approved by the 2010 American College of Rheumatology (ACR)/European League Against Rheumatism (EULAR) with RA score ≥6/10.[10]
- Patients who were willing to sign the informed consent form.

2.3. Exclusion Criteria

The following criteria were excluded from the study:

- Rheumatic fever patients.
- RA (of): Juvenile, Spine
- Patients with severe deformities, severe ankylosed joints, etc.
- Patients suffering from tuberculosis, uncontrolled diabetes mellitus, HIV, Hepatitis-B & C patients, or any other serious disease.
- Pregnancy and lactating mothers.

2.4. Grouping and Administration of Drug

A total of 30 clinically diagnosed and registered patients of Āmavāta were divided randomly into two groups, each group with 15 patients.

2.4.1. Group-A

Amavatari Rasa 125 mg BD per day after meals with lukewarm water for 14 days.

2.4.2. Group-B

Rasnadi Guggulu 250 mg BD for 14 days after meals with lukewarm water.

- *Pathya-Apathya* was advised to patients of both groups.

3. OBSERVATION

The data obtained by the clinical study were subjected to resolutions on varied parameters to know the etiopathogenesis, progress of the disease, and the effect of interventions on various signs and symptoms of the disease. In the present study, the observations and results have been made under the following headings.

3.1. Demography of General Profile

The prevalence of Āmavāta in different age groups was worked out, the highest number of cases of Āmavāta was seen in the age group of 41–50 years with 12 cases (40%), 07 cases i.e. (23.33%) from 31–40 years of age groups, 5 cases, that is, (16.67%) from 51–60 years of age groups, 4 cases (13.33%) each from 21–30 years and 02 cases from 11–20 years of age group. This shows that the prevalence of Āmavāta is more in the middle age shown in table 1.

This table shows that a maximum of 21 patients (70%) were reported to be females and 9 patients (30%) were males among the 30 patients of Āmavāta. This suggests that the prevalence of Āmavāta is more in females than males shown in table 2.

The observations in the above table indicate that 17 patients (56.67%) had *Mandāgni,* 8 patients (26.67%) had *Viṣamagnii,* 4 patients (13.33%) had *Samagni* and 1 patient (3.33%) had *Tikṣnagni* shown in table 3.

In the current series of patients, 4 patients (13.34%) had their duration of illness <2 years, 10 patients (33.33%) complained their illness for 2–4 years, 6 patients (20%) had their duration of illness since 5–6 years, while 10 patients (33.33%) had history of Āmavāta more than 6 years shown in table 4.

The table number 5 shows that all patients (100%) had gradual onset.

Āhāraja Nidāna **-** Among 30 patients of Āmavāta, 24 patients (80%) were taking Ati Guru Āhāra, followed by 23 patients (76.66%) were taking Singdha Āhāra, 17 patients (56.67%) Ati Madhura, and 15 patints (50%) *Atidrava Āhāra,these Āhāra* produce *Kapha Prakopa* and finally lead to *Mandāgni a*nd production of *Āma (Apakva Anna Rasa)* which plays an important role in the *Samprapti of Āmavāta*. Twenty-three patients (76.66%) were having the habit of *Adhyaśana* and 21 patients (70%) had the habit of *Viṣamaśana,* these lead to *Jātharāgni Mandya* which finally leads to the formation of *Āma. Vihāraja Nidāna*- 23 patients (76.66%) had *Viruddha-Ceśtā like Divāsvapna and Niścalatā, 19 patients (63.33%) had Bhojanottara Vyāyāma and Ratri Jāgarana, 13 patients (43.33%) had Viṣama Śayyā*. *Divāsvapna and Niścalatā* lead to *Kapha Prakopa, Ratri Jāgarana and Viṣama Śayyā* lead to *Vāta Prakopa* these are the two main pathological factors in *Āmavāta.* Mānasika Nidāna – 13 patients (43.33%) had *Cintā, 07 patients (23.33%) had Bhaya, 06 patients (20%) had Śoka. These factors lead to Vāta Prakopa* shown in table 6.

