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A Comparative Clinical study of *Mritasanjivan Rasa* and *Sunthyadi Kwath* in the management of *Amavata* with special reference to *Dushivisa*

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Abstract-

Amavata vis-a-vis Rheumatioid arthritis occurs worldwide in all races, sexes, age and climates. Rheumatoid Arthritis is a disease of unknown aetiology chiefly affecting the joints along with systemic involvement, resulting in severe disabilities and crippling deformities. The onset is more frequent during 4th and 5th decades of life, with 50% of patients developing the disease between ages of 35 to 50 years with male to female ratio 1:3, although it resembles with *Amavata*, but still *Amavata* has self entity.

In Present time *Amavata* (Rheumatoid arthritis) is a life style disorder which effect the most of the youth generation due to unawareness, fast

machinery life and taking so many hazard chemicals (which act as *Dushivisha)* in food material which causes Mandaagni and produces Ama as a visha. This Ama accumulates in the body parts and cause of Amavata (Rheumatoid arthritis)

Introduction

Charak Sutra Sthana emphasized on the importance of *Ahara*[1] in the maintenance of psychosomatic health that if our diet is proper and is based on the doctrines of Ayurvedic principles, then we can enjoy *Sukhayu* (happy life) and *Medha* (intelligence). With the passage of time, most of the dietary habits (*Viruddhahara*), social structure, life style and environment have been changing. Such modifications lead to *Amavata*. Almost all diseases originates from *Agnimandya* which leads to formation of *Ama*[2] and the most challenging disease caused by *Ama* combination with Vata is *Amavata*[3].

As Per Shushruta Samhita Visha which on a constant exposure to a particular time (i.e. a cloudy and windy day as well as rainy season), place (i.e. a *anupa desha*, extensive windy cold rainy place) and diet (i.e. wine, sesamum, *kulattha*, pulse) as well as constant and regular day-sleep tends to vitiated the *dhatus* of the body and this poison is consequently known as the *dushivisha*[4].

The peculiarity of *dushivisha* is that it remains latent in *dhatus* (tissues) and on vitiation it produces hazardous effect on the body. Ama is also a visha which aggravate in favourable condition like a *dushivisha.*

Madhavkara (7th century) described *Amavata*[5] as a distinct clinical entity and its *Chikitsa Sutra* was first given by *Chakradutta*. Most of previous research works on *Amavata* are done equating it with Rheumatoid Arthritis accordance with modern parameters but the need is to focus on Ayurvedic principles and describe *Amavata*, as an independent disease.

Due to wide spectrum of disease much prevalence in the society and lack of effective medicine, we take *Mritasanjivan Ras* and *Sunthyadi kwath*[6] in the management of *Amavata* to digest *Ama* and to eliminate vitiated *Vata* and *Ama.*

1. *Mritasanjivan Ras* is selected as *shaman yoga* mentioned in *Ras Chandasu* (Uttarkhand vatarogachikitsa/1293-1296).

2. *Sunthyadi Kwath* is selected for *Amapachan*, mentioned in *Chakradutta* (Amavata chikitsa 25/9).

Aims and Objectives

1. Conceptual evaluation of *Amavata* as described in various Ayurvedic texts in modern light.
2. Clinical evaluation of the efficacy of *Mritasanjivan Rasa* and *Sunthyadi Kwath* in management of *Amavata.*
3. Combined effect of *Mritasanjivan Rasa* and *Sunthyadi kwath* in the management of Amavata.

Materials and Methods

A. Selection of cases:-

A total 45 clinically diagnosed patients of *Amavata* were randomly selected regardless of age, sex and occupation from the *Agad Tantra* OPD and IPD of N.I.A. Both acute and chronic phase of *Amavata* patients were taken for the study.

B. **Inclusion criteria:-**

1. The patients between the age group of 18 to 70 years in either sex presenting with clinical features of *Amavata*.
2. Prediagnosed patient of *Amavata*. (chronicity < 10 years)

C. **Exclusion criteria:-**

1. Patients of age below 18 years and above 70 years of either sex.
2. Chronicity of *Amavata* more than 10 years.
3. Patients having severe crippling deformities, neoplasm of spine, Gout, Ankylosing spondylysis, traumatic Arthritis and pyogenic Osteomylitis etc.
4. Patients having associated Cardiac disease, Pulmonary Tuberculosis, Diabetes Mellitus, Malignant Hypertension, Renal Function Impairment, cerebrovascular disease etc.
5. Patients with extremely reduced joint space.

