

A CLINICAL TRIAL OF ORTHOKAP TAB

(A Proprietary Ayurvedic medicine) in AMAVATA “Rheumatoid Arthritis”)

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ABSTRACT :

The present mode of work envisages a clinical study on *Amavata* vis-a-vis Rheumatoid Arthritis. The disease is the second most common joint disorders. The disease is not fatal but decapacitating in nature after a long time. Due to faulty dietary habits, life styles and polluted environment, they led to various *auto immune* disorders i.e. *Amavisajanya Vikara* and *Amavata* which is one among them. Rheumatoid Arthritis can be correlated with *Amavata* in view of its clinical features.

As regards treatment a satisfactory cure is still limited. Many research studies have been done to solve this clinical enigma, but an effective, safe less complicated treatment is still required or the management of *Amavata*. In the present study, 20 patients of *Amavata* were registered who completed one month treatment. Orthokap Tab, 2 tab twice daily (Each Tab 500mg.) with luke worm water for one month. On analysis of the results, it was found that it is a very good drug for treating *Amavata*.

KEY WORDS: *Amavata, Rheumatoid Arthritis, Arthokap Tablet, ESR, Joint Pain*

INTRODUCTION :

Amavata(Ref.-13) vis-a-vis Rheumatoid Arthritis is a challenge to the physician owing to its chronicity, incurability, complications, morbidity and crippling nature. The word Ama Vata is made up of a combination of two words “Ama and Vata”. the disease is mainly due to dearrangement of Agni, resulting the production of *Ama*. *Ama* combines with the doshas and spreads all over the body and gets located in the sandhis and ligament causing pain, tenderness, stiffness and swelling. According to modern medicine, it can be corelated with Rheumatoid Arthritis which is a chronic auto immune disease that causes inflammation and deprived of joints. It is a common disorder with varied clinical signs and symptoms related to multiple anatomical sites, both articular and extra articular. No doubt allopathic system of medicine has got an important role to play in overcoming agony of pain, restricted movement and disability caused by the articular disease. But long term use of Allopathic medicine gastro-intestina side effects, bone marrow, renal, and hepatic problems appears. Hence, the management of this disease is insufficient and patients are continuously looking with a hope towards Ayurveda.

AIMS & OBJECTIVES :

Present clinical trial was conducted to study the effect of Orthokap Tab (Patent drug) on *Amavata* (Rheumatoid Arthritis)

MATERIAL & METHOD :

This is a study carried out at during the period from April - 2012 to August 2012 the cases resembling '*Vatarakta*' reported at the O.P.D. of Des Bhagat Ayurvedic College & Hospital, Fategarh Sahib, Punjab, India were opted for inclusion under trial.

SELECTION CRITERIA :

Though *Amavata* is not 100% identical to Rheumatoid Arthritis, yet it have some same sign and symptoms. Henceforth during selecting the patients for trial, reference to criteria laid down by American Rheumatism Association (ARA)-1988 were also taken into consideration and selection of patients were taken as follows :

1. The selection was made referring to cardinal signs and symptoms such as *pain, swelling, tenderness, Aruchi, Agnimandya, Angamarda, Jwara, Daha, hritgraha, Vilsuchaka* etc.

- i) Elevated E.S.R.
- ii) RA Factor
- iii) Radiological exposure.

EXCLUSION CRITERIA :

- i) Cardio/Renal Pathology
- ii) Hyper tension
- iii) Osteoarthritis
- iv) Gouty arthritis
- v) Pregnant & lactating mother

vi) D.M., T.B. & Other Endocrinal disorders.

vii) Chronicity more than 5 years

viii) Having severe crippling difarmity

STUDY DESIGN :

The total number of patients i.e. 20(Twenty) have been selected applying multiple random sampling technique.

Duration of Study : The trial covers 30 days.

DRUG & DOSE :

The trial drug i.e. Orthokap Tab was given 2 tablets (each tab-500mg.) twice daily i.e. 6A.M. and 6P.M. with luke worm water after taking food.

Dietary Restrictions :

The patients were strictly advice to follow dietary restrictions and changes in life style.

ABOUT THE TRIAL DRUG :

The trial drug i.e. Orthokap Tab is a herbomineral drug consisting of

- Rasabhra Guggula : 250mg.
- Vata Gajendra Singha : 150mg.
- Salaki Satwa : 50mg.
- Sankha Vashma : 50mg.