Aggravating factors were cold climate in 30 patients (100%), oil application in 23 patients (76.67%), morning hours in 30 patients (100%) and heavy meal in 21 patients (70%), these were increasing the sign and symptoms of *Āmavāta.* This shows that *Kapha* aggravating factors worsen the sign and symptoms of disease in *Āmavāta* patients. Thus, highlights the role of *Kapha dosha* in the pathogenesis of *Āmavāta* shown in table 7.

Relieving factors: Summer season in 27 patients (90%), *Balukā Svedana* in 25 patients (83.33%) and hot water fomentation was found to reduce the severity of the symptoms in 20 patients (66.67%) shown in table 8.

During the present trial, 9 patients (30%) had positive family history whereas 21 patients (70%) had no family history of the RA. This shows that hereditary has a role in RA shown in table 9.

Joint involvement: Incidence of involvement of joint Shows that a maximum of 93.33% of patients had proximal interphalangeal (of hand) joints involvement, 90% metacarpophalangeal, 70% wrist joint, 50% elbow joint, 46.67% shoulder joint, 50% knee joint, and ankle joint involvement in 23.33% shown in table 10.

The data of the present study reveal that 4 patients (13.33%) were C-RP positive, 4 patients (13.33%) were R.A. positive, and 4 patients (13.33%) were ASLO test positive shown in table 11.

Data shows that among 30 patients of *Āmavāta,* 100% of patients had complaints of pain in the joint, stiffness of joint, swelling of joint, restriction of movements, tenderness at joints, and *Ālasya;* 96.67% of patients had complaints of *Angamarda;* 93.33% of patients had complaints of *Gaurava*; 83.33% of patients had complaints of *Aruci*; 66.67% of patients had complaints of *Trişnā and Apaka*; 53.33% of patients had complaints of J*vara*; 30% of patients had complaints of *Bahumūtratā* shown in table 12.

3.2. Clinical Study

- Follow-up: A follow-up was done 1 month after completion of the treatment to check for any recurrences.
- Study Design: Single Blind. Randomized, Comparative, Interventional, and Efficacy study
- Criteria for Assessment: Both subjective and objective parameters were employed for assessment of the impact of the treatment.
- Subjective criteria: *Sandhiśūla (pain in joints), Angmarda (Bodyaches), Aruci (Anorexia), Trişnā (Polydipsia), Ālasya (Lassitude), Gorava (Heaviness of body), Jvara (Fever), Apāka (Indigestion of food), and Bahumūtratā (Polyuria*)
- Objective parameters: For the purpose of diagnosis of disease its assessment, severity, clinical improvement, and to assess the possible side effects, certain routine and specific investigations were performed in every patient viz.
- Tender joints count (0–28) as per DAS - 28
- Swollen joints count (0–28) as per DAS - 28
- Visual Analog Scale (VAS) in mm for pain.
- Blood Investigations - Hemoglobin g%, erythrocyte sedimentation rate (ESR), C-reactive protein (CRP), RA factor, anti-streptolysin-O test (ASL-O test).
- Classification criteria for RA: The 2010 ACR and EULAR classification criteria for RA.
- Physical examination: Under the physical examination patient's general condition, pulse rate, blood pressure, pallor, icterus, cyanosis, lymphadenopathy, and body weight were recorded at the basal level and each successive follow-up
- Criteria for withdrawal:
- During the course of the trial, if any serious condition or any serious adverse effects occur it requires urgent treatment.
- The patient himself wants to withdraw from the clinical trial.
- Patients lost in follow-up.
- Criteria for assessment of overall effects
- For the gross assessment of the result obtained with the clinical trial, the response of the treatment was determined in terms of:
  a. Degree of remission of signs and symptoms
  b. Reduction in subjective and objective parameters.
  c. Percentage of relief.

