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A COMPARATIVE CLINICAL STUDY ON SERO-POSITIVE AND SERO-NEGATIVE RHEUMATOID ARTHRITIS W.S.R. TO AMAVATA AND ITS MANAGEMENT WITH VATARI GUGGULU AND GUDUCHI SATWA

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ABSTRACT

Amavata is a disease mentioned in ancient text like *Charak Samhita*, but detail description of its causes, signs, symptoms are given in *Madhav nidana*, which can be directly co-relate to an auto immune disorder" Rheumatoid arthritis", whose signs & symptoms according to American society of rheumatoid arthritis are quite same with *Amavata*. This rheumatoid arthritis is of two types, one is sero-positive and another sero-negative. As it is an auto immune disorder, in case of seropositive, with all the clinical manifestation, certain antibodies present like RA factor, Anti Nuclear Antibody(ANA) positive, *vatari guggul* is a proved medication of *Amavata*, formulated by *Bhaisajya Ratnavali* and *guduchi satwa* has also good result in *Amavata*. With the intension to prove efficacy of Vatari guggulu and Guduchi satva the study was carried out at Govt. Ayurvedic college & Hospital, Balangir taking total 100 nos of patients divided in 2 groups viz. Group-A (Sero positive RA) and Group-B (Sero negative RA). Both the trial drugs are prepared at Pharmacy attached to Dept. of Rasashastra & Bhaishajyakalpana of GAC, balangir. Trial drugs are given to both group for 30 days and effectiveness was assessed in every 15 days interval with suitable statistical tools. Result was very satisfactory in both the group with P value < 0.001. Hence it is confirmed that Vatari guggulu and Guduchi satwa are quite effective in Amavata.

KEYWORDS: Amavata, Vatari guggulu, Rheumatoid arthritis.

INTRODUCTION

Amavata is a disease mentioned in ancient text like *Charak Samhita*, but detail description of its causes, signs, symptoms are given in *Madhav nidana*, which can be directly co-relate to an auto immune disorder" Rheumatoid arthritis", whose signs & symptoms according to American society of rheumatoid arthritis are quite same with *Amavata*. This rheumatoid arthritis is of two types, one is seropositive and another seronegative. As it is an auto immune disorder, in case of seropositive, with all the clinical manifestation, certain antibodies present like RA factor, ANA positive, *vatari guggul* is a proved medication of *Amavata*, formulated by *Bhaisajya Ratnavali* and *guduchi satwa* has also good result in *Amavata*.

AIM & OBJECTIVES

- To review the literature on Rheumatoid Arthritis related to Ayurveda Classsics or related to Amavata.
- To review the literature on Rheumatoid Arthritis from Modern Classsics.
- To evaluate clinical effect of Vatari Guggulu and Guduchi Satwa in Sero-negative and Sero-positive Rheumatoid Arthritis.
- To prove non-side effect of Vatari Guggulu and Guduchi Satwa on the body.

INCIDENCE AND PREVALENCE

Although Rheumatoid Arthritis is more prevalence in the age of 40-60 yrs. now it is seen in any age starting from 10-60 yrs. Generally the condition is same for both male and female but some studies have shown that it is more severe in female.

Sero-positive Rheumatoid Arthritis are most common but sero-negative Rheumatoid Arthritis having all the features of Rheumatoid Arthritis is also found.

Now a days Rheumatoid Arthritis is more common due to genetic factors, environmental factors, immuno factors and life style changes. So prevalance is more.

DRUG REVIEW

Drug–I: (Vatari Guggulu)

The drug which is taken in this study for the treatment of Amavata is Vatari guggulu, The drug is described in Bhaisajya Ratnavali, authored by Gobinda Das Sen in the context of Amavata. The drug constitute of 6 drugs.

1) Sudha Gandhaka (Sulphor purified) - 1part
2) Haritaki (Terminalia Chebula) -1part
3) Bibhitaki (Terminalia Bellerica) - 1part
4) Amalaki (Embelica offcinale) - 1part
5) Eranda oil (Ricinus communis) - 1part
6) Guggulu (Comiphora Mukulu) - 1part.

Preparation Procedure

The standard Mahisakshya Guggulu procured from the local market having accepted organoleptic characteristics was purified with boiling water, filtered and sun dried.