As per textual reference the main ingredients are :

1. Rasabhra Guggula - 250mg. contains :(Ref.-4)

part	Su. Parada	- 1
part	Su. Gandhaka	- 1
part	Lauha Bhasma	- 1
part	Abhra Bhasma	- 2
part	Guggula	- 16
part	Guduchi Kwatha	- 32
part	Triphala Kwatha	- 32
	Sunthi-Pippali-Maricha	
	Haritaki-Amalaki-Bibhitaki-	-
	Each 1 Part	
	Nageswar-Vidanga-Dati-	
	Guduchi-Indrayava-trivrit	

2. Vata Gajendra Singha - 150mg. contains : (Ref. 5.9)

Lauha Vasma, Abhrabhsma, Su. Parada, Tamra Bhasma, Sisa Bhasma, Tankana, Su. Vatsnava, Saindhava Lavana, Lavanga, Hingu, Jaiphala, Twak, Patra, Sukshma Ela, Haritaki, Amalaki, Jeera - Each 1 part and processed with Ghee Kumari.

3. Sallaki Satwa - 50mg. : Extract is used.

4. Sankha Bhasma - 50mg. contains : Which is processed with Kanji

5. The medicine is processed with Nirgundi Kwatha, Panchakola Kwatha, Maharasananda Kwatha and Guduchi Swarasa.

The medicine was supplied by Konark Ayurvedic Pharmacy in Tablet form.

Batch No.- 12

Mfg. Date - Nov. 2011

Exp. Date - oct. 2016

EXAMINATION OF THE PATIENTS :

For each patient a specially designed proforma was filled upto note. Various aspects of disease and patient along with assessment of clinical relief and radiological changes.

CLINICAL ASSESSMENT OF CASES :

The clinical assessment was made depending upon the changes in subjective and objective features as mentioned in assessment scale such as : (Ref.-3)

- i) Swelling of Joint
- ii) Pain in Joints
- iii) Tenderness in Joints
- iv) Stiffness of Joints
- v) Wormth of Joints
- vi) General symptoms
- vii) ESR
- viii) RA factor
- ix) Radiology

STATISTICAL ASSESSMENT OF CASES :

The mean +/- S.D. before treatment has ben compared with mean SD after treatment.

ASSESSMENT SCALE :

The effectiveness of the trial and control drug has been assessed through the P-value applyingpaired T-test for test of significance.

PAIN IN JOINTS :

- G0 - Absent or no pain
- G1 - Mid - Perception of pain but not interfering his normal activities
- G2 - Moderate - Perception pain, interfering normal activities and painful look.
- G3 - Severe - Excruciating pain associated with painful *cries* and agonising look, normal activity are interfered.

SWEEING IN JOINTS :

The affected joint and the particular normal joint of the patient was measured. The difference between the two was taken, when there was incidence of both side sjoint affliation, then a normal person of same height and weight was considered. The difference between the measurement of the particular joint of the affected person with that of the normal individual was taken and grouped as mild, moderate and severe.

Severity	Wrist Joint
Mild (G1)	Upto 2 cm.

Moderate (G2)	2+ to 4cm	3+ to 6cm
Severe (G3)	4+ to 2 above	6+ to 2 above

TENDERNESS OF JOINTS :

(Ritchi Articular Index) Joint line tenderness was evaluated on the basis of standard criteria of “R.A.I.” as -

- G0 - Absent or no tender
- G1 - Mild - tender
- G2 - Moderate - Tender and wince
- G3 - Severe - tender and winced with drawn

STIFFNESS OF JOINTS :

- G0 - No stifness or stiffness lasting for 5 Min.
- G1 - Stiffness lasting from 5 min to 2 hour
- G2 - Stiffness lasting from 2 to 8 hours
- G3 - Stiffness lasting for more than 8 hours.

WARMTH OF JOINTS :

- G0 - Normal
- G1 - Mild - Feling raised temperature when compared to other normal body surface
- G2 - Moderate - Raised temperature in affected joints and forehead.
- G3 - Severe - Fever present.

