Published online in http://ijam.co.in ISSN No: 0976-5921

International Journal of Ayurvedic Medicine, Vol 12 (4), 954-960

A comparative clinical study of *Khanda Shunthi* and *Prasarni Avaleha* in the Management of *Ama Vata* w.s.r. to Rheumatoid Arthritis

Research Article

Anu Gupta[1], Chinky Goyal[2*], Amitabh Singh[3]

1. Assistant Professor, 3. Professor and HOD, Department of Kayachikitsa, Desh Bhagat Ayurvedic College & Hospital, Mandi Gobindgarh. India.
2. Associate Professor and HOD, Department of Rasa Shastra & Bhaishajya Kalpana, Shri Dhanwantry Ayurvedic College and Hospital, Chandigarh.

Abstract

Rheumatoid Arthritis is a chronic inflammatory joint disease characterized by swollen, painful and stiff joints. *Amavata* is a disease of *Madhyama Roga Marga* as it affects *Sandhis* and *Haridaya Marma.* Though *Ama* and *Vata* are the predominant pathogenic factors but the disease represents *Tridoshic* vitiation. The affliction of *Sandhis* by *Vata dosha* in association with *Ama* reflects the equal role of both *Dosha* and *Dushya* in the causation of disease. Moreover, the chief pathogenic factors, being contradictory in nature possess difficulty in planning the line of treatment. The objectives of this randomized parallel group comparative study were to evaluate the effect of *Khanda Shunthi* and *Prasarni Avaleha* in the management of *Amavata.* This Study was conducted on 40 patients selected randomly from OPD and IPD of Desh Bhagat Ayurvedic Hospital and divided into 2 trial groups A and B having 20 patients in each group. Group A received *Khanda Shunthi* 10 gms BD and Group B received *Prasarni Avaleha* 10 gms BD with lukewarm water for 60 days. Results showed statistically significant difference in effect of Group A and Group B on, Pain, Swelling, Stiffness, ESR, Walking time and Grip Strength except on Fever and HB. Percent wise *Khanda Shunthi* is found to be more effective than *Prasarni Avaleha* for all assessment criteria in the management of *Amavata*.

Key Words: *Khanda Shunthi, Prasarni Avaleha*, *Amavata*, Rheumatoid Arthritis.

Introduction

With the march of time, most of the dietary habits, social structure, life style, and environment have been changing. Occurrence of *Amavata* on large scale is one of the outcomes of this modification. It is commonest among chronic inflammatory joint diseases characterized by swollen, painful, and stiff joints. It is a debilitating disease in view of its chronicity and complications. Among adult population below the age of 50 years this is the most common form of arthritis. There are several reports on the frequency of Rheumatoid arthritis (RA) in different populations group. A study from West Bengal (1997) gave the prevalence rate as 4.48 to 4.63 per 1000 populations. Seropositive disease occurred in two-third among them. Country wide general prevalence of RA is 0.5 % of the population. In the rural part it is 0.7%. Among the connective tissue disease, RA is by far the commonest. (1) It continues to pose challenge to physician due to severe morbidity and crippling nature and claiming the maximum loss of human power making it a biggest world wise burning problem irrespective of races. It is equated with Rheumatoid Arthritis, anti-inflammatory auto immune disorder.

The lives of more than one million people are physically impaired due to Rheumatic disorders and one fifth of these are severely disabled. The onset is more frequent during 4th and 5th decade of life with 80% of patients developing the disease between the ages of 35 to 50 years. Women are affected approximately 3 times more often than men. Pregnancy is often associated with remission of the disease in the last trimester with subsequent relapses after delivery. About 10% of the patient will have an affected first degree relative. A genetic susceptibility to altered immune responses probably is important in R.A.

