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# A Clinical Evaluation of the effect of *Rasonadi Kwatha* in the management of *Amavata*

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## ABSTRACT

In the present clinical study 30 *Amavata* (Rheumatoid arthritis) patients were registered from the O.P.D. and I.P.D., Department of Kayachikitsa (General Medicine), R A Podar, Ayurved College, Mumbai. The aim of the study was to evaluate the role of selected Ayurvedic medicine in the management of *Amavata* (Rheumatoid arthritis). The treatment schedule was that 30ml *Rasonadi Kwatha* twice a day with lukewarm water for 30 days. In present clinical study 40% patients showed major improvement, 50% patients showed minor improvement, 10% patients showed no improvement and no one patient had got complete remission. No adverse drug reaction was found in this clinical study.

**Key words:** *Amavata*, Rheumatoid arthritis, *Rasonadi Kwatha*.

## INTRODUCTION

With the evolution of industrialization, globalization, and economic liberalization and with the technology up gradation the individual life style is changing. People with the type of inheritance are predisposed to certain diseases triggered by factors of existing life style. People have been prone to become stressed or even depressed as a result of limited movement and who aren't able to do the activities that were once beyond their everyday lives. This result in inflammation process causing redness and swelling in joints and around them. Over the time it begins to damage the joint and joint tissues. This is called, 'a cycle of arthritic pain' and will make more difficult to

deal with this disease.<sup>[1]</sup>

Rheumatoid Arthritis is a chronic autoimmune disease that primarily involves the joints. In Ayurveda *Amavata* can be correlated to Rheumatoid Arthritis. The basic pathophysiology of *Amavata* primarily involves *Ama* and *Vata*.

The clinical presentation of *Amavata* is characterized by *Angamarda*, *Aruchi*, *Trishna*, *Alasya*, *Gaurava*, *Jvara*, *Apaka*, *Shotha* etc.<sup>[2]</sup> which can be correlated with various symptoms of RA. In contemporary system of medicine the treatment of RA, comprises NSAIDS, Analgesic drugs, Intra muscular or Intra Articular steroids and adjustment of DMARDS etc. It is observed that NSAIDS and steroids will not yield long term relief; while as DMARDS known to cause multiple side effects. On the other hand, in Ayurveda the treatment of *Amavata* mainly emphasis in treating *Ama* and *Vata*.

Thus while going through different Ayurvedic texts "*Rasonadi Kwatha*" mentioned in Bhavprakasha which contains *Rasona*, *Nirgundi*, and *Shunthi*.<sup>[3]</sup> This *Yoga* fulfilling all the above mentioned criteria.

## OBJECTIVES

To evaluate the effect of *Rasonadi Kwatha* in the management of *Amavata*.

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**MATERIAL AND METHODS****Type of Study :** Open Randomized Study**Selection :** Random.**No. of patients :** 30**Trial Drug :** Rasonadi Kwatha**Contents :** Rasona paste - 10gm, Sunthi - 10gm, Nirgundi - 10gm**Method of preparation :** It was prepared according to Kwatha Vidhi described in Sharangdhara Samhita.<sup>[4]</sup> One part of all Dravyas (total 30gm), water 16 part (480 ml) Boiled and reduced to 1/8 (60ml)**Dose :** 30ml twice a day**Duration :** 4weeks**Pathya - Apathya :** Was followed with respect to Amavata as described in literature review.**Criteria of Diagnosis**

The diagnosis was done on the basis of signs and symptoms in both Ayurvedic classics as well as modern texts. The criteria of diagnosis A.R.A. (1988) was also be followed.<sup>[5]</sup> American criteria is mentioned as follows,

1. Morning stiffness lasting for at least 1 hr and for > 6 week.
2. Arthritis of 3 or more of 14 possible joints area.
3. Arthritis of hand joints, wrist, Metacarpophalangeal, Interphalangeal, Metatarsophalangeal, joints > 6 week.
4. Symmetrical arthritis.
5. Rheumatoid nodules - Subcutaneous nodules over bony prominence.
6. Serum Rheumatoid Factor.
7. Radiological changes.