3.3. Statistical Analysis

For statistical analysis, In Stat Graph Pad 3 software was used. For intra-group comparison of nonparametric data, Wilcox on matched-pairs signed ranks test was used while for parametric data paired "t" test was used and the results were calculated. For intergroup comparisons of non-parametric variables, Mann–Whitney test for statistical analysis was used & for the parametric data unpaired "t" test was used. The results were interpreted as

- Insignificant: $P > 0.05$
- Significant: $P \leq 0.05$
- Very significant: $P \leq 0.01$
- Extremely significant: $P \leq 0.001$.

3.4. Results of Therapeutic Trial

- The effect of therapies on cardinal signs and symptoms has been assessed by giving a specific gradation to these symptoms which has been described earlier. According to that, the results have been made by applying appropriate tests.

Group A: This group provides extremely significant results in joint pain (Sandhishula), morning stiffness, sparsha asahataa, sandhigraham, Angamarda, Aruchi, Trishna, symptoms while Aalasya and Bahumutrataa show very significant results. Jvara symptom shows a significant result, *sandhi shootha* and *bahumutrataa* showed non-significant relief.

Group B: This group provided extremely significant results in joint pain (Sandhishula), morning stiffness, sparsha asahataa, Angamarda, Aruchi, Trishna, symptoms while sandhi graham, jvara, and bahumutrataa showed very significant results. Aalasya showed significant results. From the above data, it can be analysed that Group A provided highly significant relief in ***Sandhi shula*** and morning stiffness as compared to Group B while Group B provided highly significant relief in *sandhi sootha* and *bahumutrataa* as that of Group A.

3.4.1. Hb%

Group A: Mean Hb% before treatment was increased from 13.173 g% to 13.093 g% having 0.6% change which was statistically non-significant.

Group B: Mean Hb% before treatment was increased from 13.3 g% to 12.93 g% having a 2.75% change which was statistically significant.

3.4.2. TLC

Group A: Mean TLC before treatment changed from 7560 to 7367 having a 2.56% change which was statistically non-significant.

Group B: Mean TLC before treatment changed from 7673 to 7467 having a 2.69% change which was statistically highly significant.

3.4.3. ESR

Group A: Mean ESR value was changed from 22.4 to 21.33 after treatment having a 4.76% improvement which was statistically significant.

Group B: Mean ESR value was changed from 12.13 to 10.6 after treatment having 12.64% improvement which was highly significant.

BSF: In both groups, results were significant with a minor change of 2.42% in group A and a 3.75% change in group B after the trial period.

3.4.4. RA FACTOR, ASLO, CRP

Non-significant results were found details of results are given in table 13,14, 15 and graph 1 &2 below**.**

4. DISCUSSION

Àmavata is one of the most challenging joint disorders for the human being, because of its chronic and life-threatening nature. Changes in lifestyle like sedentary and stressful situations and fast food dietetic patterns are responsible for the manifestation of disease. Etiological factors such as Guru *Ahara*, *Viruddhahara*, *Viruddha Chesta*,

Mandagni, and *Snigdhabhuktattvata Vyayama* are responsible for *Àmavata*. Derangement of *Agni* that is *Agnimandya* is a chief factor responsible for the formation of *Àma*, which is the main pathological entity of the disease. In the *Samprapti* the *Mandagni*, *Amotpatti,* and *Vataprakopa* are important factors. The *Pratyatma Laksnas* are *Sandhishula*, *Sandhisotha*, *Gatrastabdhata*, and *Sparsasahyta*. It is mostly the disease of *Madhyama Roga Marga* with *Chirakari Swabhava*. *Àmavata* is a *Kricchasadhya* disease by its nature. On the basis of clinical features, *Àmavata* should be differentiated from the other *Sandhivedanapradhana* diseases such as *Vatarakta*, *Sandhigata Vata*, *Kostukasirsa*. Due to their similar mode of presentation, the term RA can be broadly grouped under the heading of *Àmavata*.[11] Indications and contraindications play a chief role in the treatment of the disease. *Acharya Chakrapani* was the pioneer in describing the principles of treatment of *Àmavata* which are *Langhana*, *Swedana*, drugs having *Tikta*, *Katu Rasa* and *Deepana* property, *Virechana*, *Snehapana* and *Basti*.[12] The fundamentals of Ayurvedic pharmacology are capable of giving a better scientific lead in the mode of drug action. The pharmacology of *Ayurveda* is based on the theory of *Rasa*, *Guna*, *Virya*, *Vipaka,* and *Prabhava* which were the simplest parameters in those days to ascertain the action of the drug. Ayurvedic classics provide clear therapeutic guidance for the treatment of *Amavata*. Normaly *langhana*,*swedana*, *Tikta-katu-Deepana* drugs, *virechana* etc. were found. The treatment is based on *Ama pachana* and amelioration of vitiated *vata*. In assessing the overall effect of therapy, it was seen that – In Group A (*Amavatari Rasa*), 15 patients were treated, out of which, 6 (46.15%) patients got marked improvement, 5 (38.47%) patients got cured and 2 patients (15.38) got mild improvement. In Group B (*Rasnadi Guggulu*) -out of 15 patients, 6 patients (40%) got marked improvement, 5 patients (33.33%) got improved and 4 patients (26.67%) were cured.