D. Grouping and drug dose of patients:-

Clinically diagnosed and registered patients of *Amavata* will be divided randomly into three groups. Each group will have 15 patients.

Group A- Treated by *Mritasanjivan Rasa* (each tab. 125 mg.) 1 tab. with

lukewarm water, after meal, two times in a day for 45 days.

Group B -Treated by *Sunthyadi Kwath* 40 ml morning in a day for 45 days.

Group C -Treated by both *Mritasanjivan Rasa* 1 tab. BD and *Sunthyadi Kwath* 40 ml for 45 days.

E. Duration of clinical trial and follow up study:-

Duration of clinical trial – 45 days and follow up – 15 days.

Clinical Study-

ASSESSMENT CRITERIA

Effect of the therapy has been assessed on the basis of the following subjective and objective criteria**:**

(A). Subjective parameter- It has been based classical features of *Amavata* like-

1. Vrishchikdanshvatvedana (Severe pain)
2. Bahumutrata (Polyuria)
3. Angmarda (Bodyache)
4. Aruchi (Anorexia)
5. Trishna (Polydipsia)
6. Alasya (Lassitude)
7. Gaurava (Heaviness of body)
8. Jwara (Fever)
9. Apaka (Indigestion of food)
10. Shunatanganam[7] (edema)
11. Gatrastabdhata(Body stiffness)

Scoring Pattern adopted for assessment of subjective parameters:-

Clinical assessment of the disease, its severity, extent and grades of inflammation were objectively done in terms of Pain in joint by Visual Analogue Scale. The relative extent of all these criteria-Stiffness of joints, swelling of joint, Restriction of movement, Tenderness of joints & *Angmarda, Aruchi, Trishna, Alasya, Gaurava, Jwara, Apaka, Bahumutrata* were recorded according to the rating scales i.e. grading scale in each patient at the initial stage. These are measured by simple count of clinically active joints.

(B). Objective parameter (Laboratory profile)-

It has been based on laboratory investigations -

Hb gm%	S. Uric Acid	ESR
TLC	CRP	
DLC	RA factor	

Registered patients have been assessed for the improvement in the subjective and

objective criteria before and after the treatment.

Observation and Results-

Soft ware Graph pad Instat (version 3.10) was used for intergroup comparison. Non parametric data (subjective criteria) was assessed by performing test- **Kruskal-Wallis Test (Nonparametric ANOVA).** Parametric data (objective criteria) was assessed by performing test- **Tukey-Kramer Multiple Comparisons Test (Parametric ANOVA).**

For calculation of statistical values in the following tables, following abbreviation is being used

H.S.= Highly Significant

V.S. = Very Significant

S. = Significant

N.S. = Not Significant

SUBJECTIVE PARAMETERS

Table No. 1: Showing the symptomatic improvement of 45 registered patients in all three groups.

Table No. 52

Symptom	Group	Mean Score		%Relief	P	S
		B.T.	A.T.			
Pain	A	4.13	2.27	45.28	< 0.001	H.S.
	B	4.19	1.88	55.13	< 0.001	H.S.
	C	4.33	1.33	69.28	< 0.001	H.S.
Gatrastabdhata (stiffness)	A	1.73	1.13	34.68	> 0.001	V.S.
	B	1.87	0.67	64.17	< 0.001	H.S.
	C	2.27	0.67	70.48	< 0.001	H.S.
Shunatanganam (edema)	A	2.33	1.60	31.33	> 0.001	V.S.
	B	1.60	0.73	54.37	< 0.001	H.S.
	C	2.53	0.87	65.61	< 0.001	H.S.
Angmarda (Bodyache)	A	2.67	1.87	29.96	< 0.001	H.S.
	B	2.40	1.00	58.33	< 0.001	H.S.
	C	3.00	0.86	71.33	< 0.001	H.S.