All routine investigations was carried out to exclude other pathology.

**Inclusion Criteria**

1. Clinically diagnosed patient of amavata

2. Both the cases of RA factor positive as well as negative
3. All patients of either sex and 15 -60 yrs age group.

**Exclusion Criteria**

1. Patients who leave the treatment in between.
2. Patients who are steroid dependent for relief of symptoms.
3. Patients presenting with complication like SLE, endocarditis etc.
4. Patient with contractures of joints was not included.

**Assessment of the Therapy**

To assess the overall effect of the therapies the criteria laid down by ARA (1967) was considered. Result was classified into four groups as listed below.

**Grade I - Complete Remission / Cured**

Resolution of inflammation, restoration of Joint Function and improvements in symptoms >75% or more.

**Grade II - Marked Improvement**

Resolution of inflammation, restoration of Joint Function and improvements in symptoms 50% - 75%.

**Grade III - Improvement**

Resolution of inflammation, restoration of Joint Function and improvements in symptoms 25% - 50%.

**Grade IV - No Improvement or Unchanged**

Resolution of inflammation, restoration of Joint Function and improvements in symptoms <25%

**Table 1: Showing R.A factor wise distribution of 30 patients of Amavata.**

No.	RA factor	No. of patients	Percentage
1	Positive	13	43.33%
2	Negative	17	56.67%

13 (43.33%) patients were R.A positive, while 17(56.67%) patients were R.A negative.

**Table 2: Showing Involvement of joints of 30 patients of Amavata.**

No.	Joint	No. of patients	Percentage
1	M.C.P joint	10	33.33%
2	P.I.P joint	24	80%
3	Wrist joint	23	76.66%
4	Elbow joint	18	60%
5	Shoulder joint	06	20%
6	Temporo-Mandibular joint	00	00%
7	Hip joint	01	3.33%
8	Knee joint	20	66.67%
9	Ankle joint	04	13.33%

24 (80%) patients presented with P.I.P joint involvement. 23 (76.66%) patients presented with Wrist joint involvement. 20 (66.67%) and 18 (60%) had knee and elbow joint involvement respectively. 10 (33.33%) and 6 (20%) patients had M.C.P and Shoulder joint involvement. 04 (13.33%) and 01 (3.33%) patients had Ankle and hip joint involvement respectively.

**Table 3: Effect of symptoms score of 30 Patients of Amavata.**

N o	Symptom	B.T	A.T	Difference	% of Relief
1	Angamarda	78	33	45	57.69 %
2	Aruchi	74	26	47	63.51 %
3	Trishna	45	41	04	08.89

					%
4	Alasya	69	29	40	57.97 %
5	Gauravta	64	20	44	68.75 %
6	Apaka	57	26	31	54.38 %
7	Agnimandya	93	54	38	40.86 %
8	Vairasyata	60	24	36	60%
9	Daha	45	41	04	08.89 %
10	Bahumutrat a	48	40	08	16.67 %
11	Kukshikathinya	46	15	31	67.39 %
12	Nidraviparyaya	45	42	03	06.67 %
13	Hridgraha	41	13	28	68.29 %
14	Vidvibandha	48	14	34	70.83 %
15	Jadya	54	36	18	33.33 %
16	Pain	42	13	29	69.04 %

#### Effect of therapy on symptoms score

It was observed that overall percentage of relief was 48.62%. Effect on *Angamarda*, *Aruchi*, *Alasya*, *Gauravta*, *Apaka*, *Agnimandya*, *Vairasyata*, *Kukshikathinya*, *Hridgraha*, *Vidvibandha*, *Jadya* and *pain* was 57.69%, 63.51%, 57.97%, 68.75%, 54.38%, 40.86%, 60%, 67.39%, 68.29%, 70.83%, 33.33% and 69.04% respectively. While effect on *Trishna*, *Daha*, *Bahumutrat* and *Nidraviparyaya* was 8.89%, 8.89%,

16.67% and 6.67% respectively. Thus we can say that the effect of *Rasonadi Kwatha* on *Trishna*, *Daha*, *Bahumutrata* and *Nidraviparyaya* is very low as compare to other symptoms.

