

## AN OBSERVATIONAL STUDY ON AETIO-PATHOGENESIS OF RHEUMATOID ARTHRITIS – AN AYURVEDIC PERSPECTIVE

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### ABSTRACT

Rheumatoid arthritis is a systemic chronic inflammatory disease that affects principally the joints. In modern medicine Rheumatoid arthritis is considered to be disease of unknown aetiology. However, various theories have been put forward from time to time suspecting it to be aetiology of Rheumatoid arthritis like autoimmunity, infection, nutritional, metabolic, etc. The study was an observational study. Here 40 cases of Rheumatoid arthritis were selected and subjected to detailed clinical examination to assess the etiological factors and symptomatology based on the questionnaire prepared as per the plan of the study. Maximum data recorded in this study resemble with the available modern descriptions. The Clinical features observed in Rheumatoid Arthritis like pain, swelling, stiffness, fever, tiredness, general debility etc were almost identical to that of *Vatarakta* and *Amavata* features. Different parameters seen in the cases were compared to the etiological factors of Rheumatoid Arthritis according to Ayurveda and allied sciences. As per the study it can be concluded that in modern parlance the causative factors and features of *Vatarakta* and *Amavata* almost resemblance with that of Rheumatoid Arthritis.

**Keywords:** Rheumatoid arthritis, *Amavata*, *Vatarakta*

### INTRODUCTION

*Ayurveda* is recognized worldwide as a system of medicine that provides physical, mental and social health. This traditional Indian system of medicine has a unique position in the field of medical care, as it provides satisfactory answers to almost all human health problems. According to Ayurveda, body is the product of food i.e. it is the outcome of nutrition.

The very same factors, which are in the state of their wholesome combinations, are responsible for the creation of living being. On the other hand in the state of their unwholesome combination are responsible for the various diseases<sup>(1)</sup>. Majority of the endogenous diseases actually begin with the formation of *ama* (free radicals), which has tremendous capac-

ity to vitiate the *doshas* (bodily humours), thus disturbing the homeostasis (*dhatu-samyā*). Deranged *agni* (digestive fire), causing impaired digestion and metabolism, leads to availability of incompletely processed food components and metabolites in the system. These substances which bear a threat to the health of a person are designated as *ama*.

The theory of free radicals which has been proven in recent years considers these free radicals (unstable reactive radicals) as the main cause of many diseases and degenerative changes produced in the human body. These free radicals may damage any cellular content and also destroy the genetic machinery of the cell. They produce destruction of the cellular membrane which results in loss in the organization of cellular enzymes, a disturbance in the distribution of nutrients and dysfunction of cellular metabolism. The sequence of events eventually leads to various disease processes<sup>(2)</sup>. The prevalence of Rheumatoid arthritis is approximately 0.8% of the population (range 0.3 – 2.1%); women are affected approximately three times more often than men. The prevalence increases with age and sex difference diminish in the older age group. The onset is most frequent during the 4<sup>th</sup> and 5<sup>th</sup> decades of life, with 88% of all patients developing the disease between the age of 35 and 50 yrs. The incidence of RA is more than six times as great in 60 to 64 year old women compared to 18 to 29 year old women<sup>(3)</sup>. Among various disorders affecting the joints, RA occurs in all socio economic status. Commonly manifestation of RA occurs in individuals of high socioeconomic status who lead a sedentary life style as well as in low socioeconomic status with shows increased workload. RA appears to be a frequent ailment now a day which shows increased incidence in children and young adults. The incidence of RA is in the region of 3 cases per 10,000 populations per annum. Onset is uncommon under the age of 15 and from then on the incidence rises with age until the age of 80. About 1% of the world's population is affected with RA women three times more often than men<sup>(4)</sup>. This disease is commonly affected in all the ages, the children, the middle aged and aged people. It is

affected primarily to connective tissue. Although lesions may be wide spread, joint inflammation is the dominant clinical manifestation.

Rheumatoid arthritis (RA) which has close resemblance to *Amavata* or *Vatashonita* is a worldwide problem for the medical field. It is characterized by painful swelling of joints, restricted movements, fever, loss of appetite, deformities etc. Analgesics and NSAIDs are widely used to control the progress of the disease, but analgesia is not a complete treatment for RA, the modern armamentarium is still inadequate to treat Rheumatological disorders. To treat RA precise holistic *Naidanik* approach is necessary with knowledge of variety of *Hetu* (causative factors) and *Samprapti* (pathogenesis).