Aruchi (Anorexia)	A	1.73	1.40	19.07	> 0.05	N.S.
	B	1.93	0.73	62.17	< 0.001	H.S.
	C	2.40	0.86	64.17	< 0.001	H.S.
Trishna (Polydipsia)	A	0.40	0.33	17.50	> 0.1	N.S.
	B	0.26	0.40	53.86	> 0.05	N.S.
	C	0.26	0.40	53.86	> 0.05	N.S.
Alasya (Lassitude)	A	1.20	0.80	33.33	< 0.05	S.
	B	1.80	0.73	59.44	< 0.001	H.S.
	C	1.93	0.67	65.28	> 0.001	V.S.
Gaurava(Heaviness)	A	1.67	0.93	44.31	> 0.001	V.S.
	B	1.67	0.60	64.07	< 0.001	H.S.
	C	1.87	0.60	67.91	<0.001	H.S.
Jwara (Fever)	A	0.80	0.40	50.00	< 0.05	S.
	B	0.73	0.27	63.01	> 0.01	S.
	C	0.87	0.27	68.96	< 0.01	V.S.
Apaka (Indigestion)	A	1.67	1.13	32.33	> 0.01	S.
	B	1.67	0.73	56.28	0.001	H.S.
	C	1.27	0.46	63.77	< 0.01	V.S.
Bahumutrata (Polyurea)	A	1.00	0.60	40.00	> 0.05	N.S.
	B	0.86	1.13	31.39	> 0.1	N.S.
	C	0.53	1.06	100.0	< 0.01	V.S.

Maximum percentage of relief from all the symptoms including pain, Gatrastabdhata (stiffness), etc was observed in group C.