#### Statistical Analysis of the Effect of Therapy on Symptoms of Amavata. (Wilcoxon signed-rank test)

- **Angamarda** : Sum of all signed ranks was 378. The number of pairs were 27. Z value was 4.54, which was statistically very highly significant,  $P<0.0001$
- **Aruchi** : Sum of all signed ranks was 435 .The number of pairs were 29 .Z value was 4.70, which was statistically very highly significant,  $P<0.0001$
- **Trishna** : Sum of all signed ranks was 27 .The number of pairs were 14 .Z value was -0.8474, which was statistically not significant,  $P=0.4263$
- **Alasya** : Sum of all signed ranks was 351 The number of pairs were 26.Z value was 4.457, which was statistically very highly significant,  $P<0.0001$
- **Gauravta** : Sum of all signed ranks was 406. The number of pairs were 28 .Z value was 4.62, which was statistically very highly significant,  $P<0.0001$
- **Apaka** : Sum of all signed ranks was 325.The number of pairs were 25 .Z value was 4.3723, which was statistically very highly significant,  $P<0.0001$
- **Agnimandya** : Sum of all signed ranks was 351.The number of pairs were 26.Z value was 4.4573, which was statistically very highly significant,  $P<0.0001$
- **Vairasya** : Sum of all signed ranks was 351.The number of pairs were 26.Z value was 4.4573, which was statistically very highly significant,  $P<0.0001$
- **Daha** : Sum of all signed ranks was 27 The number of pairs were 14 .Z value was -0.8474, which was statistically insignificant.  $P=0.4263$
- **Bahumutrata** : Sum of all signed ranks was 68. The number of pairs were 17 .Z value was -1.6094, which was statistically not significant,  $P=0.1089$
- **Kukshikathinya** : Sum of all signed ranks was 66. The number of pairs were 11 .Z value was 2.93, which was statistically highly significant,  $P=0.001$

- **Nidraviparyaya** : Sum of all signed ranks was 21.The number of pairs were 17 .Z value was -0.7342, which was statistically not significant,  $P=0.4973$
- **Hridgraha** : Sum of all signed ranks was 253.The number of pairs were 22. Z value was 4.107 ,which was statistically very highly significant,  $P<0.0001$
- **Vidvibandha** : Sum of all signed ranks was 325.The number of pairs were 25 .Z value was 4.3723, which was statistically very highly significant,  $P<0.0001$
- **Jadyta** : Sum of all signed ranks was 177. The number of pairs 22. Z value was -2.8732, which was statistically very significant,  $P=0.0029$
- **Pain** : Sum of all signed ranks was 435. The number of pairs were 29 .Z value was 4.70, which was statistically very highly significant,  $P<0.0001$  .

**Table 4: Showing effect on physical parameters of 30 Patients of Amavata. (Paired 't' test)**

No	Physical Parameters	Mean	SD	SEd	T	P
1	Walking time (in sec.)	13.86	5.68	1.037	13.36	<0.05
2	Foot Power (in kg)	0.616	0.9530	0.174	3.54	<0.05
3	Grip Power (in mmHg)	1.4	2.41	0.44	3.18	<0.05
4	Joint Movement (in degree)	2.8	1.0488	0.1914	14.62	<0.05

### Effect of therapy on physical parameters

In this study Mean difference in walking time before and after treatment was 13.86sec. Mean difference in foot power before and after treatment was 0.616kg. Mean difference in grip power before and after treatment was 1.4 (in mm Hg). Mean difference in joint movement before and after treatment was 2.8 (in degree).

All these physical parameters were tested statistically by paired 't' test. Where  $p < 0.05$  in all parameters, found statistically very highly significant.