The Gandhaka (Amlasara) also procured and treated with milk and ghee for its purification, dried and kept ready for preparation. Seedless Triphala (Three Myrobalans) of equal quantity of matured quality were made into fine powder and the best quality of filtered castor oil (Eranda taila) of required quantity is also collected In the initial stage the purified Gandhaka is made into fine powders by grinding in a Khalwa (the black stone motor and pistol).

The purified Gandhaka of required quan- tity is added to it and the purified Guggulu is also added in the same Khalwa Yantra.

The three ingredient are thoroughly grinded, amalgamated to form semi solid mate- rial into which powders of three myrobalan of equal quantity are added and srinded for about a day and finally the ingredients are homogenously mixed to form a semi solid consistency, out of which the pills are prepared and shade dried.

Thus the trial drug prepared in the college pharmacy strictly following the G.M.P criteria.The prepared trial drug vatari guggulu in the form of pills have sent to CRI, Bhubaneswar for analysis and the result is given below.

Table No. 1: Details analysis of Vatari guggulu.

DRUGS	LATIN NAME	RASA	GUNA	VIRYA	VIPAKA	KARMA
HARITAKI	*Terminalia chebula*	5 rasas (except lavan)	Laghu, Rukshya	Ushna	Madhura	Anulomani
BIBHITAKI	*Terminalia belerica*	Kashaya	Rukshya, Laghu	Ushna	Madhura	Kapha Vata Hara
AMALAKI	*Emblica officinalis*	5 rasas (except lavan)	Guru, Rukshya, Sita	Sita	Madhura	Tridosaghna
GANDHAKA	*Purified Sulphur*	Katu, Tikta, Kasaya.,	Ushna, Sara	Usna	Madhura	Deepana, Pachana, Agnikaraka
ERANDA TAILA	*Ricinus cummunis*	Madhura , Katu, Kashaya	Guru, Singdha, Tikshna, Sukshma	Ushna	Madhura	Vataghna
SUDHA GUGGULU	*Comiphora mukul*	Tikta, Kasaya, Katu	Bisada, Rukhya, Laghu, Tikhna, Sukhma, Sara	Usna,,	Katu	Deepana, Anulomana,Tridoshahara

Drug –II (Guduchi Satwa)

The drug which is taken in this study for the treatment of Amavata is Guduchi Satwa, The drug is described in Bhaisajya Ratnavali, authored by Gobinda Das Sen in the context of Amavata. the starchy material extracted from the *Guduchi* stem is well-known Ayurvedic single drug formulation having a wide range of therapeutic utility.

Pharmacological properties of Guduchi

RASA	Kashaya, Tikta
GUNA	Laghu, Snigdha
VIRYA	Ushna
VIPAKA	Madhura
KARMA	Tridosha hara

MATERIAL AND METHODS

SOURCE OF PATIENTS

Patients were selected from OPD & IPD of Govt. Ayurvedic College And Hospital and Saradeswari Govt. Ayurvedic Hospital, Balangir.

STUDY DESIGN

Method of Collection of patients

A special proforma was prepared which inludes details of history taking, physical sign and symptoms, subjective and objective parameters. With this proforma 120 patients were scrutinized and selected 100 patients for clinical study. Patients were collected randomly in multiphase.

Methodology

- 100 numbers of patients were taken for the study and all patients were divided into 2 equal groups i.e. A- Trial group (Sero- Positive) and B- Trial group (Sero- Negative).
- Group – A 50 Patients were treated with Vatari Guggulu 1000 mg twice daily after food for 30 days with Guduchi Satwa 500 mg twice daily 30 days.
- Group- B – 50 patients were treated with Vatari Guggulu 1000 mg twice daily after food for 30 days with Guduchi Satwa 500 mg twice daily 30 days.

Single Group Design

GROUP- A B.T …..VS…… Group- A A.T	Effectiveness of treatment -1 (Trial group) was assessed
GROUP -B B.T……VS …….Group- B A.T	Effectiveness of treatment -2 (Trial group) was assessed

Double Group Design

GROUP -A…. VS…. GROUP- B	Effectiveness of treatment -1 (Trial Group-A) with respect to Treatment -2 (Trial Group-B) was assessed.