5. CONCLUSION

RA is the second most common arthritis of the joints after osteoarthritis and it is the most prevalent inflammatory disease of the joints. It can be concluded that *Ama* formation due to *Mandagni* and *Vata* vitiation are two chief factors in the pathogenesis of the disease. Amavata is a *Tridoṣaja* disease having *Kapha and Vāta* predominance, having its origin in *Amaśaya* and *Pakvaśaya*. On comparing the overall effect of the therapies, *Amavatari Rasa* proved to be more effective than *Rasnadi Guggulu*. No major adverse or side effects were encountered during the course of the study. It may be concluded that *Ayurveda* management is comparatively safe in the treatment of *Amavata* Regarding trial drugs *Amavatari Rasa* and *Rasnadi Guggulu* it can be concluded that both the drugs are effective in the management of *Amavata* however the overall results of *Amavatari Rasa* are better than *Rasnadi Guggulu* due to its *yogvahi guna*. Also, in those patients where *Amavatari Rasa* cannot be administered due to any reason, that is, adverse drug reaction, *Rasnadi Guggulu* can be used as a substitute. Furthermore, there are many formulations named as *Amavatari Rasa*/*Amavatari Vatika* but the present formulation has having convenient pharmaceutical process and is having lesser and safer drugs as ingredients.

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Nil.

7. AUTHORS' CONTRIBUTIONS

All the authors contributed equally to the design and execution of the article.

8. FUNDING

Nil.

9. ETHICAL APPROVALS

The study is approved by the institutional ethical committee of the National Institute of Ayurveda, Jaipur vide letter number - IEC/ACA/2016/48 dated 26/05/2016.

10. CONFLICTS OF INTEREST

Nil.

11. DATA AVAILABILITY

This is an original manuscript and all data are available for only review purposes from principal investigators.

12. PUBLISHERS NOTE

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Table 1: Distribution of patients according to age

S. No.	Age (in years)	No. of patients		Total	Percentage
		Group-A	Group-B		
1.	11–20	02	00	02	6.67
2.	21–30	02	02	04	13.33
2.	31–40	05	02	07	23.33
3.	41–50	04	08	12	40
4.	51–60	02	03	05	16.67
Total		15	15	30	100

Table 2: Distribution of patients according to sex

S. No.	Sex	No. of patients		Total	Percentage
		Group-A	Group-B		
1.	Male	05	04	09	30
2.	Female	10	11	21	70
Total		15	15	30	100

Table 3: Distribution of patients according to agni

S. no.	Status of agni	No. of patients		Total	Percentage
		Group-A	Group-B		
1.	*Viṣamagni*	4	4	8	26.67
2.	*Tikṣnagni*	0	1	1	3.33
3.	*Mandāgni*	8	9	17	56.67
4.	*Samagni*	3	1	4	13.33
Total		15	15	30	100