**Table 5: Showing total effect of therapy in 30 patients of Amavata.**

No.	Effect of therapy	No. of Patients	%
1	Cured	00	00%
2	Markedly Improved	02	6.67%
3	Improved	27	90%
4	Unchanged	01	3.33%

### DISCUSSION

Out of 30 *Amavata* patients 13(43.33%) were of *Tarunavastha* and 17 (56.67%) were of *Praudhavastha*. It shows that *Amavata Vyadhi* mainly occurs in *Tarunavastha* and *Praudhavastha*. 17 (56.67%) pts were having sedentary type of life style, 8 (26.67%) were doing standing type of work and 5 (16.66%) were doing labour work. From this we can conclude that there is association between sedentary life style and *Amavata*. In this study 8 (26.67%) patients had habit of taking vegetarian food, while 22 (73.33%) patients had habit of taking mixed food. From this we can conclude that there is association between dietary factors and *Amavata* which is also mentioned in Ayurvedic Classics. In this study 19(63.33%) patients were of *Kaphavata Prakriti*, 6 (20%) and 5 (16.67%) patients were of *Vatapittaja Prakriti* and *Pittakaphaja Prakriti* respectively. From this we can conclude that there is association between *Kaphavata Dosha* and *Amavata* which is also mentioned in Ayurvedic classics. 18 (60%) patients of

*Amavata* had *Vishamagni*, 10 (33.33%) and 02 (6.67%) patients had *Vishama* and *Tikshnagni* respectively. From this we can conclude that there is association between *Agni* and *Amavata* which is also mentioned in Ayurvedic classics. 3 (10%) patients had a positive family history of *Amavata* while 27 (90%) had no family history of *Amavata*. It can be concluded that *Amavata* is not a *Beejadoshaja Vyadhi*. In the present study 6 (20%) patients were suffering from *Amavata* for less than 1 year, 7 (23.33%) were suffering since, 1-2 years, 07 (23.33%) were suffering since 2-3 years, 05 (16.67%) were since 3-5 years and 05 (16.67%) were suffering since more than 5 years. 13 (43.33%) patients were RA positive, while 17 (56.67%) patients were RA negative. From this we can say that there is no association between clinical presence of *Amavata* and RA factor coming positive. 24 (80%) patients presented with P.I.P joint involvement. 23 (76.66%) patients presented with Wrist joint involvement. 20 (66.67%) and 18 (60%) had knee and elbow joint involvement respectively. 10 (33.33%) and 06 (20%) patients had M.C.P and Shoulder joint involvement. 04 (13.33%) and 01 (3.33%) patients had Ankle and hip joint involvement respectively. This shows the nature of the disease i.e. affection of multiple joints at the same time which is also mentioned by shrikanthadatta in 'Madhukosh' commentary of *Amavata*.

### Effect of therapy on clinical parameters

It was observed that overall percentage of relief was 48.62%. Effect on *Angamarda*, *Aruchi*, *Alasya*, *Gauravta*, *Apaka*, *Agnimandya*, *Vairasyata*, *Kukshikathinya*, *Hridgraha*, *Vidvibandha*, *Jadya* and pain was 57.69%, 63.51%, 57.97%, 68.75%, 54.38%, 40.86%, 60%, 67.39%, 68.29%, 70.83%, 33.33% and 69.04% respectively. While effect on *Trishna*, *Daha*, *Bahumutrata* and *Nidraviparyaya* was 8.89%, 8.89%, 16.67% and 6.67% respectively. Thus we can say that the effect of *Rasonadi Kwatha* on *Trishna*, *Daha*, *Bahumutrata* and *Nidraviparyaya* is very low as compare to other symptoms. These observations indicating *Ushna* (hot by nature), *Ampachaka* (means improving metabolic rate and digesion), *Laghu*, *Strotasanugami* (means giving lightness in the body by going in body tissue), nature of *Rasonadi Kwatha* effect on pain relief and minimum effect on sleep shows that this *Yoga* has no sedative or tranquilising

effect i.e. analgesic effect is without sedation unlike morphines.