DIAGNOSTIC CRTITERIA

The patients with all the clinical manifestation of Rheumatoid Arthritis was taken as our subject with RA factor positive in case of Sero-Positive Arthritis.

The clinical features of Rheumatoid Arthritis

- Morning stiffness in around the joints lasting more than one hour.
- At least three joints areas involved simultaneously with swelling.
- At least one joint area in the hand involved.
- Symmetrical joint involvement
- Rheumatoid nodules present.
- Rheumatoid factor positive.
- Radiographic changes in joints.

Pathological investigation: ESR, HB gm%, TLC, RA factor, CRP, ASO, Uric Acid.

INCLUSION CRITERIA

- Patient with more than normal RA factor.
- Patient's age between 25-60 yrs. Of both sexes.
- Patient having clinical features of rheumatoid arthritis.

EXCLUSION CRITERIA

- Patient having Psoriatic arthritis, Ankylosing spondylitis, systemic sclerosis, Tuberculosis, HIV and Carcinogenic growth in body.
- Patients having anemia due to Rheumatoid Arthritis.
- Acute Rheumatic fever or Rheumatism.
- Patients taking immunosuppressive medicines like steroids.
- Pregnant woman and lactating mother.

Patient with chronic kidney diseases and heart diseases.

ASSESSMENT CRITERIA

Subjective

The subjective parameters of assessment of clinical trial was on

1. Pain
2. Swelling
3. Morning stiffness
4. temperature
5. Movement
6. Redness

Objective

The objective parameters of clinical trial was on

1. Deformities of joints
2. ESR
3. RA factor
4. CRP
5. Hb%
6. TLC

All the subjective and objective parameters were graded as 0,1,2,3 in condition of normal , mild, moderate and severity of features respectively. As the improvement was observed the grading of features was shifted to back accordingly.

METHOD OF PREPARATION OF TRIAL DRUG

- Collection:-Local market of Balangir
- Identification:-Dravyaguna Department
- Preparation:-Pharmacy of Rasashastra and Bhaisajya Kalpana Department of GAC & H , Balangir

Preparation

Drug-1

The ingredients of the trial drug Vatari gugulu were procured from the local market. Then the Gugulu was purified with boiling water, the Amlasra Gandhak was purified with milk and ghee, seedless Triphala of equal quantity of matured quality were made into fine powder. The best quality of filtered castor oil was taken. In the initial stage the purified Gandhak was made fine powder by grinding in a Khalwa, then the purified Gugulu was added with Eranda Taila, then equal quantity of Triphala was added to them and grinded for a about a day. Out of which the pills were prepared and shade dried. Thus the trial drug Vatari guggulu was ready for trial.

Drug-2

To prepare the second trial drug Guduchi Satwa, the best quality of Guduchi was collected from the local market, after thoroughly cleaning the outer husks were removed and cut the stems into smaller pieces, then the stems were mashed inside the water and allowed it to settle overnight. The next morning the mass was macerated in water thoroughly with hands for about 1 hour and filtered slowly through a clean cotton cloth folded four times. The liquid was kept aside undisturbed for 4 hours; thereafter the supernatant liquid was carefully siphoned off. Thus the second trial drug Guduchi Satwa was ready for trial.

OBSERVATION & RESULT

Demographic Data

Table No. 2: Age group of the patients.

Age group of Patients			
Sl. No	**Age Group**	**No of. Patients**	**% age**
1	20-30	34	34
2	30-40	32	32
3	40-50	25	25
4	50-60	9	9

Table No. 3: Sex of the patients.

SEX OF PATIENTS			
Male		**Female**	
f	%	f	%
49	49	51	51

Table No. 4: Occupation of the patients.

Occupation of Patients			
Sl. No	**Age Group**	**No of. Patients**	**% age**
1	Service	34	34
2	Labourer	18	18
3	Bussinessman	12	12
4	House wife	36	36

Table No. 5: Socio-economic status of the patients.

SOCIO-ECONOMIC STATUS OF PATIENTS					
LOWER		**LOWER MIDDLE**		**UPPER MIDDLE**	
f	%	f	%	f	%
7	7	22	22	71	71

Table No. 6: Sleep pattern of the patients.