Amavata was first described as an independent disease in *Madhava Nidana.* It is a disease of *Madhyama Roga Marga* as it affects *Sandhis* and *Haridaya Marma.* Though *Ama* and *Vata* are the predominant pathogenic factors but the disease represents *Tridoshic* vitiation. The affliction of *Sandhis* by *Vata dosha* in association with *Ama* reflects the equal role of both *Dosha* and *Dushya* in the causation of disease. Moreover, the chief pathogenic factors, being contradictory in nature possess difficulty in planning the line of treatment. No doubt allopathic system of medicine has got an important role to play in

*** Corresponding Author:**
Chinky Goyal
Associate Professor and HOD,
Department of Rasa Shastra & Bhaishajya Kalpana,
Shri Dhanwantry Ayurvedic College and Hospital,
Chandigarh. India.
Email Id: chinkygoyal52@gmail.com

overcoming agony of pain, restricted movement and disability caused by the articular diseases. Simultaneously prolonged use of allopathic medicines are not giving rise to many side effects, toxic symptoms and adverse reactions but also more serious complications like organic lesions etc. are caused by them. Presently, the non-steroidal anti-inflammatory drugs (NSAIDs) are the main stay in this condition; however, they have serious adverse effects and have limitations for long-term therapy. (2-3) The immune suppressive drugs are reserved for selected cases, while the disease- modifying drugs like gold salts are costly and have a low benefit–risk ratio.(4) Hence the management of this disease is merely insufficient, in other systems of medicine and patients are continuously looking with a hope towards *Ayurveda* to overcome this challenge.

Aims and Objectives

- To evaluate the effect of *Shamana therapy* taking *"Khanda Shunthi"* and *"Prasarni Avaleha" Ushna Veerya Dravya* medicaments on the *Amavata*.
- To compare the result of both the groups.

Ethical Clearance

As this was a clinical study; Institutional Ethics Committee approval was taken prior to initiation of research wide letter no.-DBU/PGSAR/102 dated 15/05/2015.

Material and methods

Both the trial drugs were prepared in Pharmacy of Desh Bhagat Ayurvedic College and Hospital, Mandi Gobindgarh. *Khanda Sunthi and Prasarni avleha* has been mentioned in *Bhava Prakash (Madhyam Khanda)* under *Amavata rogadhikara* containing following ingredients: Details of Trial drugs are given below

A.Khanda Shunthi- Ingredients of *Khand Shunthi* are given in table no. 1 and 2.

Table no 1- Main drugs of *Khanda Shunthi*

Sr. No	Sanskrit Name	Botanical Name	Proportion
1	*Shunthi*	*Zingiber officinale Roscoe*	32 parts
2	*Ghrita*	Cow's Ghee	80 parts
3	*Go Dugdha*	Cow's milk	128 parts
4	*Khanda Sharkara*	Sugar candy	200. parts

Table-2 Prakshep dravya of *Khanda Shunthi*

Sr. No	Sanskrit Name	Botanical Name	Proportion
1	*Shunthi*	*Zingiber officinale Roscoe*	1 Part
2	*Maricha*	*Piper nigrum L.*	1 Part
3	*Pippali*	*Piper longum L.*	1 Part
4	*Twak*	*Cinnamomum zeylanicum Blume*	1 Part
5	*Tejapatra*	*Cinnamomum tamala (Buch.-Ham) T. Nees & Eberm.*	1 Part
6	*Ela*	*Elettaria cardamomum (L.) Maton*	1 Part

A.Prasarni Avaleha- Ingredients of *Prasarni Avaleha* are given in Table no 3 and 4.

Table-3 Main dravya of *Prasarni Avleha:*

Sr. No	Sanskrit Name	Botanical Name	Proportion
1	*Prasarni kwatha*	*Paederia foetida*	2.5 kg
2	*Guda rasa*	Jaggery	640 gm

Table-4 Prakshep dravya of *Prasarni Avleha:*

SL.No	Sanskrit Name	Botanical Name	Proportion
1	*Pippali*	*Piper longum L.*	1 Part
2	*Pippali moola*	*Piper longum L.*	1 Part
3	*Chavya*	*Piper chaba Hunter*	1 Part
4	*Chitraka*	*Plumbago zeylenica L.*	1 Part
5	*Shunthi*	*Zingiber officinale Roscoe*	1 Part

Selection of Patients

Total 40 Patients suffering from *Amavata* fulfilling both inclusion and exclusion criteria from OPD and IPD of Desh Bhagat Hospital, Mandi Gobindgarh, Punjab, were selected randomly with coin toss method and divided into following two groups-

- **Group A: -** 20 patients were selected for the trial. *Khanda Shunthi* was given to patients of this group in the dose of 10 gms twice a day with lukewarm water for 60 days.
- **Group B: -** 20 patients were selected for the trial. *Prasarni Avaleha* was given to patients of this group in the dose of 10 gms twice a day with lukewarm water for 60 days.