GENERAL SYMPTOMS :

Ankle Joint	Normal	Figure Joint
Upto 3cm		Upto 1cm

G1 - Mild-Indigestion + Heavyness of body + Mandagni	points. Considering the severity of different sign symptoms as follows :	
G2 - Moderate - Indigestion + Heavyness of body + Bodyache	SIGNGRADE +++ (Severe) ++ (Moderate) + (Mild)	GRADE POINT G - III G - II G - I
G3 - Severe - Indigestion + Heavyness of body + Bodyache + Hrit graha + Jwara	- (Free from sign & symptoms)	G - 0
ESR : G0 - Normal - 5 - 7mm G1 - Mild- 7+ to 20mm G2 - Moderate - 20+ to 50mm G3 - Severe - 50+ to above	The clinical assessment of result is being done as following :	
R.A. Factor : + ve - ve	Cure / Maximum Improvement : Above 75% improvement of the cardinal sign and symptoms, pain, swelling, tenderness, stiffness, general symptoms, ESR	
RADIOLOGICAL PROGRESSION : G0 - Normal G1 - Mild- Fusiform Joint swelling G2 - Moderate - Severe Osteoporosis G3 - Severe - Joint destruction Ankylosis	Moderate Improvement : > 50% - < 75% improvement of cardinal sign and symptoms mentioned above. Mild Improvement : > 25% - < 50% improvement of cardinal sign and symptoms mentioned as above. No Improvement : < 25% improvement of the above mentioned cardinal sign and symptoms.	
TAXICITY : Due care was given to note the development of any adverse effect on both trial and control group patients.		
ASSESSMENT OF RESULT : For the purpose of the assessment of result we have used same grade	DISCUSSION & OBSERVATION : AGE : The incidence in the age group 30-45 years was highernoted among 12	

patients amounting 60% which is higher comprising to other age group. This is very proximal under textual exposure. (Ref. Arthritis and Allied Condition).

SEX:

Majority patients i.e. 15 pts. (75%) were females textual reference also reflects the predominance of R.A. in females. This is probably due to improper dietary habit as well as style of living.

DESHA :

From this study this is found that less no. of persons of Jungle were affected i.e. 10% which have textual ref.

CHRONICITY :

The disease itself is chronic as nature. The study of mine has also revealed the chronicity being more than 1 year which establishes the textual references. The reason of chronic nature of the disease is may be due to a complexity of *Nidan*. Those are brought to normal with difficulty.

ONSET :

The disease *Amlapitta* was found insidious onset i.e. 90% of cases (18

Pts.) which is similar to textual reference.

RELIGION :

90% of Hindus are mostly affected. This is because of presence of hospital in a Hindu area.

OCCUPATION :

Most of housewives were suffered i.e. 55% which has textual reference.

EDUCATION :

Mostly educated persons were affected (i.e. 50%). This is probably due to presence of hospital in a Educated area.

HABITAT :

65% cases were of urban area. This is also probable the acomodation of hospital in urban area.

MARITAL STATUS :

70% of cases were married. Nature of work 70% of moderate works were affected because of females were more involved.

ADDICTION :

75%, 40% and 25% respectively addicted with Tea-Coffee, Cigarette-Bidi and Alcohol. These are causative factors for forming (*Ama*) leads to *Amavata*. 55% of *Vata-Kapha prakruti* were suffered which is the main cause of the disease.

AGNI :

60% of cases were suffered from Mandagni which is the root cause of the disease and similar to textual reference.

KOSTHA :

The cases has Krura Kortha (40%) which has textual reference.

PRECIPITATING FACTOR :

Incompatible food (90%), *Vidagdha Ahara* (65%), *Snigdha Ahara*(75%), *Visama Ahara*(60%), *Atichinta*(75%), *Soka*(55%), *Diva Swapna*(50%) were observed the highest order causing Amavata which similar with the textual reference.

AGGRAVATING PERIOD :

65% cases were aggravated during morning which has textual reference. This is may be due to "*Kapha Vridhi*" Kala.

FAMILY HISTORY :

60% of cases had family history. This is contradictor with the textual references said to be R.A. does not matter on previous history. Such a diversion is noted due to limitation of study.

CLINICAL FEATURES :

On the point of sign and symptoms. All cases were having pain-swelling-tenderness-stiffness-wormth in joints. They also had *Mandagni* and heaviness of body 65% and bodyache 25% causes were suffering from *Hritgraha* and *Jwara*. R.A. factor is the in 40% cases. The presence of R.A. factor does not establish the diagnosis for R.A. but it can be of prognostic significance because patients with high tiers tend to have more severe and progressive disease with extra articular manifestation.

DISCUSSION ON CLINICAL RESPONSE

On expiry of trial improvement on various sign and symptoms were observed separately among trial group. In case of joint pain there was 58% relief occurs which is highly significant. Swelling of PIP and DIP joints shows 56.56% where as swelling of wrist and Ankle shows 47.35% and 40.04% respectively. This are also highly significant regression of swelling of PIP and DIP joints comprising the other joints were higher. The reason may be these are most mobile and free from a proneness of dependant oedema. As regards tenderness 50% of improvement moved which is highly significant. The

problem of tenderness is reciprocating with many factors out of which swelling is the cardinal one. reduction in swelling might have substantiate the tenderness attributed with the drug.