SLEEP PATTERN OF PATIENTS			
NORMAL SLEEP		**DISTURB SLEEP**	
f	%	f	%
85	85	15	15

STATISTICAL ANALYSIS

Table No. 7: Overall improvement w.r.t Sign & Symptoms.

Sl. No.	**Clinical assessment**	**Group-A**		**Group-B**	
		AT1	**AT2**	**AT1**	**AT2**
		f	f	f	f
1	Max. Improvement	0	30	0	22
2	Moderate Improvement	15	20	5	28
3	Mild Improvement	30	0	27	0
4	Unsatisfactory	5	0	18	0

Table No. 8: Overall improvement w.r.t ESR, CRP AND RA Factor.

Sl. No.	**Clinical assessment**	**Group-A**	**Group-B**
		AT	**AT**
		f	**f**
1	Max. Improvement	2	12
2	Moderate Improvement	42	33
3	Mild Improvement	6	5
4	Unsatisfactory	0	0

Statistical analysis showing the effectiveness of trial group and control group

Sign & Symptoms	Treatment Group	Duration of Treatment	Mean ± S.D.	df(n-1)	t- value	P-value	Remark
SANDHISOTHA	Group-A	BT	2.00 ± 0.00	49			***
		AT1	1.42 ± 0.50		8.00	< 0.0001	
		AT2	0.49 ± 0.51		20.93	< 0.0001	
	Group-B	BT	2.00 ± 0.00				***
		AT1	1.48 ± 0.50		7.28	< 0.0001	
		AT2	0.48 ± 0.50		21.29	< 0.0001	

Sign & Symptoms	Treatment Group	Duration of Treatment	Mean ± S.D.	df(n-1)	t- value	P-value	Remark
GRANTHI	Group-A	BT	0.68 ± 0.71	49			***
		AT1	0.28 ± 0.61		5.29	< 0.0001	
		AT2	0.08 ± 0.27		7.00	< 0.0001	
	Group-B	BT	1.12 ± 0.33				*
		AT1	1.04 ± 0.70		2.06	< 0.05	
		AT2	0.16 ± 0.37		34.29	< 0.0001	***

Sign & Symptoms	Treatment Group	Duration of Treatment	Mean ± S.D.	df(n-1)	t- value	P-value	Remark
JWARA	Group-A	BT	0.52 ± 0.65	49			***
		AT1	0.10 ± 0.30		5.91	< 0.0001	
		AT2	0.02 ± 0.14		5.75	< 0.0001	
	Group-B	BT	1.04 ± 0.20				***
		AT1	0.44 ± 0.50		8.57	< 0.0001	
		AT2	0.02 ± 0.14		51.00	< 0.0001	

Sign & Symptoms	Treatment Group	Duration of Treatment	Mean ± S.D.	df(n-1)	t- value	P-value	Remark
ASTHIVHEDANA	Group-A	BT	1.72 ± 0.45	49			***
		AT1	0.88 ± 0.33		16.04	< 0.0001	
		AT2	0.04 ± 0.20		25.21	< 0.0001	
	Group-B	BT	1.96 ± 0.20				***
		AT1	1.74 ± 0.44		3.71	< 0.0005	
		AT2	0.62 ± 0.49		19.8	< 0.0001	

Sign & Symptoms	Treatment Group	Duration of Treatment	Mean ± S.D.	df(n-1)	t- value	P-value	Remark
BAHUMUTRATA	Group-A	BT	1.08 ± 0.27	49			***
		AT1	0.46 ± 0.51		8.26	< 0.0001	
		AT2	0.04 ± 0.20		37.15	< 0.0001	
	Group-B	BT	0.56 ± 0.70				***
		AT1	0.20 ± 0.49		5.25	< 0.0001	
		AT2	0.04 ± 0.20		5.68	< 0.0001	

Sign & Symptoms	Treatment Group	Duration of Treatment	Mean ± S.D.	df(n-1)	t- value	P-value	Remark
MANSASANDHI VEDANA	Group-A	BT	1.96 ± 0.20	49			***
		AT1	0.96 ± 0.28		35.00	< 0.0001	
		AT2	0.08 ± 0.27		40.40	< 0.0001	
	Group-B	BT	1.92 ± 0.27				***
		AT1	1.66 ± 0.63		4.14	< 0.0001	
		AT2	0.68 ± 0.47		20.32	< 0.0001	