Bar Diagram 1

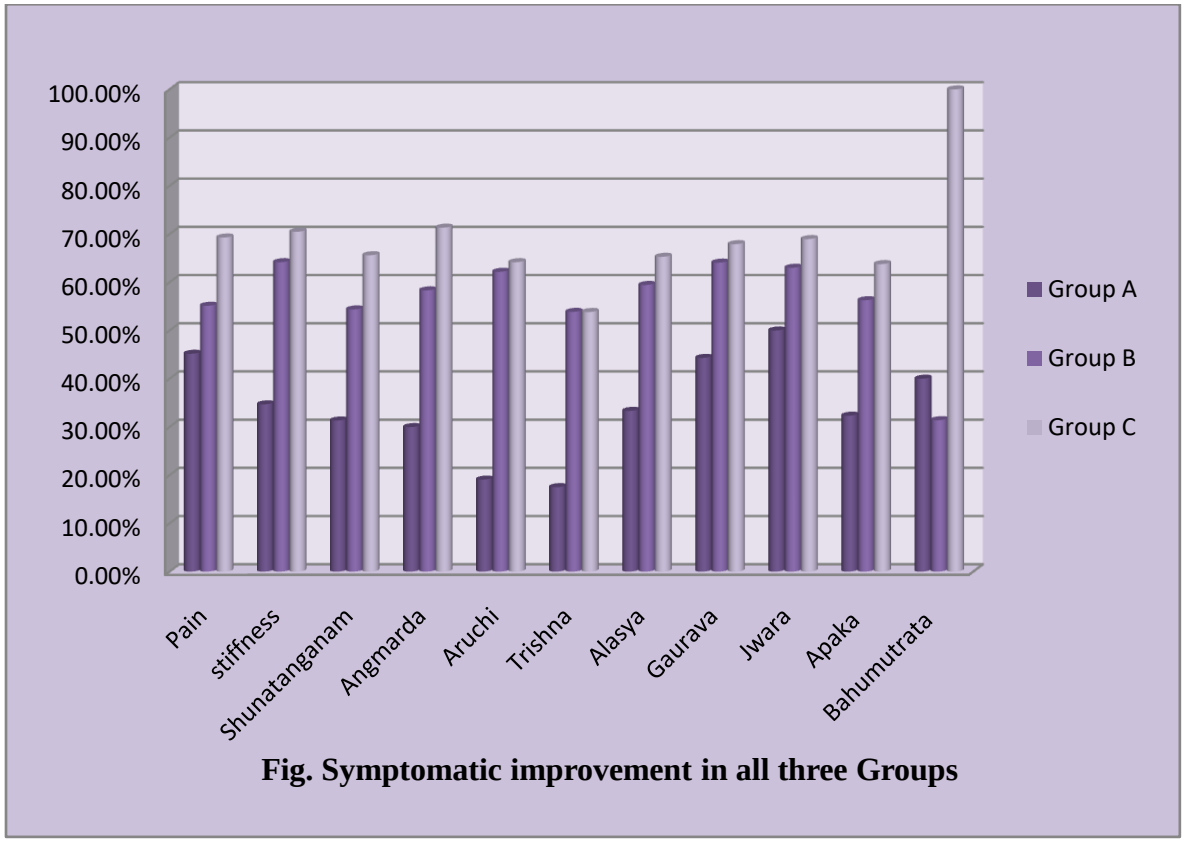

Fig. Symptomatic improvement in all three Groups

Objective Parameters

Table No. 2: Showing the improvement in laboratory parameters in 45 registered patients of all three groups.

Table No. 54

Laboratory parameter	Group	Mean Score		%Relief	t	P	S
		B.T.	A.T.				
Haemoglobin	A	10.97	11.96	9.02	4.27	< 0.001	H.S.
	B	11.97	13.04	8.94	5.49	< 0.001	H.S.
	C	10.78	11.56	7.23	2.64	> 0.01	S.
TLC	A	5513	5273	4.35	0.52	> 0.1	N.S.
	B	6846.7	6173.3	9.83	3.31	< 0.01	V.S.
	C	6820	6300	7.62	1.09	> 0.1	N.S.
ESR	A	40.80	19.27	52.77	7.51	< 0.0001	H.S.

	B	34.13	18.13	46.88	4.31	< 0.001	H.S.
	C	31.93	20.53	35.70	2.66	> 0.01	S.
Neutrophil	A	56.27	55.00	2.25	0.53	> 0.1	N.S.
	B	54.27	51.87	4.42	1.73	> 0.1	N.S.
	C	55.13	56.13	1.81	0.32	> 0.1	N.S.
Lymphocyte	A	38.60	38.80	0.52	0.10	> 0.1	N.S.
	B	40.27	41.73	3.62	1.22	> 0.1	N.S.
	C	40.07	36.27	9.48	1.42	> 0.1	N.S.
Eosinophile	A	2.27	2.00	11.89	2.26	< 0.05	S.
	B	2.33	2.20	5.58	0.81	> 0.1	N.S.
	C	2.20	1.80	18.18	1.70	> 0.1	N.S.
Monocytes	A	2.47	2.13	13.76	2.65	> 0.01	S.
	B	3.00	2.93	2.33	1.00	> 0.1	N.S.
	C	2.60	2.80	7.69	0.53	> 0.1	N.S.
Basophiles	A	0.00	0.00	0.00	0.00	-	-
	B	0.00	0.00	0.00	0.00	-	-
	C	0.00	0.00	0.00	0.00	-	-