Study Design

Randomized, Parallel group, comparative trial

Inclusion criteria

- Patients of *Amavata* with the history less than 5 years
- Both male female patients age between 15 to 65 years
- Patients having signs & symptoms of *Amavata* of any *Dosha Anubandha* mentioned in *Ayurvedic* text and modern text.

Exclusion criteria

- A patient of *Amavata* having history of more than 5 years.
- Patient below 15 and above 65 years of the age
- Patients with complications like deformity, loss of functions and *Granthi*
- Pregnant women and lactating mother
- Patients with Rheumatic fever and RA of Spine
- Patients of *Amavata* having the systemic diseases like Diabetes Mellitus, Asthma, HTN, Rheumatic Heart diseases and heart diseases etc.

Laboratory Investigations

Hb gm%, ESR, X-ray of joints.

Follow-up

For the proper assessment of the clinical trial. All patients are influenced to come for the follow up study after every 15 days i.e. 15th, 30th, 45th & 60th days. During every visit proper assessment on the basis of sign and symptoms and laboratory Investigations are made.

Assesment Criteria

The improvement was assessed on the basis of relief found in the cardinal features of the disease. To assess the effect of therapy all the sign and symptoms were assigned score depending upon their severity as elaborated below:

A.Subjective parameters

Table-5 Subjective Parameters for Amavata

1	Pain Index	*Shoola*
2	Swelling Index	*Shotha*
3	Stiffness Index	*Jadya*
4	Fever Index	*Vaivarnyata*

Following objective scale with numerical values was used to assess the severity of above-mentioned subjective criteria

Table-6 Showing Joint Pain and Swelling grading

Score	Joint Pain Index	Swelling Index
0	No Pain	No Swelling
1	Mild Pain	Mild Swelling
2	Pain on movement & relieved on rest	Moderate Swelling
3	Constant Pain	Severe Swelling without loss of movement
4	Severe Pain disturbing sleep	Severe Swelling with loss of movement

Table 7: Showing Stiffness and Fever grading

Score	Stiffness Index	Fever Index
0	No stiffness	No Fever
1	Stiffness lasting for few minutes to1 hour	Mild fever
2	Stiffness lasting for 1to 8 hours	Moderate fever
3	Stiffness lasting for more than 8 hours but not throughout the day	High fever
4	Throughout the day	

B. Objective parameters

1.Hb%,
2.ESR,
3.Walking time
4.Grip strength- Patient's grip strength is assessed before and after treatment according to the readings in the grip strength meter in terms of pound**.**

Table 8: Showing haemoglobin and ESR Grading

Grade	Haemoglobin gm%	ESR Lab Value(mm/h)
0	12.5 or more	Upto 7
1	12.4 to 11 gm% mm of Hg	7-10
2	10.9 to 9.5 gm % mm of Hg	10-15
3	Less than 9.5 9.4 gm% mm of Hg	Above 15

Table 9: Showing walk time and Grip Strength

Grade	Walk time (for 25 feet)	Grip strength
0	>40 second more or more	≥85 pounds or more
1	31-40 second gm% mm of Hg	84-60 pounds mm of Hg
2	21-30 second gm% mm of Hg	59-40pounds mm of Hg
3	15-20 second 9.4 gm% mm of Hg	≤40 pounds mm of Hg

Statistical analysis

Study statistically analyzed with Wilcoxon Signed Rank test.

- Highly significant - $p<0.001$
- Significant - $p<0.01$
- Insignificant - $p>0.05$

Results

The effect of trial drug in 40 patients for duration of 60 days, various assessment criteria were obtained after statistical analysis of the data and is presented in tabular form as below

Table-10 Effect of Therapies on *Shula*

Pain	Median		Wilcoxon Signed Rank W	P-Value	% Effect	Result
	BT	AT				
Group A	3	0.5	-4.028	0.001	82.8	Significant
Group B	3	1	-3.992	0.001	66.7	Significant

Table-11 Effect of Therapies on *Shotha* (Swelling)

Swelling	Median		Wilcoxon Signed Rank W	P-Value	% Effect	Result
	BT	AT				
Group A	3.5	1	-3.992	0.001	75.4	Significant
Group B	3	1	-4.088	0.001	67.8	Significant