Sign & Symptoms	Treatment Group	Duration of Treatment	Mean ± S.D.	df(n-1)	t- value	P-value	Remark
DOURBALYA	Group-A	BT	1.76 ± 0.59	49			***
		AT1	0.90 ± 0.30		17.35	< 0.0001	
		AT2	0.10 ± 0.30		18.74	< 0.0001	
	Group-B	BT	1.16 ± 0.51				***
		AT1	0.42 ± 0.50		7.87	< 0.0001	
		AT2	0.04 ± 0.20		16.50	< 0.0001	

Sign & Symptoms	Treatment Group	Duration of Treatment	Mean ± S.D.	df(n-1)	t- value	P-value	Remark
ESR	Group-A	BT	75.74 ± 16.48	49			***
		AT	23.70 ± 11.30		23.02	< 0.0001	
	Group-B	BT	73.00 ± 17.50				***
		AT	23.34 ± 10.87		21.32	< 0.0001	
CRP	Group-A	BT	17.64 ± 7.99	49			***
		AT	7.59 ± 3.26		13.9	< 0.0001	
	Group-B	BT					
		AT					
RA factor	Group-A	BT	58.40 ± 8.81	49			***
		AT	29.37 ± 10.62		21.83	< 0.0001	
	Group-B	BT					
		AT					

EFFECTIVENESS

- This study includes 100 patients divided in 2 groups.
- Group A(Sero-positive group)-50 patients treated with Vatari guggulu & Guduchi satwa.
- Group B(Sero-negative group)-50 patients treated with Vatari guggulu & Guduchi satwa.
- Trial period is 1 months.
- Follow up- In every 15 days.

TRIAL GROUP-A

- P-value is statistically Highly Significant with <0.0001.

TRIAL GROUP-B

- P-value is statistically Highly Significant with <0.0001
- P-value <0.0001 is indicate Highly significant shows that in every step of follow-up medicine is far better working in every steps.

Statistical Analysis

- P-value is statistically significant in both the trial group after AT1 with < 0.001 with respect to all the sign and symptoms like, Sandhisotha, Granthi, Jwara, Asthi bhedana, Bahumutrata, Mansa-sandhi vedana & dourbalya
- P-value is statistically significant in both the trial group after AT2 with <0.0001 with respect to all the sign and symptoms like, Sandhisotha, Granthi, Jwara, Asthi bhedana, Bahumutrata, Mansa-sandhi vedana & dourbalya
- With respect to ESR, CRP and RA factor P-value is highly significant after treatment with <0.0001.

Clinical Analysis

Stastistical result in both the group are significant to control all the sign & symptoms.

DISCUSSION

DISCUSSION ON DEMOGRAPHIC DATA

• Age: Out of 100 patients of Amavata Incidence of maximum patients with age of 20-30 yrs is 34%) followed by 32% in 30-40 yrs age group. The higher incidence of Amavata was repoted in age group of 20-30 yrs that is the young age group.According to Ayurved literature as well as modern medical science young age group are more prone for Amavata (Rheumatoid Arthritis).

• Sex: Out of 100 patients, Maximum percentage of Sex are female Patients 51% followed by male 49%.Both the sexes are equally affected by Amavata how ever female are little bit more affected by this disease.

• Marital Status wise: Most of the patients observed were married i.e 96%. This is because of the group of the patients who approached for the treatment.

• Religion Wise: It was observed that, all the 97% patients were belonged frorm Hindu religion and only 3% were muslim. Because in Balangir and near by area 95% population are Hindu. So it was obvious that, more Hindu patients were found in OPD & IPD.

• Occupational status:- It was observed that maximum number of patients belongs to house wife group 36% followed by service holder 34%, because of sedentary lifestyle and improper dietary habit these class of population are affected by Amavata.

• **Socio-economic status**

• Out of 100 patients of Amavata Incidence of maximum patients with upper middle class are 71% followed by lower middle class 22%. Upper middle class peoples are highly affected due to sedentary life style.

• **Population:** Out of 100 patients, Maximum percentage of Population are urban Patients 52% followed by Rural Population 48%.Both the urban and rural population are equally affected by Amavata how ever urban population are little bit more affected by this disease.