#### AIM AND OBJECTIVES:

- 1) To identify the etiological factors of Rheumatoid arthritis.
- 2) To formulate pathogenesis and diagnosis of Rheumatoid arthritis in Ayurvedic perspective.

#### METHODOLOGY:

A detailed questionnaire was prepared, which included all aspects of life style including food habits, exercise etc. The patients were subjected to detailed clinical examination to assess the etiological factors and symptomatology based on the questionnaire. The criteria for diagnosis are based upon clinical signs and symptoms and *ahara – vihara* of the patients. RA factor, ASO titre, serum uric acid level, ESR, Hb %, Urine deposits were also estimated in these patients.

#### Clinical survey:

1. The patients were subjected to detailed clinical examination to assess the etiological factors and symptomatology based on the questionnaire.
2. 40 subjects were selected for the study attending the OPD and IPD of Government Ayurveda College and Hospital, Kannur, Kerala

**Inclusion Criteria:**

1. Subjects fulfilling the diagnostic criteria of RA as per American Rheumatism Association 1988
2. Subjects of either sex irrespective of age, religion, etc

**Exclusion criteria:**

Rheumatoid arthritis patients with other major systemic disease and gross deformity were excluded.

**Criteria for Diagnosis of RA:**

The criteria was laid down by American Rheumatism Association 1988 <sup>(5)</sup> for the Diagnosis of the

disease was also followed for the confirmation of Rheumatoid arthritis.

**Research Design:**

The study is conducted as an observational study.

**OBSERVATIONS AND RESULTS:**

In the present study, 40 patients suffering from Rheumatoid arthritis fulfilling the inclusion criteria were studied. Critical explanation was written based on the finding.

**Table 1:** Age wise distribution

Age in years	Frequency	Percentage
21-40	12	30.0
41-60	22	55.0
61- 80	6	15.0
Total	40	100.0

In the present study it was observed that maximum number of patients (55%) were in the group of 41-60 years. Majority of the patients 45% developed the disease between the age group 31-45 yrs followed by 30% between 46-60 yrs, Further, maximum number

of patients (70%) recorded was females. On considering the nature of occupation of patients, it was found that maximum numbers of patients (60%) were housewives and 22.5% were manual labours.

**Table 2:** Distribution according to Aggravating Factors

Aggravating factors	Number of patients	Percentage
Exposure to cold	35	87.5
Exposure to heat	1	2.5
Travelling	28	70
Drugs	0	0
Emotional stress	16	40
Excessive unusual activity	21	52.5

As per the study it is very obvious that majority of the patients reporting exposure to cold, travelling

and excessive unusual activity as the main aggravating factors for their complaints.

**Table 3:** Distribution according to Relieving factors:

Relieving factors	No. of patients	Percentage
Exposure to cold	1	2.5
Exposure to heat	31	77.5
No relieving factors	8	20

In the present study it was observed that maximum numbers of patients (77.5%) were having Heat relieving factor.

**Table 4:** Distribution of 40 patients according to the Influences of psychological factors

Psychological factors	Frequency	Percentage
<i>Kama</i>	5	12.5
<i>Krodha</i>	23	57.5
<i>Lobha</i>	17	42.5
<i>Eershya</i>	2	5
<i>Chinta</i>	36	90
<i>Shoka</i>	12	30
<i>Dukkha</i>	32	80
<i>Udvega</i>	11	27.5
<i>Bhaya</i>	5	12.5

In the present study it was observed that 90% were having *Chinta*, 80% were having *Dukkha*, and

57.5% were having *krodha* as Psychological factors involved in the manifestation of the disease.

