Research Article

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CLINICAL ASSESSMENT OF VARDHAMAN BHALLATAKI RASAYANA IN MANAGEMENT OF AMAVATA

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ABSTRACT
Aamvata is one of the crippling diseases claiming the maximum loss of human power. It is not only a disorder of locomotor system but also a systemic disease. Aamavata is named after its chief pathogenic constituents i.e. Aama and Vata. Though Aama and Vata are chiefly pathogenic factors, Kapha and Pitta are also invariably involved in its Samprapti. Aama and Vata being contradictory in character possess difficulty in planning the line of treatment. The symptoms of Aamvata are identical to Rheumatism which includes Rheumatoid arthritis and Rheumatic fever. The Rheumatological disorders are such group of disease which has no specific medical management in any type of therapeutics. It is observed that the Rheumatism is autoimmune disorder, these are among the collagen disorders having strong and significant parlance with Aamavata. Aamavata is the particular type of disease which is mentioned in Ayurveda since the period of Madhavkar under category of Vata – Kaphaja disorder. In spite of description of multiple drug therapy on Aamavata in different classics of Ayurveda, results are not found to be potential and durable. Hence in present clinical study 28 patients were selected and kept on "Vardhaman Bhallataki Rasayana" which shown significant result.
Keywords: Aamavata Aama Samprapti Vardhaman Bhallataki Rasayana

INTRODUCTION

Aamavata affects the Sandhi and Hridya Marma which forms part of Madhyamrog Marga. Though the Aama and Vata are chief pathogenic factors, the disease represent the vitiation of Tridosha. The affection of Sandhi with Aama reflects role of homogeneous Dosha and Dushya in causation of disease. The prevalence of Rheumatoid Arthritis in adult in India varies from 0.5-3.8 % in women and 0.15-0.37 % in men. The disease is becoming an enormous burden on society. Right from onset of disease, the proper management is very essential. Derangement of the Kapha Dosha, especially Shleshak Kapha in Aamvata which produce joint pain and swelling with tenderness, can be correlated with rheumatoid arthritis and derangement of the Pitta Dosha along with Aama taking shelter in the Avalambak Kapha Sthana, which can be correlated with Rheumatic fever because of cardiac involvement, due to repeated fever resulting in rheumatic heart disease[1]. This mode of Samprapti is in parlance with rheumatism, (Rheumatoid Arthritis and Rheumatic Fever). In Rheumatoid Arthritis synovial membrane is infiltrated with lymphocytes, macrophages and plasma cells. The serum contains Rheumatoid factors (RF) which are immunoglobulin (usually IgM) behave as antibodies to auto antigenic components of IgG. It appears that the inflammatory changes of Rheumatoid Arthritis (RA) are brought out as a result of activation of complement by antigen antibody complexes. RA is generally regarded as an auto immune focal inflammatory disorder of the connective tissues throughout the body in which some antigenic product of streptococci in throat are absorbed through the blood vessels and lymphatic are then distributed to different tissues. These streptococcal antigens incite autogenously tissues to form auto antibodies which react with specific tissue component to produce lesions in RF. The name is derived from the Greek "Rheumatous" means "Flowing" and this initially gave rise to the term "Rheumatic Fever", an illness that can follow throat infections and which includes Joint pain. The suffix "-oid" means "resembling", i.e. resembling Rheumatic fever. "Arth" means "Joints" and Suffix "-itis", a condition involving inflammation thus rheumatoid arthritis was a form of joint inflammation that resembled rheumatic fever. Here the antigen formation can be consider as Aama at Jatharagni level and formation of antibodies with Dhatugat Aama and the antigen antibodies complexes as Samdhatu and that of Sthansamshraya in a Sleshmasthana will infiltration of immune complex including lymphocytes, macrophages and plasma cells. Aama and Vata being contradictory in character are difficulty factor while planning the line of treatment. From the modern side, the non- steroidal anti inflammatory drugs (NSAID'S), disease modifying anti rheumatic drugs (DMARD'S) are the main stay in this condition[2], however they have serious adverse effects and have limitations for long term therapy. NSAID'S and DMARD'S provide temporary control to the pain and possibility of further damage to joint also increases as root cause of disorder remains unattendant. Hence there is the need of the drug which have predictable efficacy with low toxic profile in this debilitating disorder. The Bhallatak (*Semecarpus anacardium*) have been used as healthcare product and medicine since thousands of years[3]. All the three Brihatrayee (Three Major Treatises) viz. Charka, Sushruta and Vagbhata of Ayurveda elaborately described Bhallatak formulation[4-5]. Bhallatak is acclaimed as "Ardha-Vaidya" meaning it does half the job of physician. At least 45 dissertations are recorded for

post graduate studies in Ayurveda to investigate various aspect of Bhallatak, its role in RA emerges to be the most common topic[6]. Ayurvedic periodicals have also been publishing clinical studies of Bhallatak in Rheumatic diseases[7-9].