Table-12 Effect of Therapies on *Stabdhta* (Stiffness)

Stiffness	Median		Wilcoxon Signed Rank W	P-Value	% Effect	Result
	BT	AT				
Group A	3	0.5	-3.998	0.001	82.8	Significant
Group B	3	1	-4.008	0.001	63.9	Significant

Table-13 Effect of Therapies on *Jwara* (Fever)

Fever	Median		Wilcoxon Signed Rank W	P-Value	% Effect	Result
	BT	AT				
Group A	3	0	-4.042	0.001	86.8	Significant
Group B	3	1	-4.056	0.001	75.9	Significant

Table-14 Effect of Therapies on Haemoglobin

HB	Median		Wilcoxon Signed Rank W	P-Value	% Effect	Result
	BT	AT				
Group A	3	0.5	-4.058	0.001	81.1	Significant
Group B	3	1	-4.089	0.001	71.7	Significant

Table-15 Effect of Therapies on ESR

ESR	Median		Wilcoxon Signed Rank W	P-Value	% Effect	Result
	BT	AT				
Group A	3	0.5	-4.035	0.001	81.5	Significant
Group B	3	1	-4.072	0.001	64.7	Significant

Table-16 Effect of Therapies on walking time

Walking time	Median		Wilcoxon Signed Rank W	P-Value	% Effect	Result
	BT	AT				
Group A	3	0	-4.064	0.001	83.3	Significant
Group B	3	1	-4.134	0.001	68.6	Significant

Table-17 Effect of Therapies on Grip strength

Grip strength	Median		Wilcoxon Signed Rank W	P-Value	% Effect	Result
	BT	AT				
Group A	3	0	-4.053	0.001	87.3	Significant
Group B	3	1	-4.064	0.001	70.0	Significant

Table-18 Intergroup Comparison

Parameter	**Group**	**N**	**Mean Rank**	**Sum of Ranks**	**Mann-Whitney U**	**P-Value**
Pain	Group A	20	25.13	502.50	107.500	0.006
	Group B	20	15.88	317.50		
	Total	40				
Swelling	Group A	20	24.90	498.00	112.000	0.008
	Group B	20	16.10	322.00		
	Total	40				
Stiffness	Group A	20	25.30	506.00	104.000	0.005
	Group B	20	15.70	314.00		
	Total	40				
Fever	Group A	20	22.58	451.50	158.500	0.190
	Group B	20	18.43	368.50		
	Total	40				
HB	Group A	20	22.60	452.00	158.000	0.170
	Group B	20	18.40	368.00		
	Total	40				
ESR	Group A	20	24.95	499.00	111.000	0.005
	Group B	20	16.05	321.00		
	Total	40				
Walking Time	Group A	20	24.75	495.00	115.000	0.004
	Group B	20	16.25	325.00		
	Total	40				
Grip Strength	Group A	20	25.80	516.00	94.000	0.001
	Group B	20	15.20	304.00		
	Total	40				

Discussion

Discussion on Demographic Data

Age- In present clinical study, the patients ranging from 16-70 yrs. of age were included. Maximum 21 patients of *Amavata* (52.5%) were found in age 31 -50 yrs. followed by 47.5% (19) cases in 51-70 yrs. No patient was found in age between 16-30 yrs. As per texts, prevalence is maximum in the fourth and fifth decade of life. The epidemiological studies also state that involvement of persons in the middle age is high. Among adult population the disease is commonly found in age below 50years. (1)

Sex- In present trial, maximum 21 patients (52.5%) registered were females and rest 19 patients (47.5%) were males. Out of 21 female patients, 15 were in the menopausal stage. Study had shown that females are more prone to *Amavata.*

Religion- Data obtained reveals that 24 patients i.e. 60% were Sikh by religion. Because maximum community is from Sikh religion that's why it is the main reason of having maximum reported cases of Arthritis in Sikh community.

Marital status- In the present study, majority of the registered patients i.e. 32 (80%) were married. This may be due to more occurrence of disease in age of >30 years. Maximum people in India get married up to the age of thirty years.