**Table 5:** Distribution of 40 patients according to the *Ahara* *nidana*:

Chief <i>Ahara</i> <i>Nidana</i>	No. of patients	Percentage
<i>Guru ahara</i>	35	87.5
<i>Sheeta ahara</i>	29	72.5
<i>Vishtambhi</i>	33	82.5
<i>Vidahi</i>	29	72.5
<i>Viruddha</i>	23	57.5
<i>Katu rasa sevana</i>	33	82.5
<i>Tikta rasa sevana</i>	36	90
<i>Akaala ahara</i>	29	72.5
<i>Masha</i>	39	97.5
<i>Nishpava</i>	38	95
Leafy vegetables	38	95
Curd	25	62.5
<i>Pindalu</i> and other root vegetables	34	85
Flesh of animals	38	95

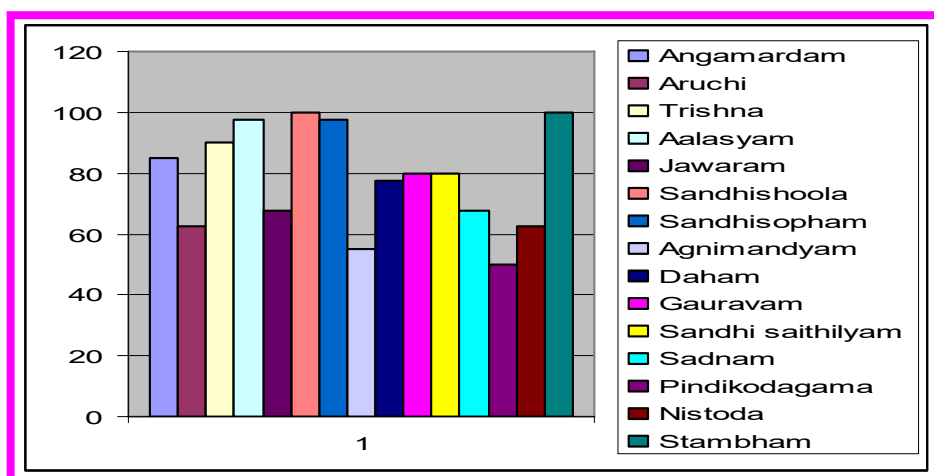
Among 40 patients maximum number of patients i.e. 97.5% were consuming *Masha sevana* followed by 95% were consuming *Nishpawa*, Leafy vegetables and flesh of animals.

#### Symptoms of Rheumatoid arthritis as per Ayurvedic perspective:

In the present study all the patients were thoroughly examined with the features of *Amavata* as well as *Vatarakta*. For understanding the disease RA in Ayurveda these symptoms were further classified as

chief complaints and associated complaints based on the presentation, frequency and the severity of the symptoms in the patients. Chief complaints were those symptoms which were seen in more than 50% of the cases and the symptoms which were seen in less than 50% of the cases were considered as associated complaints. Under the chief complaints those which are seen in all the patients are considered as Cardinal Symptoms. The following data describes the features of RA as per *Ayurveda*.

**Graph 1:** Chief complaints observed:



*Sandhi shoola* and *Sandhi Stambham* were observed in all the patients whereas, features like *angamarda*, *trishna*, *aalasyam*, *sandhi shopham*, *gauravam* and

*sandhi shaithilyam* were present in more than 80% of cases

**Table 6:** Distribution of 40 patients according to the presence of associated complaints

Associate complaints	No. of patients	Percent	Associate complaints	No. of patients	Percent
<i>Nidranasham</i>	19	47.5	<i>Anaham</i>	9	22.5
<i>Supti</i>	19	47.5	<i>Vibandham</i>	8	20
<i>Shrama</i>	18	45	<i>Sphuranam</i>	8	20
<i>Asyavairasyam</i>	17	42.5	<i>Kosthashoola</i>	8	20
<i>Bhramam</i>	15	37.5	<i>Kharasparsham</i>	6	15
<i>Kandu</i>	13	36	<i>Vaivarnyam</i>	6	15
<i>Bahumootrata</i>	12	30	<i>Romaharsham</i>	5	12.5
<i>Atisweda</i>	11	27.5	<i>Atislakshna</i>	4	10
<i>Karshnam</i>	11	27.5	<i>Chhardi</i>	4	10
<i>Antrakoojanam</i>	10	25	<i>Moorchha</i>	3	7.5
<i>Prasekam</i>	9	22.5	<i>Mandalotpatti</i>	2	5
<i>Kshatatiruk</i>	9	22.5	<i>Vranamadhikam shoolam</i>	2	5
<i>Asweda</i>	9	22.5	<i>Bhedam</i>	2	5

*Nidranasham* and *Supti* were observed 47.5 respectively, *Shrama* were observed 45% as associated complaints among 40 patients.