Samprapti

When person having sedentary lifestyle with hypofunctioning of digestive mechanism, indulges incompatible diet or workout exercise after taking fatty food, Ama is formed and propelled by Vayu and reaches the Shleshmasthana (such as Amashaya, Hridya, Mashtikshya, Sandhi and Jivha) the incompletely processed Aamarasa with help of vitiated Vata is circulated all over the body. It then takes multicolour becomes excessively mucous accumulated in the small channels. It renders the patients weak and produces feeling of heaviness in the pericardial region. When this aggravated Aama and Vata simultaneously circulated all over body and gets accumulated in the joints by Strotosang and making body stiff, this condition is known as Aamavata. According to Kapha Sthana involved, Aamavata can be described in five different types. Involvement of Avalambak Kapha in Hridaya may manifest the predominant symptoms like Hridgraha, Hridguarava. Clinically these patients may suffer with mitral stenosis or mitral prolaps. If Dosha takes shelter in Amashaya and deranges the Kledak Kapha it result in severe Agnimandya and Aruchi involvement of Tarpak Kapha in brain (Mashtikshya) leads to rheumatic chorea. Involvement and predominance of Sheshak Kapha at Sandhisthana leads to rheumatoid arthritis. Patients get symptoms like Sandhishool, Sandhishoth, Sandhigraha, Sparshaasahatva etc. The symptoms such as Aruchi, Trishna and tastelessness will be found predominantly when Bodhak Kapha involved at Rasana.