• **Bowel habit:** Most of the patients observed were having normal bowel habit i.e 77% followed by constipated bowel habit 33%.

• **Urination:** Out of 100 patients, Maximum percentage of Patients having excess urination 54% followed by normal urination 44%.Excess urination(Bahumutrata) is a crucial clinical feature in Amavata which was found in this study.

DISCUSSION ON DRUGS

• The drug Vatari Guggulu and Guduchi Satwa are herbal compound formulation recommended in Bhaishajyaratnavali in Amavata-rogadhikara.

PROBABLE MODE OF ACTION OF VATARI GUGGULU & GUDUCHI SATWA

According to rasa panchaka

• Charaka has told that some drugs act by Rasa, some by Virya, some by Guna, some by Vipaka and some by due to its Prabhava". So it should be assumed that drug acts due to predominance of its Rasapanchaka. Chikitsa is nothing but the process of Samprapti Vighatana, while breaking the Samprapti of Amavata by Vatari guggulu and guduchi satwa, following functions are considered to be performed by its Rasapanchaka.

• The mode of action of Rasapanchaka on various stages of Samprapti is a critical matter to decide. Still then some assumptions can be incurred on the basis of its scope of action. In Samprapti drugs act by Rasa at Sanchayavastha, by Vipaka at Prakop-Avastha.

Probable action on dosha

• Ushna virya of of Eranda taila,trifalla, Gandhaka guggulu and Guduchi which directly antagonizing the seeta guna of vata and kapha.

Probable action on Agni

• In the Samprapti of Amavata, Agnimandya is a primary factor. Tikta, Katu and Kasaya Rasa of the Vatari guggulu and guduchi satwa increase the Jatharagni and thereby appetite of the patient is increased. So. When Jatharagni increases Dhatwagni also gets increased so production of Ama in both the level diminished.

Probable action on Ama

• Ama is formed due to Agnimandya and it is the root cause of Samprapti. Ama hampers in the process of formation of Dhatu. So Posanabhava (malnutrition) takes place and Vata dosha is vitiated. The Amapachak activity of Vatari Guggulu & Guduchi Satwa is exerted by Tikta, Katu and Kasaya Rasa as well as by Katu Vipaka both in Jathara and Dhatu level. Thereby it eradicates the Srotabarodha and Posanabhava, as a result of which function of Vata Dosha is well maintained so due to this Pachana Karma Margavarana which are the Nidana of Vata Prakopa are eradicated and Vata dosha is pacified.

Probable action on srota

• The action of guna and virya are felt at prasara avastha and stanasamsrayaavastha. The Guru guna of this medicine stands the antagonist to the Laghu guna of vata dosha, and laghu Guna act against the guru guna of kapha dosha but the obstruction of srotas, which is caused by Ama and vitiated kapha dosha is eradicated by Tikshna, Sukshma and sukhma penetrate (vivarana)in the site of obstruction and open the srotas and Tikshna clarify the srotas.

DISCUSSION ON SIGN AND SYMPTOMS

1. EFFECT ON SANDHISOTHA

• It is observed that after 30days of completion of treatment in both Group- A and Group-B, 100% patients got improvement.

• After 30days of treatment Average percentage change in Sandhisotha in group- A and Group -B were 79% and 81%.

• The statistical analysis shows that test of significance is Highly significant in both Group- A and Group -B with p value <0.001 shows progressive effectiveness after 30 days of treatment.

• Unpaired t-test- After 30 days of treatment mean difference±standard deviation of Group -A was 0.49±0.51 as compared to Group B-0.48±0.50 statistical analysis shows that difference between group A and Group B is Insignificant with p value >0.05. The test of significant shows that both the trial drugs are almost equally effective to reduce sandhisotha.

2. EFFECT ON GRANTHI

• It is observed that after 30days of completion of treatment in both Group- A and Group-B, 100% patients got improvement.

• After 30days of treatment Average percentage change Granthi in group -A and Group -B were 69 % and 66 % respectively.

• Paired t-test- The statistical analysis shows that test of significance is Highly significant in both Group- A and Group- B with p value <0.001 shows progressive effectiveness after 30 days of treatment.