**Samprapti or Pathogenesis:-**

When we scrutinize our classics and the allied sciences the symptoms of Rheumatoid arthritis resemble with the symptoms of *Amavata* and *Vatarakta*. We can find the description of the *samprapti* of

*Amavata* as well as *Vatarakta* separately in our classical text books. Here is an attempt made to understand the *Samprapti* of Rheumatoid arthritis as per the Ayurvedic texts.

1. **Dosha:-**

All three *Doshas* are involved in the pathogenesis of Rheumatoid arthritis but it is the *Vata Dosha* which plays an important role. *Annavidaha* and *Agnimandya* is the result of vitiated *Samana Vayu*,

*Pachaka Pitta* and *Kledaka Kapha*. It is the *Vyana Vayu* which propels the *dosha* into body particularly *Shleshma Sthanas* producing symptoms like *Gatrabhata*, *Sandhiruja* and *Sandhi Shotha* etc. *Bhrama*, *Murchha*, *Praseka*, *Nidraviparyaya* indicates the involvement of vitiated *Prana Vayu*. Due to *Apana Vayu Dushti* symptoms like *Vid-Vibandhta*, *Kukshishoola*, *Kukshikathinya*, *Antrakunjana* etc. are produced. So far as the *Kapha Dosha* is concerned *Kledaka*, *Bodhaka* and *Sleshamaka Kapha* are involved. *Kledaka Kapha*, causes *Agnimandya*. Due to *Bodhaka Kaphadushti* symptoms like *Asyavairasya*, *Aruchi Praseka* etc. are produced. Involvement of joints indicates vitiation of *Sleshamaka Kapha*. *Sandhidaha*, *Sandhiraga* are the symptoms produced due to Vitiation of *Pitta*.

#### 2. **Dushya:-**

Mainly vitiated *Dhatus* in case of Rheumatoid arthritis are *Rasa*, *Rakta Mamsa*, *Majja* and *Asthi*. Due to *Rasa Dhatu Dushti* symptoms produced in the body are *Agnimandya Alasya*, *Angamarda* etc. Due to *Rakta Dhatu Dushti* symptoms produced in the body *Bhrisha ruk*, *Daham*, Excessive *ushna* etc. *Mamskshaya* is the indicative of *Mamsa Dhatu Dushti*. *Parva sandhi shoola* and swelling in the joints indicate the affliction of *Asthi* and *Majja Dhatu*. As far as *Upadhatus* are concerned *Snayu* and *Kandra* are affected. Among the *Malas*, *Purisha* and *Mutra* are involved.

#### 3. **Srotas:-**

The disease takes its root in the *Annavaha Srotasa*, *Rasavaha Srotasa*, and *Raktavaha* which is chiefly affected in production of Rheumatoid arthritis. *Sandhis*, which are the main sites affliction indicates the involvement of *Asthi* and *Majjavaha Srotasa*. *Trishna* is the indicative of *Udakavaha Srotasa's* involvement. *Vibandha* and *Bahumutrata* are the symptoms produced due to affliction of *Purishavaha* and *Mutravaha Srotasa* respectively.

#### 4. **Agni & Ama:-**

All types of *Agnis* become sluggish in this disease. First of all *Jatharagni Mandya* leads to improper digestion resulting in formation of *Ama*. Other types of *Agni* i.e., *Dhatvagni* and *Bhutagni* are depend on

*Jatharagni* for their Augmentation, so their strength also comes down. Due to the poor strength of *Dhatvagni*, proper nourishment to the *Dhatus* does not take place. Only the production of *Amarupa Dhatu* and *Kapha* occurs. *Ama* produced in consequence of *Agnimandya* results in *Srotorodha* and gets settled in *Sleshamasthana*.

#### 5. **Sancharasthana:-**

Whole body can be considered as the *Sancharasthana* of the disease Rheumatoid arthritis because vitiated *doshas* circulate in the whole body through *Rasa* and *Rakta*.

#### 6. **Adhishthana:-**

After *Sanchaya* and *Prakopa*, the *dosha* circulates (*Prasaravastha*) in the body and finally where they get *Kha-vaigunya*, get settled (*Sthansan-sharayavastha*) there and produce either local symptoms or constitutional symptoms. These particular sites are called *Adhishthana* of the disease. In case of Rheumatoid arthritis the vitiated *Doshas* get lodged at *Shleshama Sthana* in general and *Sandhi* in particular producing symptoms like *Sandhishoola*, *Sandhishotha Sandhigraha* etc.