#### Effect of therapy on physical parameters

In this study Mean difference in walking time before and after treatment was 13.86 sec. Mean difference in foot power before and after treatment was 0.616 kg. Mean difference in grip power before and after treatment was 1.4 (in mm Hg). Mean difference in joint movement before and after treatment was 2.8 (in degree). All these physical parameters were tested statistically by paired 't' test. Where  $p < 0.05$  in all parameters, found statistically very highly significant. This indicates the efficacy of *Rasonadi Kwatha* on improvement of physical well being causing improvement on quality of life of patient.

#### Effect of therapy on haematological parameters

In this study mean differences in Hb, Total RBC, Total WBC, SGOT, SGPT, Sr. Bilirubin, Blood Urea, and Sr. creatinine were 0.046, 0.0066, 0.0066, 0.33, 2.33, 0.033, 0.167 and 0.0233 respectively. Found statistically insignificant by paired 't' test ( $p > 0.05$ ). While mean difference in ESR was 5.433. This reduction in ESR was statistically significant when tested by paired 't' test. ( $p < 0.05$ ).

Thus we can say that *Rasonadi Kwatha* is effective only on ESR out of all above haematological parameters. Decrease in ESR shows anti-inflammatory activity of *Rasonadi Kwatha*; and no change in LFT and RFT shows that the drug does not have any toxicity on hepato renal system in 4 weeks. However longer duration study is required to see long term adverse drug effect on liver and kidney.

#### Effect of therapy on degree of disease activity

In the present study total average mean of all parameters of degree of disease activity was 0.3441, this decrease in disease activity was statistically tested by paired 't' test and found statistically insignificant. Mean differences of morning stiffness, fatigue, pain, general function, and ESR are 0.6, 0.4, 1.43, 0.3 and 0.3 respectively. Tested statistically by paired 't' test found significant ( $p < 0.05$ ) While mean differences of Grip power, spread in joints, Hb and physician estimate was 0, 0.067, -0.1, and 0.1 respectively. Tested statistically by paired 't' test and found insignificant. Thus we can conclude that there is

no effect of *Rasonadi Kwatha* on total degree of disease activity of Rheumatoid arthritis. Though *Rasonadi Kwatha* is effective on some parameters of degree of disease activity. Hence we can say that though some sign and symptom of *Amavata* shows similarity with some sign and symptoms of Rheumatoid arthritis. They are not synonyms of each other indicating same disease. Hence to find exact nature of RA in Ayurvedic text we require further study that may be in direction of *Grahani*, *Strotorodhjanya*, *Vatavyadhi*, *Sama Vayu*, *Agnimandya* and other various *Siddhantas* (basic principles) of Ayurveda.

#### Total effect of therapy

Total effect of therapy has been evaluated in terms of cured, markedly improved, improved and unchanged. In present study out of 30 patients of *Amavata* 0% pt were completely cured, 2 (6.67%) patients were markedly improved, 27 (90%) Improved, 1 (3.33%) was Unchanged. This shows that *Rasonadi Kwatha* is effective in relieving sign and symptoms of both RA and *Amavata* in 4 weeks; it is not perfect master treatment to cure neither *Amavata* nor RA in 4 weeks. A longer duration assessment is required for that. But these effects definitely gives us hope in complete cure of either *Amavata* or RA in longer duration.

#### CONCLUSION

In present study out of 30 patients of *Amavata* 0% pt were completely cured, 2 (6.67%) patients had markedly improved, 27 (90%) patients had Improved, 1 (3.33%) patient was Unchanged. This shows that *Rasonadi Kwatha* is effective in relieving sign and symptoms of both RA and *Amavata* in 4 weeks; it is not perfect master treatment to cure neither *Amavata* nor RA in 4 weeks. A longer duration assessment is required for that. But these effects definitely gives us hope in complete cure of either *Amavata* or RA in longer duration.

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