Bar Diagram 2

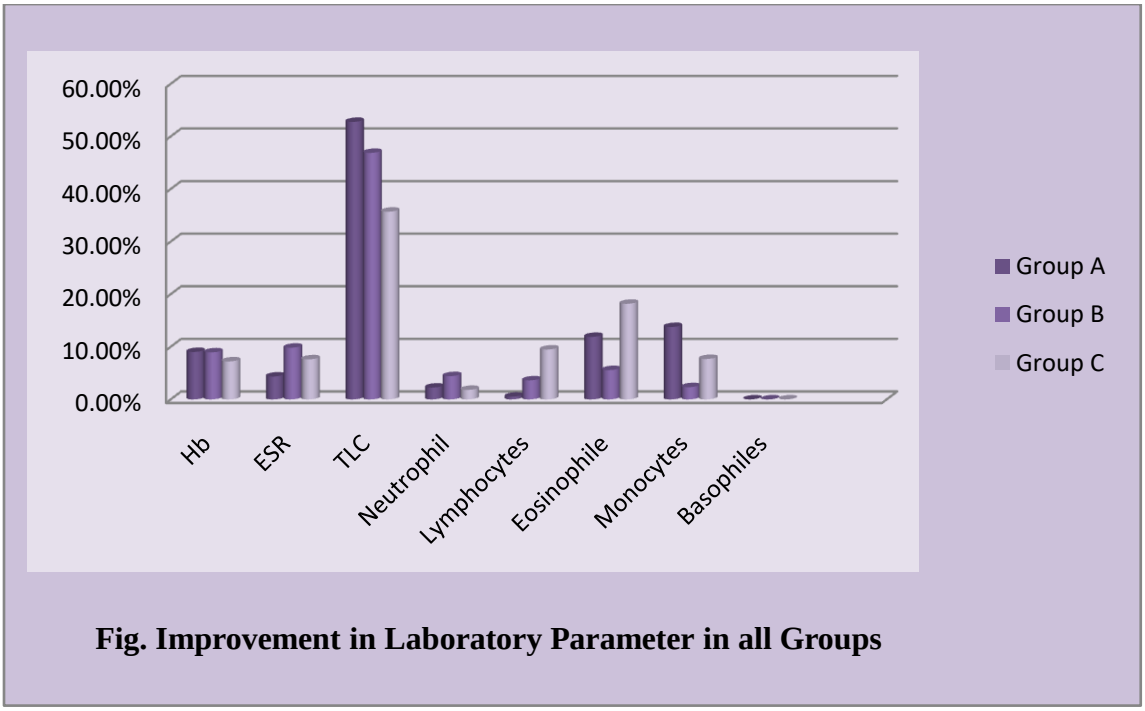

Fig. Improvement in Laboratory Parameter in all Groups

Discussion on conceptual study

In *Ayurveda*, entire *Vedic* and *Samhita Kala* was deprived of description of *Amavata*. But in *Sangraha Kala*, *Madhavakara* in 900 AD first recognized specific *Amavata* and described its aetiopathogenesis with signs and symptoms.

Madhava Nidana while defining the *Amavata* has mentioned its *Prtyatma Linga as Gatra Stabhdhata*. This means the disease is not limited to bony joints only but may affect any part of the body. In modern medicine rheumatoid arthritis is characterised by morning stiffness and pain. It also involves joints like wrist; inter phalengeal joints etc and so on. Therefore, *Amavata* may be correlated with rheumatoid arthritis.

Amavata is a disease of *Madhyama Rogamarga*, involving *Sandhi*[8] mainly, therefore it is *Krichchha Sadhya.* Rheumatoid arthritis is also considered as difficult to cure. *Ama* fits into one of the defined criteria of *Dosha* – by "independently inflicting the *Dhatus*". However *Ama* cannot be termed as *Dosha*, because it does not possess the *"Prakrti Jantwam"* (Formation of constitution) which is one of the specific characteristic features of *Dosha*.

Two different conditions which result in *Ama* production at *Dhatu* level have been laid down as under:

1. *Jatharagni Mandya* => Leading to *Dhatwagni Mandya* => *Ama* at all *Dhatvagni* sites.

2. *Dhatvagni Mandya* => Slowly due to the hypofunctioning of respective *Dhatvagni* => Formation of *Ama* at that specific *Dhatvagni* sites.

While a continued stasis of *Ama Anna* in the GIT will inflict the local *Dosha* to produce an acute condition, *Vilambika*, *Visuchika*, and *Alasaka*, *Charaka* referred them as *Ama Visha*.

***Samprapti* of *Amavata*-**

After going through in detail in these patients it seems that the *Samprapti of Amavata* is as follows[2].

Adhyashana, intake of *Snigdha Ahara* like milk products, etc., *Abhishyandhi Ahara* like *Dadhi*, etc. and indulgence of *Divasvapna*, *Vyayama after Snigdha Bhojana;* in some patients the *Mithyopachara* during the post-natal and menopausal period has lead to the formation of *Ama.*

This horrible *Ama* spreads throughout the body by vitiated *Vata*

especially towards *Sleshmasthana*, where by the action of impaired *Vata, Ama* becomes more morbid and arrives in *Dhamani*. Here it mixes with *Vata, Pitta, Kapha* acquires varigative colours and becomes viscous. These properties of *Ama* make *Srotobhishyanda* and *Dosha – Dushya Sammurchhana* consequently easy. This Srotoroda produces *Stabdhata* at that particular joint. The disease manifested with the symptoms like joint pain, swelling, stiffness, difficulty in movement along with the systemic features like *Jwara, Aruchi*, etc.