On expire of trial, improvement on general symptoms and stiffness in joints the percentage of improvement was 59.57% each. This is highly significant.

ESR level was determined being satisfactory decreased i.e. 41.5% which is highly significant.

RA Factor became negative in 2 cases.

DISCUSSION OF ASSESSMENT OF RESULT

Before assessment of result the denomination against improvement being fixed as cure/maximum improvement. Moderately improved, mild improvement, no improvement. The reason of declaration in such a manner is as per Ayurvedic nomenclature. In the concerned chapter of Amavata, the disease is said to be curable when it is occurred in healthy persons with newly affected of less number of joints as well as when predominance of one *dosha* occurs. Whereas when the disease founded from two *dosas* and above one joint is affected, it becomes *japya* (Palliative) (Ref.-16). It is totally incurable when three

dosa predominance occurs with involvement of all joints.

The results were carefully assessed taking into consideration of cardinal signs and symptoms. Among the trial group patient 15 days treatment could derive a response of maximum improvement having nil (01) and 15% cure after an expiry of 30 days.

Similarly regards moderate improvement after 15 days 15% improvement occurs and 25% after 30 days treatment. In case of mild improvement the percentage was 40% and 40% respectively after 15 days and 30 days treatment. No improvement occurs in 45% cases after 15 days treatment 20% after 30 days treatment.

With the categories of trial group the results was established as :

- 15% under maximum improvement
- 25% under moderate improvement
- 40% under mild improvement
- 20% under no improvement

ACCEPTABILITY OF TRIAL DRUG

Question of acceptability of any drug rests on its fitness including safety. The effect of "ORTHOKAP" Tab on Amavata now possess a question and answering to. It can be viewed that as regards treatment of Amavata (Ref.12) there is recommendation

of *Langhna, Swedana, Deepana, Tikta, Katu, Veerchana, Snehana and Vasti*.

The drug was mainly *katu, tikta, rasa, laghu, Ruksha, Guna, Ushma Virya, Katu Vipaka, Vedana Sthapana, Deepana, Pachana, Rasayan*. It has *Vatakapha samaka* property sotha *nasaka* is the main action. Specially *tikta-katu rasa* possesses antagonistic properties to that of *Ama* and *Kapha* which are the chief causative factors in this disease. Because of their *Agni Vridhi* property, they increases digestive power which also digests *Amarasa* and reduces the excessive production of *Kapha* and also removes the obstruction of the *srotas*. Because of *Ushma Virya (Ref.10)*, it also alleviates *vitiated Vata, kapha Rasa* helps in *Agni Deepan, Pachana karma* of *Ushma Virya, Katu rasa* and *Kaphahara Karma* of *Rukshya, Laghu guna* and *Ushma Virya, Amadosha pachana* occurs. *Lekhana Karma* of *Laghu guna* and *Tikta Rasa* removes the adhered *dosha* from the *dushita srotas*. The *Ushma* properties do not allow the *Ama* to linger at the site of pathogenesis and create *srotorodha*. It reduces *srotorodha* and pain. It has also the antagonistic action of *sheeta* and *Ruksha guna* of *Vata*. Thus it controls *Ama* and *Vata* together and minimizes the process of pathogenesis. After *Srotovivronoti Karma* of *Katu Rasa* and *Agni deepana, Srotovishodhana karma* by

Tikta Rasa, Lekhana action Srotosodhana occurs. This leads to *Shoshana* and *pachana* property of *Katu, Tikta Rasa* and *Ushma Virya*. It absorbs excessive *Dravata* which leads to *samyaka jatharagni*. Due to *Ushma Virya* and *Katu Vipaka, Vata Samana* occurs. After *samyak jatharagni* and *vatasamana, Amavata Vyadhi Shamana* occurs.

The trial drug is randomly available at a low cost. As regards safety and tolerance the drug is obligatory. The question acceptability of the trial drug for the treatment of *Amavata* is no more remains apprehended rather it can be safely used for the purpose.