• Unpaired t-test- After 30 days of treatment mean difference±standard deviation of Group -A was 0.08±0.27 as compared to Group B-0.16±0.37 statistical analysis shows that difference between group A and Group B is Insignificant with p value >0.05. The test of significant shows that both the trial drugs are almost equally effective to reduce Granthi.

3. EFFECT ON JWARA

• It is observed that after 30days of completion of treatment in both Group- A and Group-B, 100% patients got improvement.

• After 30days of treatment Average percentage change Jwara in group- A and Group- B were 90 % and 89.45%.

• Paired t-test- The statistical analysis shows that test of significance is Highly significant in both Group A and Group B with p value <0.001 shows progressive effectiveness after 30 days of treatment.

• Unpaired t-test- After 30 days of treatment mean difference±standard deviation of Group -A was 0.02±0.14 as compared to Group B-0.02±0.14 statistical analysis shows that difference between group- A and group-B is insignificant with p value >0.05, hence both group are equally control Jwara.

4. EFFECT ON ASTHIVEDANA

• It is observed that after 30days of completion of treatment in both Group- A and Group-B, 100% patients got improvement.

• After 30days of treatment Average percentage change Asthivedana in group -A and Group -B were 98% and 89%.

• Paired t-test- The statistical analysis shows that test of significance is Highly significant in both Group A and Group B with p value <0.001 shows progressive effectiveness after 30 days of treatment.

• Unpaired t-test- After 30 days of treatment mean difference±standard deviation of Group A was 0.04±0.20 as compared to Group B-0.62±0.49 statistical analysis shows that difference between group -A and Group- B is Insignificant with p value >0.05. The test of significant shows that both the trial drugs are almost equally effective to reduce Asthivedana.

5. EFFECT ON BAHUMUTRATA

- It is observed that after 30days of completion of treatment in both Group- A and Group-B, 100% patients got improvement.

- After 30days of treatment Average percentage change Bahumutrata in group -A and Group -B were 98% and 87.41%.

- Paired t-test- The statistical analysis shows that test of significance is Highly significant in both Group A and Group B with p value <0.001 shows progressive effectiveness after 30 days of treatment.

- Unpaired t-test- After 30 days of treatment mean difference±standard deviation of Group A was 0.04±0.20 as compared to Group B-0.04±0.20 statistical analysis shows that difference between group- A and Group- B is Insignificant with p value >0.05. The test of significant shows that both the trial drugs are almost equally effective to reduce Bahumutrata.

- A and Group B with p value <0.001 shows progressive effectiveness after 30 days of treatment.

- Unpaired t-test- After 30 days of treatment mean difference±standard deviation of Group A was 0.08±0.27 as compared to Group B-0.68±0.47 statistical analysis shows that difference between group- A and Group- B is Insignificant with p value >0.05. The test of significant shows that both the trial drugs are almost equally effective to reduce Mansasandhi vedana.

6. EFFECT ON MANSASANDHI VEDANA:

- It is observed that after 30days of completion of treatment in both Group- A and Group-B, 100% patients got improvement.

- After 30days of treatment Average percentage change Mansasandhi vedana in group -A and Group -B were 96% and 83.72%.

- Paired t-test- The statistical analysis shows that test of significance is Highly significant in both Group A and Group B with p value <0.001 shows progressive effectiveness after 30 days of treatment.

- Unpaired t-test- After 30 days of treatment mean difference±standard deviation of Group A was 0.08±0.27 as compared to Group B-0.68±0.47 statistical analysis shows that difference between group- A and Group- B is Insignificant with p value >0.05. The test of significant shows that both the trial drugs are almost equally effective to reduce Mansasandhi vedana.

7. EFFECT ON DOURBALYA

- It is observed that after 30days of completion of treatment in both Group- A and Group-B, 100% patients got improvement.

- After 30days of treatment Average percentage change Dourbalya in group -A and Group -B were 87% and 79.95%.

- Paired t-test- The statistical analysis shows that test of significance is Highly significant in both Group A and Group B with p value <0.001 shows progressive effectiveness after 30 days of treatment.