Occupation- In the present study, out of 40 patients majority of the patients i.e. 25 (62.5%) patients were having sedentary job in their business or in service class. 10 patients were having routine household work. Only 5 patients had good physical activity during their occupation. As businessmen, service class, housewives and retired persons lead a sedentary life style, which is the main *Nidana* of *Amavata*, as told by *Acharya's.* Hence, this can be the possible causative factor of *Amavata* in these classes.

Education- Among all the registered patients, 26 patients (65%) were educated up to metric level or more. Only 14 patients i.e. 35% patients were illiterate. Patients visiting the hospital in the same ratio of education we cannot conclude prevalence on the base of education. It can be in any category.

Socioeconomic status- In the present study, maximum 21 patients (52.5%) were from high income group; 13 patients (32.5%) belong to middle income group whereas 6 patients (15%) from poor income group. In high income group due to sedentary lifestyle and junk food leads to *Agni-mandya* and *Agni-vaishamya* which is the most common cause of *Amavata* so it may be one of the cause for this group.

Addiction-Among all the registered patients, maximum 25% patients i.e. 10 patients out of total 40 patients, were addicted to alcohol, tobacco chewing and smoking. 09 patients had not any addiction. In modern science, Smoking is the etiological factor that precipitates the attack of *Amavata*. (5)

Habitat- It is evident from the study that 22 (55%) patients were from urban background whereas 18 (45%) patients were from rural background. In urban area most of the person follows sedentary and bad dietary habit that may contribute to *Amavata.*

Dietetic Habits- In the present study, maximum 27 patients (67.5%) were taking mixed diet whereas 13 patients (32.5%) were having vegetarian diet. Most of the person was taking *Masha, Dadhi*, Milk and fish that is the leading cause of *Amavata.* (6)

BMI/Weight- This study suggests that no patient had BMI less than 18.5 and was underweight. Only 8 patients (20%) had BMI 18.5 to 24.9 which was in normal range, 1 7 patients (42.5%) had BMI 25 to 40 and were overweight and 15 patients (37.5%) were obese, having BMI more than 40. In obese patients, due to *Rasa* and *Medovaha Srotodushti* all the major and minute channels get blocked and results into *Agnivishamata* which further conclude into *Amavata*.

Associated illnesses- Among all the registered patients, hypertension was the commonest association in 20 patients (50%). Hypertension and CAD are the common associated factors in *Amavata*. As the age of suffering from *Amavata* is above 40 years so till this age many patients develop atherosclerosis simultaneously. Heaviness is the one of the symptoms of *Amavata* (8) so we can say it may be associated with CAD and Hypertension.

Nature of onset- In present study, 27 patients (67.5%) registered had sudden onset whereas 13 patients (32.5%) reported gradual onset of the disease. The observation supports the textual reference. As this is a type of inflammatory arthritis so it comes as acute pain like *Vrashchikadamsavat Vedna*/Fleeting pain (8) so patients immediate approach the Doctor.

Family History- Among all the registered patients, 13 patients (32.5%) had family history of *Amavata*.. So as per given data we can say that genetic factor is also responsible for Rheumatoid Arthritis.

Chronicity- Chronicity wise data obtained from the registered patients revealed that maximum 26 patients (65%) presented with 1-3 years duration of illness followed by 12 patients (30%) who presented with >3 years duration of illness. So it is seen that disease is of chronic nature because of it remitting and recurrent nature and lack of lifestyle modification in maximum patients.

Involvement of Joints- Distribution of 40 patients on the basis of joints involved in *Amavata* flare shows that in 03 patient in group A and 03 patients in group B i.e. total 06 (15%) patients Elbow joint was involved in

Amavata. Knee joints were involved in 14 patients of group A and 09 patients in group B i.e. total 23 (57.5%) patients. Small joints of hands and fingers were involved in 02 patients of group A and 02 patients in group B i.e. total 04 (10%) patients. Whereas in 5 patients in group A and 2 patients in group B i.e. total 07 (12.5%) patients foot and Ankles was involved in Amavata.The typical pain, Joint swelling and the small joints of the hands, feet and wrist. (7) Small joints of hands and fingers were involved in 14 patients of group A and 09 patients in group B i.e. total 23 (57.5%) patients so we found most of the patients in this manner.