Table 4: Distribution of patients according to duration of illness

S. no.	Duration of illness (in years)	No. of patients		Total	Percentage
		Group-A	Group-B		
1.	<2 years	2	2	4	13.34
2.	2–4 years	4	6	10	33.33
3.	5–6 years	3	3	6	20
4.	>6 years	6	4	10	33.33
Total		15	15	30	100

Table 5: Distribution of patients according to mode onset of disease

S. no.	Mode onset of disease	No. of patients		Total	Percentage
		Group-A	Group-B		
1.	Gradual	15	15	30	100
2.	Acute	0	0	0	0
Total		15	15	30	100

Table 6: Distribution of patients according to *Nidāna*

Nidāna	Number of patients		Total	Percentage
	Group-A	Group-B		
Āhāraja Nidāna				
Viruddha	07	06	13	43.33
Viṣamaśana	10	11	21	70.00
Addhyaśana	11	12	23	76.66
Snigdha	13	10	23	76.66
Ati Guru	13	11	24	80.00
Ati Madhura	08	09	17	56.67
Ati Drava	08	07	15	50.00
Rūkṣa	02	05	07	23.33
Vihāraja Nidāna				
Bhojanottara Vyāyāma	09	10	19	63.33
Viṣama Śayyā	05	08	13	43.33
Ati Vyāyāma	04	03	07	23.33
Divāsvapna	11	12	23	76.66
Ratri Jāgarana	10	09	19	63.33
Niścalatā	11	12	23	76.66
Mānsika Nidāna				
Cintā	07	06	13	43.33
Bhaya	04	03	07	23.33
Śoka	04	02	06	20.00

Table 7: Distribution of patients according to aggravating factor

S. No.	Aggravating factor	No. of patients		Total	Percentage
		Group-A	Group-B		
1.	Cold climate	15	15	30	100
2.	Oil application	11	12	23	76.67
3.	Morning hours	15	15	30	100
4.	Heavy meal	10	11	21	70

Table 8: Distribution of patients according to relieving factor

S. No.	Relieving factor	No. of patients		Total	Percentage
		Group-A	Group-B		
1.	*Summer*	13	14	27	90
2.	*Balukā svedana*	12	13	25	83.33
3.	*Hot water fomentation*	09	11	20	66.67

Table 9: Distribution of patients according to family history

S. No.	Family history of rheumatoid arthritis	No. of patients		Total	Percentage
		Group-A	Group-B		
1.	Positive	5	4	9	30
2.	Negative	10	11	21	70
Total		15	15	30	100

Table 10: Distribution of patients according to involvement of joints as per DAS-28

S. no.	Joints involvement	No. of patients		Total	Percentage
		Group-A	Group-B		
1.	Proximal interphalangeal (UL)	13	15	28	93.33
2.	Metacarpophalangeal	15	12	27	90
3.	Wrist	10	11	21	70
4.	Elbow	08	07	15	50
5.	Shoulder	07	07	14	46.67
6.	Knee	08	07	15	50
7.	Ankle	3	4	7	23.33

Table 11: Distribution of patients according to positive C-RP, R.A. factor, and ASL-O test

S. no.	Investigations	No. of patients		Total	Percentage
		Group-A	Group-B		
1.	CRP	1	3	4	13.33
2.	R.A. factor	1	3	4	13.33
3.	ASL-O test	2	2	4	13.33

CRP: C-reactive protein, ASL-O: Anti-streptolysin-O

Table 12: Distribution of patients according to signs and symptoms

S. No.	Signs and symptoms	No. of patients		Total	Percentage
		Group-A	Group-B		
1	Pain in joints	15	15	30	100
2	Stiffness of joints	15	15	30	100
3	Swelling of joints	15	15	30	100
4	Restriction of movement	15	15	30	100
5	Tenderness in joints	15	15	30	100
6	*Angamarda*	14	15	29	96.67
7	*Aruci*	15	10	25	83.33
8	*Triṣnā*	10	10	20	66.67
9	*Ālasya*	15	15	30	100
10	*Gaurava*	13	15	28	93.33
11	*Jvara*	8	8	16	53.33
12	*Apaka*	8	12	20	66.67
13	*Bahumūtratā*	5	4	9	30