CONCLUSION

Amavata is a disease of multiple joint involvement. Characterised by joint pain, stiffness in pain, stiffness and swelling in joints, indigestion etc. It can be compared with *Rheumatoid Arthritis* which is an autoimmune disorder. Accordingly to *Ayurveda* the disease is caused by dearrangement of *Agni* which creates *Ama*. Impairment of *Agni* and formation of *Ama* occurs due to faulty intake of food habit as well as mental stress also renders these condition. So the principle of treatment is *Langhna & Pachana* by normalising the *Agni virechan* and *snehana* is advised in *Amavata*. present

clinical trial was carried out based on this principle to justify the validity of the drug and its effects. So in this clinical study “ORTHOKAP” Tab has shown significant effects in improving condition of Amavata.

From the effect established through this clinical trial, it is highly encouraging to evaluate the efficacy of the drug in other joint problems like, Sinovitis, Rheumatic fever, gouty arthritis, frozen shoulder etc.

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TABLE No.-1

Sl. No.	Observations	Range	No. of Patients	%
1.	Age	15-30	5	25
		30-45	12	60
		45-60	03	15
			20	100
2.	Sex	Male	5	25
		Female	15	75
			20	100
3.	Desha	Anupa	9	45
		Sadharana	9	45
		Jangala	2	10
			20	100
4.	Chronicity	6 month - 2 years	8	40
		2 - 4 years	8	40
		4-5 years	4	20
			20	100
5.	On Set	Sudden	2	10
		Insidious	18	90
			20	100
6.	Religion	Hindu	18	90
		Others	2	10
			20	100
7.	Occupation	Student	3	15
		Hosue wife	11	55
		Service	3	15
		Miscellaneous	3	15
			20	100
8.	Education	Uneducated	5	25
		H.S.C.	4	20
		Graduate	10	50
		Post Graduate	1	5
			20	100

9.	Habitat	Urban	13	65
		Rural	7	35
			20	100
10.	Marital Status	Married	14	70
		Unmarried	6	30
			20	100
11.	Economical Status	Low Income	5	25
		Midle Income	12	60
		Rich	3	15
			20	100
12.	Nature of Work	Sedentary	2	10
		Moderate	14	70
		Hard Work	4	20
			20	100
13.	Addiction	Tea-Coffee	15	75
		Cigarette/Bidi	8	40
		Alcohol	5	25
		Non-Addiction	2	10
			20	100
14.	Prakriti	Vata-Pitta	5	25
		Vata-Kapha	11	55
		Kapha-Pitta	4	20
			20	100
15.	AGNI	Mandagni	12	60
		Tiklinagni	2	10
		2	10
		Visama	4	20
			20	100
16.	Kostha	Mrudu	6	30
		Madhyama	6	30
		Krura	8	40
			20	100
17	Precipitating	Incompatable food	18	90

	Factor	Virudha Ahara	13	65
		Snigdha Ahara	15	75
		Visamasana	12	60
		Bhojanattorav Vyayama	8	40
		Adhyasana	8	40
		Divaswapna	10	50
		Atichinta	15	75
		Manodvega	5	25
		Soka	11	55
16.	Aggravating Period	Morning	13	65
		Day	3	15
		Night	4	20
			20	100
19.	Family History	Present	8	40
		Absent	12	60
			20	100

TABLE No.-2**Showing the incidence of different sign and symptoms**

Sl. No.	Sign & Symptoms	No. of Patients	Percentage
1.	Pain in Joints	20	100%
2.	Swelling in Joints	20	100%
3.	Tenderness in Joints	20	100%
4.	Stiffness in Joints	20	100%
5.	Wormth of Joints	20	100%
6.	Mandagni	20	100%
8.	Heaviness of Body	20	100%
9.	Body Ache	13	65%
10.	Hrithgraha	5	25%
11.	Jwara	5	25%
12.	R.A. Factor (+ve)	8	40%
13.	Deformity	1	0-5%

Table No.-3

**Showing the degree of severity of different sign and symptoms
among the trial group**

Sl.	Sign & Symptoms	G1	G2	G3	Total
1.	Joint Pain	--	10	10	20
2.	Joint Swelling	--	10	10	20
3.	Tenderness	--	10	10	20
4.	Stiffness in Joints	2	9	9	20
5.	Wormth in Joints	2	9	9	20
6.	ESR	2	14	4	20
7.	General Symptoms	2	9	9	20
8.	Radiological Progression	--	--	1	01
9.	R.A. Factor(+ve)	--	--	--	8

G1 - Mild stage, G2 - Moderate Stage, G3 - Severe Stage, T = Total No. of patients.