#### 7. **Vyakti - sthana:-**

*Sandhishoola*, *Sandhishotha*, *Sandhistabdhata* are the main symptoms of the Rheumatoid arthritis develop only at *Sandhis*. According to these *Sandhis* are the *Vyaktisthana* of Rheumatoid arthritis.

#### 8. **Rogamarga:-**

The chief sites of affliction in the Rheumatoid arthritis are the *Sandhis* along with *Asthi Dhatu*. Therefore Rheumatoid arthritis is a disease of *Madhayama rogamarga* as *Marma*, *Asthi*, *Sandhi* have been included in *Madhayama Rogamarga*. However, physical symptoms pertaining to the body are also seen in the conditions of Rheumatoid arthritis which shows the involvement of the other two *Rogamarga* i.e. *Shakha (Bahya Rogamarga)* and *Koshtha (Abhyantara Rogamarga)* and hence these should also be considered as secondary *rogamargas* involved in RA.

**9. Vyadhi Svabhava:-**

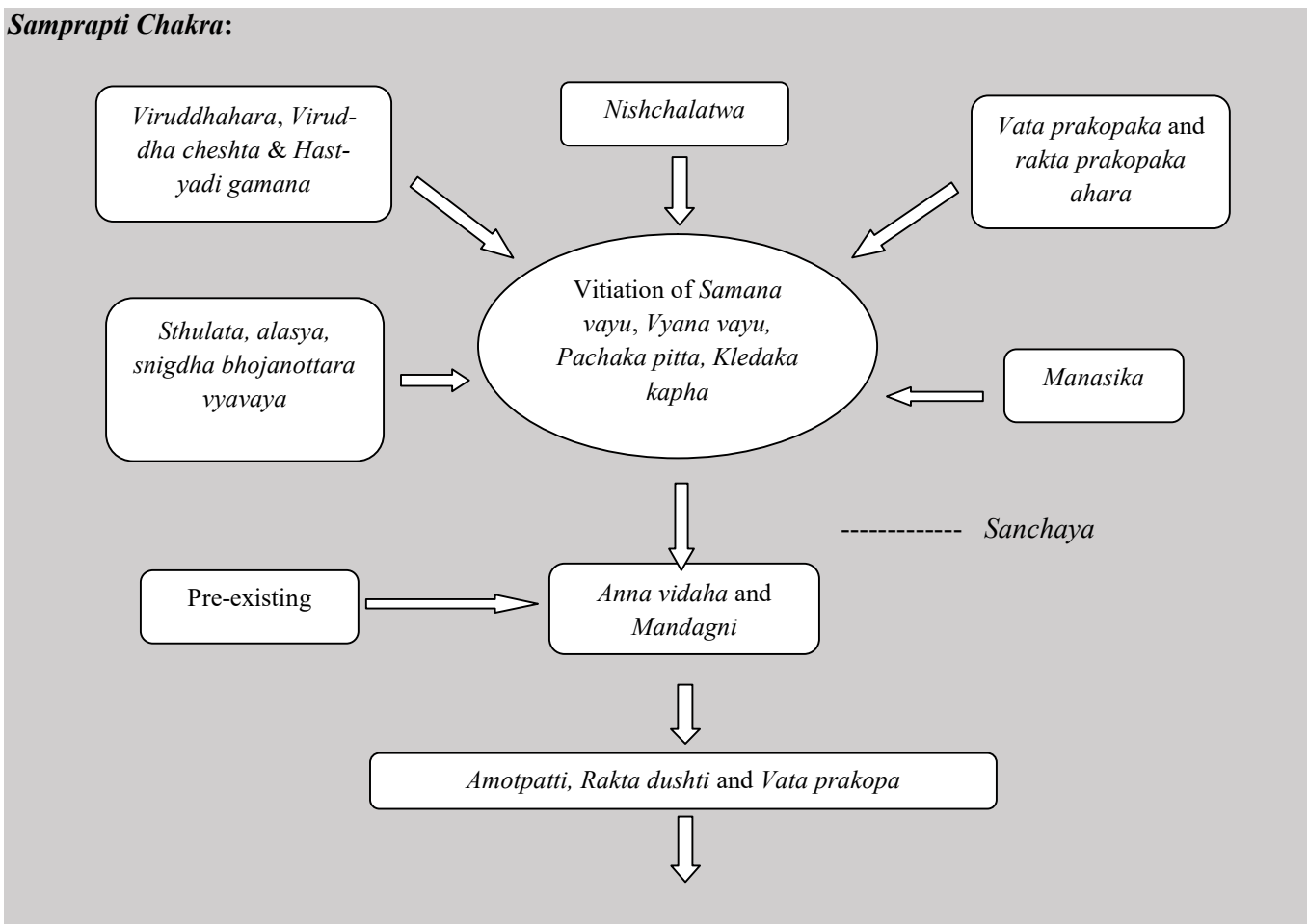
Ashukari (Acuteness), Chirakari (Chronicity) and Punah-Punah Akramanashilata (Recurrence) are the nature of the disease.