Ama can also be compared with free radicals. Free radical is an atom/molecule that containing one or more unpaired electron, which requires neutralization by free radical scavengers. Thus it exists in an incomplete metabolic state. Free radicals are in assailable to body components and exist in free stable. Free radicals causes' damage to cell membrane and thus the cell is destroyed. This destruction may lead to putrefaction and foul smell generations. To seek stability in their structure they quickly interact with the healthy molecules of the body thus setting chain reaction. This misdirected immune system then attacks the body's own tissues and leads to inflammation in the joints and sometimes in various organs of the body.

The first and foremost measures of the therapy includes *Nidana Parivarjana*, correction of Faulty Diet, and thereby the status of *Agni*. Joint pain can be a manifestation of food allergy. Food of animal origin is largely found to be associated with allergy, as the animal protein has the greatest potential to be an antigen. Although digestive processes would be expected to destroy antigencity of food components, a variety of mechanisms have been proposed through which antigen could be absorbed to enter the circulation to initiate immunological mediated disease.

Chikitsa Siddhanta of Amavata-

According to the nature of disease, it is essential to work on such therapy which has *Ama* and *Vatahara* properties. Here we have tried to study the various aspects of the disease in the perspective of *Shamana* druga long with *Shodhana* therapy. The line of treatment described for the disease as- "*Langhanam Swedanam Tiktham*[4]……" can be summarized as to bring the *Agni* in normal state, to digest the *Ama* and to eliminate the vitiated *Vata* and *Ama*.

Discussion on probable mode of action of the trial drugs

Amavata is considered as *Sandhiaasrita Ama* and *Vata* as mentioned in *Ayurvedic* text. According to Chakradutta, the principal of *Amavata* treatment is *Langhanam* for *Amapachana, Dipanam* for *Agnivardhanam, Katu-Tikta Aahardravya* along with *Dipana – Pachana* drugs for *Vatadosha Shamana* and *Sodhana karma (Virechana*) for elimination of vitiated *Ama dosha*. Both drugs have *dipana, pachana,* and *virechana* properties as well as other properties to treat *Amavata.*

The probable mode of action of the drugs may be explained as follows:

- ***Ama visha Virechana Karma-***

  In *amavata, kapha sthanaashrita amavisha* which causes pain, stiffness and swelling, is excreted form the body through the *rechana* property of drugs. Both the drugs have *rechaka* property due to its "*prabhava*". In *Mritasanjivan rasa*, *jaypal* is acting as *tivra- rechaka* which eliminates the *amavisha* from the body and in *Shunthyadi kwatha*, the *Gokshura* is having the *Mutra rechaka* property which act as *sothahar* and *shoolaprashman.*

- ***Action by Rasa -***

  Both the drugs have *madhura* and *katu rasa* which belongs to *saumya varga. Madhura rasa* acts on *vata* by their *guru guna* and *katu rasa* acts on *kapha* to eliminate it from the body.

  - ***By Madhura rasa (Jala + Prithivi)***

    Both the drugs cause *vatashamaka* effect due to *guru guna* of *madhura rasa*. *Madhura rasa* increases *ojas* (immunity) of the body. This *ojas* protects the body from foreign bodies like *dushivisha* and internal poison like *annavisha*.

  - **By *Tikta Rasa* (*Vayu + Akasha*)**

    By *Tikta rasa,* both drugs removes *Khavaigunya, Sroto-shodhana*. It also causes *Agnidipan, Marg-vivrinoti, Sleshmanam shamyati* due to which *jatharagni* becomes normal in function, digest the *aam* and *shaman* of the *kapha* takes place. Due to *marg vivrinoti*, the *annavisha* which is accumulated in *sandhi sthana*, removes from the body and provide relief to the patients.

- ***Action by Guna-***

  Ruksha and *Tikshna guna* are prominently found in *Mritasanjivan rasa* and *snigdha guna* in *Shunthyadi kwath*.