Table No.-4

**Showing the degree of severity and percentage of improvement in different sign and
symptoms after 15 days and 30 days of treatment among the trial group**

Sl.	Sign & Symptoms	After 15 days Degree of Severity					After 30 days Degree of Severity				
		G0	G1	G2	G3	%	G0	G1	G2	G3	%
1.	Joint Pain	--	9	8	3	32	7	7	4	2	58
2.	Joint Swelling										
	PIP & DIP	--	9	6	5	22.73	6	7	5	2	56.56
	WRIST	--	9	6	5	22.73	5	6	7	2	47.35
	Ankle	--	9	7	4	18.63	3	9	6	2	40.04
3.	Tenderness	--	8	8	4	28.20	5	7	6	2	50.0
4.	Stiffness in Joints	1	10	5	4	31.91	9	4	6	1	59.57
5.	General Symptoms	1	10	5	4	31.91	9	4	6	1	59.57
6.	ESR	--	8	9	3	17.6	8	4	6	2	41.50

7.	R.A. Factor	(+ve) in 8 cases	0.0	-ve in 2 cases	25.0
8.	Radiological Progression	-- -- -- 01	0.0	0 0 0 1	0.0

G0 - Normal, G1 - Mild, G2 - Moderate, G3 - Severe, % - Percentage of Improvement

Table No.-5

Percentage of improvement in different sign and symptoms A.T.(15 days) and A.T.(30 days) among the T.D.G. Patients

Sl.	Sign & Symptoms	% of Improvement	
		A.T. (15 days) T.F.	A.T. (30 days) T.F.
1.	Joint Pain	32	58.0
2.	Joint Swelling		
	PIP & DIP	22.73	56.56
	WRIST	22.73	47.35
	Ankle	18.63	40.04
3.	Tenderness	28.0	50.0
4.	Stiffness in Joints	31.91	59.57
5.	General Symptoms	31.91	59.57
6.	ESR	17.6	41.50
7.	R.A. Factor	--	25.0
8.	Radiological Progression	No Change	No Change

AT - After Treatment, TDG - Trial Drug Group,
% - Percentage, TF - Frequency of Trial Drug

Table No.-6
Showing the Clinical assessment of Result.

Sl.	Clinical Assessment	A.T. (15 days)		A.T. (30 days)	
		Tf %		Tf %	
1.	Cure/Maximum Improvement	--		03	
2.	Moderate Improvement	03		05	
3.	Mild Improvement	08		08	

4. No Improvement

09

04

TG - Trial Group, f - Frequency, % - Percentage -- No Patients

Table No.-7
Statistical Analysis showing the effectiveness of Trial Drug
after treatment to different Sign and Symptoms

P value	Sl. Remarks	Sign & Symptoms	Treatment	Mean	S.D.	df+	value
Significant	1. Joint Pain	BT		2.50.5			
		AT (15 days)	1.70.71	19	8.94	<0.001	Highly
		AT (30 days)	1.50.9		8.98	<0.001	Highly
Significant	2. Joint Swelling PIP & DIP	BT		1.980.55	19		
		AT (15 days)	1.520.55		6.38	<0.001	Highly
		AT (30 days)	0.860.75		9.82	<0.001	Highly
Significant	WRIST	BT		3.580.97			
		AT (15 days)	2.791.24		5.62	<0.001	Highly
		AT (30 days)	1.881.61		7.48	<0.001	Highly
Significant	Ankle	BT		4.991.40			
		AT (15 days)	4.061.71		4.52	<0.001	Highly
		AT (30 days)	2.992.14		6.16	<0.001	Highly
Significant	3. Tenderness	BT		2.50.5			

	AT (15 days)	1.80.75	19	6.66	<0.001	Highly
Significant						
	AT (30 days)	1.250.9		7.6	<0.001	Highly
Significant						
4. Stiffness in Joints	BT	2.350.57				
	AT (15 days)	1.60.86	19	6.09	<0.001	Highly
Significant						
	AT (30 days)	0.950.9		8.34	<0.001	Highly
Significant						
5. General Symptoms	BT	2.350.57				
	AT (15 days)	1.60.86	19	6.09	<0.001	Highly
Significant						
	AT (30 days)	0.950.9		8.34	<0.001	Highly
Significant						
6. ESR	BT	42.0512.82				
	AT (15 days)	34.6514.87	19	6.10	<0.001	Highly
Significant						
	AT (30 days)	26.618.22		7.10	<0.001	Highly
Significant						
7. Radiological Progression	BT	One case was having radiological deformity.				
days of	AT (15 days)	Deformity could not be changed even after 30				
	AT (30 days)	treatment.				

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