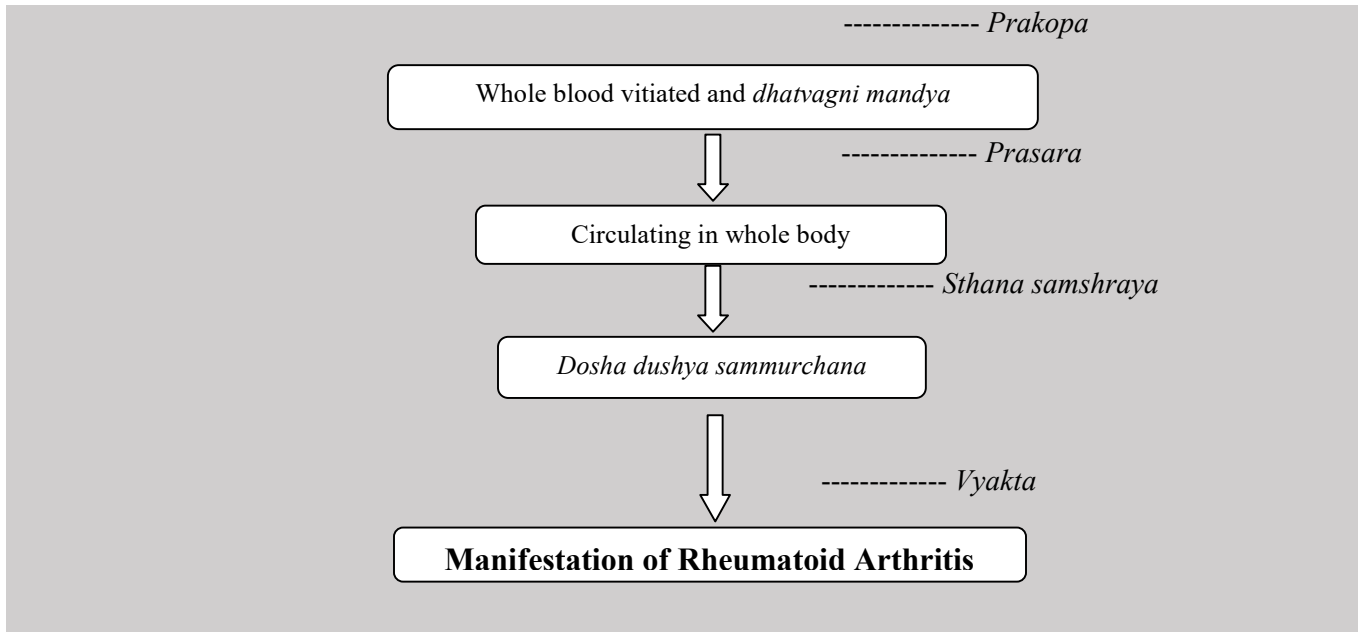
To summarize the above description we can tabulate the *samprapti ghatakas* as shown in the table no.7.