  Ruksha guna – (Vayu, Agni)(Prithvi)

  The *Ruksha guna* is *param kaphaharam* and *drava shoshak* and *mala shoshak*.

  Tikshna guna- (Agni)

  It work as a *shodhan* in the body. It also removes *annavisha* and *kapha* from the body, acts as *vatanuloman* and *malapravartaka.*

- ***Action by Veerya***

  The *Mritasanjivan rasa* drug has *ushna veerya(agni)* and by this it causes *vatakaph shaman, virechna* and *vilayana.T*he *Shunthyadi kwath* has both *ushna* and *sheet veerya* which are antagonist to each other so it works either by *vipaka* or *prabhava.*

- ***Action by Vipaka***

  The dominant *vipaka* of *Mritasanjivan rasa* is *katu vipaka* which acts as *kaphahara* i.e. it causes *Sothahara, Shoolprashmana* and *Vedana sthapan.*The *Shunthyadi kwath* has *madhura vipaka* by which it works to eliminate the *mala* and *mutra* and reduces the pain and swelling.

- ***Doshaghnata –***

  The *Mritasanjivan rasa* is *tridoshaghna* and *Shunthyadi kwath* is also *tridosh-shamak.*

- **Karma –**

1. Both the drugs have *Deepan , Pachan, Anuloman, Agnivardhan, Sothahara, Vedna sthapan, Vatashamak, Vatakaphahara, and Shoolprashmana.*
2. According to pharmacological activity– both the drugs have analgesic, anti-microbial and anti inflammatory property.
3. *Mritasanjivan rasa* has various chemicals like crotonolic acid which removes the *kapha* and *aam* from the body.
4. *Shunthyadi kwath* has gingerol, Diosgenin and spirosterol like chemicals which works as analgesic, antipyretics, diuretics and anti inflammatory.
5. *Shunthyadi kwath* has many acids, lipid and alkaloids which improve the activity of joints and muscle and also works as anti-oxidants.

Conclusions-

In the present research work on the basis of facts, observations and results of drugs and clinical studies, the following can be concluded:-

- It can be concluded that hypo-functioning of *Agni* which termed as *Mandagni* is mainly responsible for the formation of *Ama* which is chief pathogenic factor of the disease.
- In this study it was found that symptomatology of *Amavata* very closely resembles with the disease Rheumatoid Arthritis in modern medicine.
- From this study, it is concluded that non awareness about healthy diet, lifestyles and improperly eating plays a major role in causation of disease. Hence, we can say that code and conduct of healthy eating must be followed to achieve early and better results of the disease.
- *Amavata* is the disease having *Vata* and *Kapha* predominance. But, in fact it is *Tridoshaja* with origin from both

Pakvashaya and *Amashaya*.

- ***Mritasanjivan Rasa*** (Group A)- has provided good relief in most of the cardinal features and Hb% & ESR (P<0.05) of the disease at significant level. Also better relief was observed in Pain in joint, Stiffness of joint, Swelling of joint, *Angamarda, Aruchi, Alasya, Gaurava, Jwara, Apaka Bahumutrata*
- ***Sunthyadi Kwath*** (Group B) - has provided better relief in most of the cardinal features and ESR of the disease at highly significant level (P<0.001). Also better relief was observed in Pain in joint, Stiffness and Swelling of joint, *Angamardsa, Aruchi, Trishna ,Alasya, Gaurava, Jwara, Apaka ,Bahumutrata.*
- ***Mritasanjivan Rasa*** **and** ***Sunthyadi Kwath*** (Group C) - has provided best relief in most of the cardinal features and ESR of the disease at highly significant level (P<0.001). Also better relief was observed in Pain in joint, Stiffness and Swelling of joint, *Angamardsa, Aruchi, Trishna ,Alasya, Gaurava, Jwara, Apaka ,Bahumutrata.*
- **On comparing the effect of three therapies it can be concluded that Group C (*Mritasanjivan Rasa* and *Sunthyadi Kwath*) provided better relief than Group B (*Sunthyadi Kwath*) and Group A (*Mritasanjivan Rasa)* in most of the sign and symptom of the disease at significant level. It also considerably prevents the relapse.**

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