Prakriti- In the present study, all the registered patients exhibited *Dwandaja Doshika* constitution with dominancy of *Vata-Kaphaja prakriti*(55%) followed by *Vata- Pittaja Prakriti* (25%). 8 patients (20%) were of *Kapha- Pittaja Prakriti*. Predominant involvement of *Vata* and *Kapha* was seen which is in accordance with the textual reference. It has been mentioned that in *Amavata*, both *Vata Dosha* and *Rasa Dhatu* (having *Kapha Yoni*) are vitiated simultaneously. So the persons with predominantly involvement of *Vata* and *Kapha* in *Deha Prakriti* are more prone to this disease.

Bowel Habit: Out of total 40 patients treated in the present study 24 patients i.e. 60% patients were having constipated bowel. This may be due to sedentary lifestyle, faulty food habits, junk food and involvement of *Vata Dosha Prakopa* causing hardness of stool in *Pakwashya* due to its *Rukshaguna*.

Menstrual History: Out of 40 patients registered in present study, only 21 were females. 15 among 21 females were menopausal. This observation supports the previous texts that *Amavata* is predominant in female after menopause only.

Sleeping Habits: Maximum patients i.e. 24 (60%) patients in this study were having disturbed sleep that may be due to pain in the joints. Sound Sleep was in 12 (30%) patients; 4 patients (10%) were having reduced duration of sleep that may be due to the old age of patients. Disturbed sleeps results in *Rukshata* in the body which in turn aggravates *Vata Dosha* which in turn results into vitiation of *Kapha Dosha* and contribute into *Amavata*

Gait: In the present study, gait of most patients i.e. 22 (55%) was abnormal. This may be due to involvement of weight bearing joints.

Cardinal Features: Predominance of signs and symptoms of *Amavata* were studied in 40 patients and it was observed that 20 patients in group A and 20 patients in group B i.e. total 40 patients were suffering from joint pain. Whereas 20 patients in group A and 20 patients in group B i.e. total 40 patients were sufferings from localized joint swelling.
Fever was found in 20 patients of group A and 20 patients of group B i.e. total 40 patients. Stifness was found in 20 patients of group A and 20 patients of group B i.e. total 40 patients. *Apakti* was observed in 12 patients of group A and 10 patients of group B i.e. total 22 patients .Heaviness of body was seen in 7 patients of group A and 8 patients of group B i.e. total 15 patients. Whereas *Aruchi* was seen in 7 patients of group A and 7 patients of group B i.e. total 14 patients. 9 patients in group A and 4 patients in group B i.e. total 13 patients had complained of *Daurbalyata*. Whereas *Alasya* was seen in 7 patients of group A and 6 patients of group B i.e. total 13 patients. Cardinal sign of *Amavata* is *Shula, Shotha, Stabdhta* and Mild fever these symptoms were showing all patients.

Discussion on effect of therapy on clinical features of Group A & Group B

Effect of Therapies on Pain- From table no. 11 we can observe that P-Values for both the groups are less than 0.05 hence we conclude that the effect observed in both groups are significant. Further we can observe that, effect observed in Group A was 82.8% while effect observed in Group B was 66.7%. In the condition of Pain, *Khanda Shunthi* is more effective than *Prasarini Avaleha* because pain is the cardinal symptom of *Vatadushti.Khanda shunthi* is made from *Ghrita*,It is having *Vatashamaka* property so *Khanda Sunthi* may be more effective in Painful condition.

Effect of Therapies on *Shotha* (Swelling): From table no. 12 we conclude that P-Values for both the groups are less than 0.05 hence we conclude that the effect observed in both groups are significant. Further we can observe that, effect observed in Group A was 75.4% while effect observed in Group B was 67.8%.In the condition of *Shotha, Khnadasunthi* is more effective than *Prasarni Avaleha* because in *Khanda shunthi, Shunthi* mixed in main *Dravya* and *Prakshepa dravya* and *Shunthi* is *Vatakaphashamak* and it shows anti-inflammatory action, So *Khanda Shunthi* may be more effective.

Effect of Therapies on *Stabdhta* (Stiffness): From table no. 13 we can observe that P-Values for both the groups are less than 0.05 hence we conclude that the effect observed in both groups are significant. Further we can observe that, effect observed in Group A was 82.8% while effect observed in Group B was 63.9%.In the condition of *Stabdhata,KhanadaShunthi* is more effective than *Prasariniavaleha*. In *Aamvata* stiffness present due to *Vata* and *Kapha, Khandashunthi* is having *Ghrita* and *Shunthi. Ghrita* is *Vatashamak* and *Shunthi* is *Vatakaphashamak* and *Amapachaka* so *Khandashunthi* reduces the stiffness.