Table 13: Improvement grading scale

S. no.	Observation	Percentage
1.	No relief	0
2.	Mild relief	1–25
3.	Moderate relief	26–50
4.	Significant relief	51–75
5.	Excellent relief	76–100

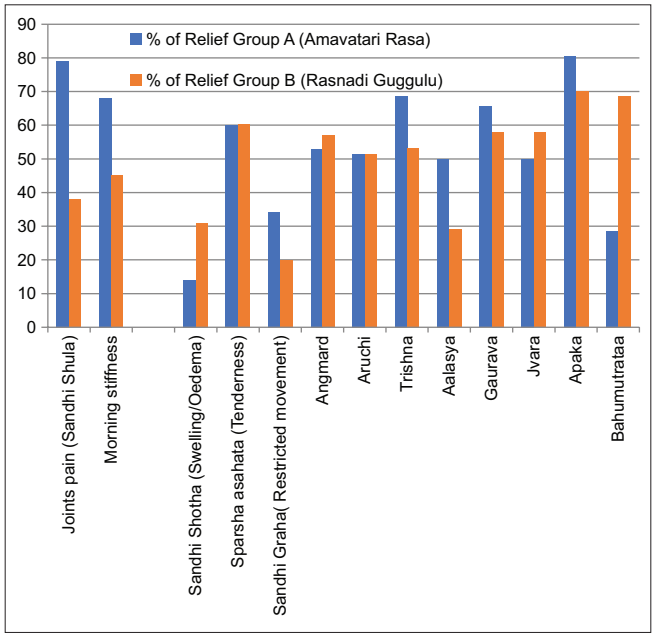
Table 14: The effect of the trial drug on both groups in various subjective parameters of the disease can be highlighted as follows

Symptoms	% of relief	
	Group A (*Amavatari Rasa*)	Group B (*Rasnadi guggulu*)
Joint pain (sandhi shula)	79	38
Morning stiffness	68	45
Sandhi Shotha (swelling/edema)	14	31
Sparsha asahata (tenderness)	60	60.4
Sandhi Graha (restricted movement)	34.2	20
Angmard	53	57
Aruchi	51.5	51.3
Trishna	68.7	53.3
Aalasya	50	29
Gaurava	65.5	58
Jvara	50	57.9
Apaka	80.6	70
Bahumutrataa	28.6	68.7

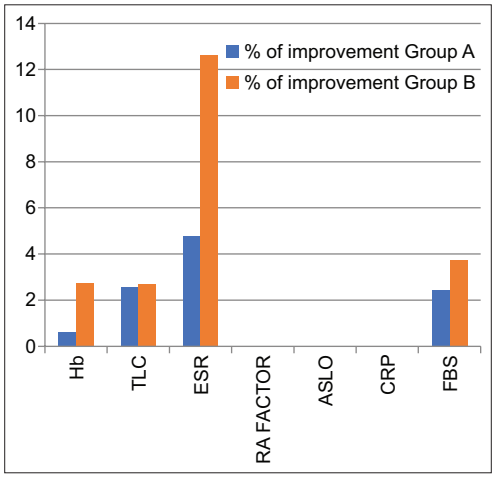
Table 15: Effect of the trial drug on both groups in laboratory parameters can be highlighted as follows

Investigation	% of improvement	
	Group A	Group B
Hb	0.6	2.75
TLC	2.56	2.69
ESR	4.76	12.64
RA FACTOR	0	0
ASLO	0	0
CRP	0	0
FBS	2.42	3.75

ESR: Erythrocyte sedimentation rate, CRP: C-reactive protein, ASL-O: Anti-streptolysin-O, FBS: Fetal blood sampling



Graph 1: The effect of the trial drugs on both groups in various subjective



Graph 2: Effect of trial drug on both groups in Laboratory parameters