- Unpaired t-test- After 30 days of treatment mean difference±standard deviation of Group A was 0.10±0.30 as compared to Group B-0.04±0.20 statistical analysis shows that difference between group- A and Group- B is Insignificant with p value >0.05. The test of significant shows that both the trial drugs are almost equally effective to reduce Dourbalya.

8. EFFECT ON ESR

- It is observed that after 30days of completion of treatment in both Group- A and Group-B, 100% patients got improvement.

- After 30days of treatment Average percentage change ESR in group -A and Group -B were 78.6% and 76.4%.

- Paired t-test- The statistical analysis shows that test of significance is Highly significant in both Group A and Group B with p value <0.001 shows progressive effectiveness after 30 days of treatment.

- Unpaired t-test- After 30 days of treatment mean difference±standard deviation of Group A was 23.70±11.30 as compared to Group B-23.34±10.87 statistical analysis shows that difference between group- A and Group- B is Insignificant with p value >0.05. The test of significant shows that both the trial drugs are almost equally effective to reduce ESR.

SUMMARY

- The purpose of this Thesis work entitled "A Comparative clinical Study on sero-positive and Sero-negative Rheumatoid arthritis w.s.r. to Amavata and its management with Vatari guggulu and Guduchi Satwa" is to assess the efficacy of Vatari guggulu and Guduchi Satwa, specified in Bhasaja ratnavali in the disease Amavata.

- It consists of various sections like introduction, Review of literature, clinical observation and results, discussion each of them dealing with different aspects in relation to the work entitled above.

- The introductory section includes information regarding Sero-positive and Sero-negative Rheumatoid Arthritis along with Amavata and its various causatives factors, the importance of specified Vatari guggulu and Guduchi Satwa in Amavata purpose of study and hypothesis in which study is based.

- The literature review, the historical review of Amavata. Thereafter the Definition and etymology of Amavata has been dealt with, followed by the action of Nidana panchaka along with Samprapti in detail. The chikitsa of Amavata is described briefly with the Pathyapathya. A brief overview of modern portion about Sero-positive and Sero-negative Rheumatoid arthritis has also been carried out. The Incidence and Prevalence elaborate classification of etiological factors is also discussed in this part . In explaining the pathogenesis of the disease emphasis has been given to the role causative factor producing the Symptomatology. The clinical manifestations, diagnosis, differential diagnosis, complications, Prevention and management has been dealt briefly. In the drug review, the description of constituents of Vatari guggulu & Guduchi Satwa along with their phar macodynamics has been explained in addition to its preparation of the formulations is described.

- In clinical study, plan of study with material and methods, criteria for selection of patients, criteria for assessment is described. The observations made were tabulated and the results obtained were analyzed statistically and were presented with the details.

- The clinical trial was carried out to assess the efficacy of the Indigenous Drugs in 100 patients of 20-60 yr of age group from OPD and IPD of Govt. Ayurvedic college & Hospital, Balangir having cardinal signs and symptoms of Amavata wrt Sero-positive and Sero-negative Rheumatoid arthritis. Selected patients were randomly divided into two groups viz Group-A (Sero-positive group) containing 50 patients and Group-B (Sero-negative group) containing 50 patients Vatari guggulu and Guduchi Satwa were given internally at a dose of 500 mg each twice daily with Luke warm water, after food. The study was conducted for the period of 30 days and follow up was conducted in every 15 days.

CONCLUSION

- On the basis of data obtained in the present study concluded that
- 0n the basis of sign and symptoms Amavata can be corelated with Rheumatoid arthritis.
- The trial drug1 Vatari guggulu and trial drug2 Guduchi Satwa described in Bhaisaja Ratnavali .
- The ingredients of Vatari Guggulu possess ushna Veerya and Ushna Guna which reduces Vata and Kapha doshas.
- The drugs Eranda taila Madhura rasa and ushna veerya predominance which help to allivate to vata dosha and reduce ama.
- Due to tikta ,katu rasa and ushna veerya of bilwa is vatasamaka and Deepana, pachana which is corrects Dhatvagnimandhya which is main cause for vatavyadhi.
- Both the trial drugs Vatari guggulu and Guduchi Satwa acts on both sero-positive and sero-negative Rheumatoid arthritis with significant change after completion of treatment.
- Further long term study is needed for proper evaluation of the outcome of the treatment in large sample size.

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