**Table 7: Samprapti ghataka of Rheumatoid arthritis**

1.	<i>Dosha</i>	<i>Tridosha</i> with predominance of <i>Vata</i>
2.	<i>Dushya dhatu</i>	<i>Dhatu – Rasa, Rakta, Mamsa, Asthi, Majja</i> <i>Upadhatu – Snayu and Kandara</i>
3.	<i>Srotas</i>	<i>Majjavaha, Rasavaha, Udakavaha, Annavaha, Asthivaha, Raktavaha, Mootravaha, Swedavaha and Pureeshvaha.</i>
4.	<i>Adhithana</i>	Mainly <i>Sandhi</i>
5.	<i>Srotodusti lakshna</i>	<i>Sanga, Vimarga gamana</i>
6.	<i>Sanchara sthana</i>	Whole body
7.	<i>Rogamarga</i>	<i>Rasadushti - Bahya roga marga</i> <i>Rakta dushti - Bahya roga marga</i> <i>Asthi, sandhi - Madhyama roga marga.</i>
8.	<i>Vyadhi swabhava</i>	<i>Chirakari</i>
9.	<i>Vyakta sthana</i>	<i>Sandhis</i>

**Samprapti Chakra:**





## DISCUSSION

The current study was an observational study with the objective to identify the etiological factors of RA in the vicinity and to formulate the pathogenesis of RA from Ayurvedic perspective. The total number of patients studied was 40. In the current study, maximum patients (55%) were between the ages of 41 – 60 years and the age of onset of the disease in them is in between 31 – 45 yrs group. This suggests the disease RA is a disorder of middle age group and females were predominantly seen to be afflicted with RA. All these data are exactly similar to the description of RA as explained in the allied sciences. Exposure to cold and travelling were the major aggravating factors and exposure to heat was the major relieving factor seen in the patients of RA which resemble with the description of *amavata*. The involvement of psychological factors in the disease suggests the psychosomatic nature of the illness. All these psychological factors create stress in the body which in turn exacerbates the condition of the illness. Other major causative factors observed in the study related to food were the consumption of flesh of animals, consuming more *masha*, *nishpava* and leafy vegetables, *viruddhahara* etc which are responsible for *agnimandya* and generates *ama* in the body. The symptoms of both *Amavata* and *Vatarakta*

were observed in the cases suffering from RA. These symptoms were classified as cardinal, chief and associated symptoms based on the presentation, severity and frequency of the illness. The cardinal symptoms included features like *Sandhi shoola*, *sandhi stambha* and *sandhi shopha* as these features were seen in all the patients of RA. Major symptoms (<100% and >50%) included features like *Alasyam*, *Trishna*, *Angamardam*, *Gauravam*, *Sandhi shaithilyam*, *Daham*, *Jwaram*, *Sadanam*, *Aruchi*, *Nistoda*, *Agnimandya* and *Pindikodagama* were observed. Associated symptoms (<50%) included the features like *Nidranasam*, *Supti*, *Shrama*, *Asyavairasyam*, *Bhramam*, *Kandu*, *Bahumootrata*, *Atisweda*, *Karshnyam*, *Antrakoojanam*, *Prasekam*, *Kshataturuk*, *Asweda*, *Anaham*, *Vibandham*, *Sphuranam*, *Koshthashoola*, *Kharasparsham*, *Vaivarnyam*, *Romaharsham*, *Atishlakshna*, *Chhardi*, *Moorchha*, *Mandalotpatti*, *Vrananamadhikam shoolam* and *Bhedam*. In the current study it is observed that almost all the features of *Amavata* as well as *Vatarakta* were seen in the patients of RA in the form of either cardinal symptoms or major or associated complaints. In other words to say, the disease Rheumatoid arthritis has the resemblance with the features of *Amavata* and *Vatarakta*.



## CONCLUSIONS

It may be concluded from the study that maximum number of patients belonged to the age group (41-60) and age of onset between the age group 31-45 yrs, female populations were predominantly affected. Maximum number of patients having aggravating factor was exposure to cold and exposure to heat was relieving factor. Excessive indulgence in *masha*, *nishpawa*, leafy vegetable, flesh of *anupa mamsa*, *tiktarasa sevana*, *katurasa sevana*, *virudhaahara*, *guru ahara*, etc faulty dietary habits has been observed as *aharatamaka nidanas* of RA. Changing life style like sedentary life style or increased work load and *Manasika* (psychological) factors like – *Chinta*, *krodha* etc, along with genetic predisposition play a major role in aetiopathogenesis of Rheumatoid arthritis. During clinical study, the clinical features observed in RA like pain, swelling, stiffness, fever, tiredness, general debility are almost identical to that of *Vatarakta* and *Amavata*. On the basis of clinical study it can be concluded that symptomatology of Rheumatoid arthritis is very closely resembles with both the diseases i.e *Vatarakta* and *Amavata* and both the diseases come under the heading of Rheumatoid arthritis.

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