Effect of Therapies on Fever: From table no. 14, we can observe that, effect observed in Group A was 86.8% while effect observed in Group B was 75.9%. In the condition of Fever, *Khanda Shunthi* is more effective than *Prasarni Avaleha*. In observational data, we found fever in all the patients. In *Aamvata*, Fever present due to the *Aamdosha* and *Saam Pitta. Shunthi* is having *Ghrita*, *Khandasharkara* and *Shunthi* so its combination subside all *Dosha* and cure the fever.

Effect of Therapies on Haemoglobin: From table no. 15 we can observe that P-Values for both the groups are less than 0.05 hence we conclude that the effect observed in both groups are significant. Further we can observe that, effect observed in Group A was 81.1% while effect observed in Group B was 71.7%. In the condition of Hemoglobin, *Khanda shunthi* is more effective than *Prasarni Avaleha*. In *Amavata,* there is *Dushti* of *Rasa Dhatu* as a result *Uttrotar Dhatu Dushti* and further *Dhatus* should not be formed in proper quantity and quality. In my selected drugs i.e *Khanda shunthi* is having *Ghrita* and *Shunthi. Ghrita* is *Agnideepan* and *Shunthi* is the best *Aampachaka, deepana, Rochak, Hridya and Vrishya* so it digests *Aam properly* and made *Rasa Dhatu* resulting into formation of *Uttrotar Dhatu Pushti*. So I conclude that *Khandashunthi* increases Haemoglobin.

Effect of Therapies on ESR: From table no. 16 we can observe that P-Values for both the groups are less than 0.05 hence we conclude that the effect observed in both groups are significant. Further we can observe that, effect observed in Group A was 81.5% while effect observed in Group B was 64.7%.

Effect of Therapies on walking time: From table no. 17 we can observe that P-Values for both the groups are less than 0.05 hence we conclude that the effect observed in both groups are significant. Further we can observe that, effect observed in Group A was 83.3% while effect observed in Group B was 68.6%. *Khanda shunthi* is more effective in Pain, Swelling and Stiffness condition so it increases walking time.

Effect of Therapies on Grip strength: From table no. 18 we can observe that P-Values for both the groups are less than 0.05 hence we conclude that the effect observed in both groups are significant. Further we can observe that, effect observed in Group A was 87.3% while effect observed in Group B was 70%.*Khandasunthi* is *Vatakaphahara, Vedanasthapana, Shoolaprashaamaka* and *Vataanulomka* as a result grip strength is improved.

Conclusion

On the basis of results obtained it can be concluded that both *Khanda Shunthi* and *Prasarni Avaleha* can be used as palliative treatment for RA but Percentage wise Group A treatment is found more effective than Group B for all assessment criteria i.e. *Khanda shunthi* is better than *Prasarni Avaleha* in the management of *Amavata*.

References

1. Krishna Das K.V., Text book of Medicine,Fifth edition,2008 Japee brothers medical Publisher New Delhi, Section 12, Page no. 692.
2. Wright V. Treatment of severe rheumatoid arthritis. Br Med J. 1986;96:431–2.
3. Clive DM, Stoff JS. Renal syndromes associated with non-steroidal anti- inflammatory drugs. N Engl J Med. 1984;310:563–72.
4. O'Duff JD, Luthra HS. Current status of disease modifying drugs in progressive rheumatoid arthritis.Drugs. 1984;27:373–7.
5. Davidson, Sir Stanley; Davidson's Principles and practice of medicine:Ed C.R.W. Edwards et al,20th International Student edition, Reprinted 2008,Churchil Livinstone, Edinburgh, Chapter 25, Page no- 1101.
6. Professor Ajay kumar Sharma, Kayachikitsa, second part, Edition 2014, Chaukhambha publication Varanasi, Chapter 30, Page no- 527.
7. Davidson, Sir Stanley; Davidson's Principles and practice of medicine:Ed C.R.W. Edwards et al,20th International Student edition, Reprinted 2008,Churchil Livinstone, Edinburgh, Chapter 25, Page no- 1102.

*****