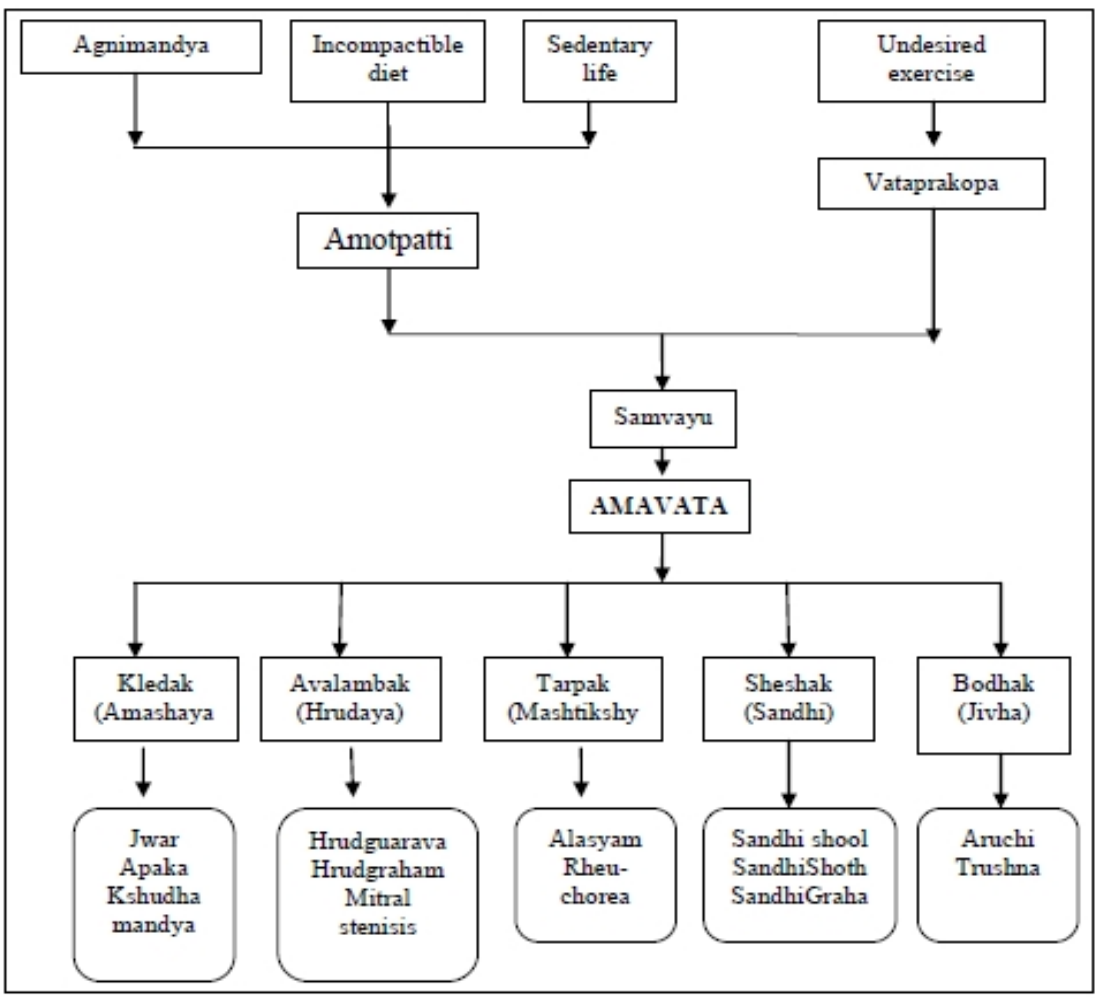

Figure 1: Aamvata Samaprapti

MATERIALS AND METHODS

Source of Data

Study is conducted at RT Ayurved College Hospital, Akola Maharashtra, India

Inclusion Criteria

- Patients having signs and symptoms of Aamavata
- Patients satisfying criteria lay down by the American Rheumatism Association

Excluding criteria

- Patients having deformities e.g.: Ulnar deviation, swan neck deformities, ankylosis of wrist and elbow etc.
- Pitta Prakriti and Pitta predominant Aamavata
- Patients with history of Diabetes mellitus, chronic alcoholism, pulmonary tuberculosis, Hypertension, Extensive blood loss and Haemophilia.

Methodology

In the present study, after complete examination and investigation, 28 patients have been kept on Shunthi Siddha milk for one week, then they were administered "Vardhaman Bhallataki Rasayana" processed with milk starting as 3 to 6 Bhallatak and then tapper to 6 to 3 for seven days treatment period.

Duration of treatment

45 days.

Criteria for Assessment

After completion of therapy, before and after treatments scores were assessed on the basis of symptoms of Aamavata graded on five grade scale (0-4). Objective parameters such as joints swelling, pain, tenderness, stiffness time, grip strength, foot pressure, goniometry test, walking time were assessed before and after treatment. Laboratory tests Hb %, TLC, DLC, ESR, RA Titre, ASO Titre, CRP Titre, platelet count and urine routine and microscopic was investigated before and after treatment. The obtained data on the basis of observations were subjected to statistical analysis in terms of mean standard deviation, standard error and 't' test were conceded at level of $p > 0.05$ (insignificant), $p < 0.05$ and $p < 0.01$ (significant) and $p < 0.001$ (Highly significant) to carry out the results.

Criteria for assess the effect of therapy

Detailed clinical observations were done every week for the assessment of results and final data was divided in to four groups.

Excellent

The patients who had got complete or above 75 % relief of signs and symptoms i.e. Shoth, Sparsha – asahtva, Jwar, Agnimandya, Alasya, Trishna, etc were included in this group. Laboratory investigations such as normal ESR, CRP, Platelet count, negative R.F. Titre, A.S.O. Titre within normal range were also included in this group

Good

Patients who had got 50 % to 75 % relief of above signs and symptoms were considered in this group. The patients who`s laboratory investigations were near to normal (above normal range) or 50 % reduction in their values were also considered in this group.

Fair

Patients who had got 25 % to 50 % relief in signs and symptoms, and less than 50 % reduction in their laboratory values were considered in this group.

Poor

Patients who had got only less than 25 % relief in signs, symptoms, and laboratory test or no change were included in this group.

RESULTS

The collected data was distributed in the following Tables. Five patients have left this study against medical advice hence these patients were not included in final results.

Table 1: Age and sex distribution of 28 patients of Aamavata

S. No	Age group	No. of patients		Total	%
		Male	Female		
1.	1 – 10	0 (0 %)	0 (0 %)	01	3.58
2.	11 – 20	03 (10.74 %)	01 (3.58 %)	04	14.28
3.	21 – 30	06 (21.43 %)	01 (3.58 %)	07	25
4.	31 – 40	03 (10.71 %)	02 (7.14 %)	05	17.86
5.	41 – 50	02 (7.14 %)	05 (17.86 %)	07	25
6.	51 – 60	0 (0 %)	04 (14.28 %)	04	14.28
7.	61 - 70	0 (0 %)	01 (3.58 %)	01	3.58
Total		14 (50 %)	14 (50 %)	28	100

Table 2: Occupation distribution of 28 patients of Aamavata

S. No	Occupation	No. of pts.	%
1.	Labour	07	25.00
2.	Farmer	11	39.28
3.	House hold worker	03	10.71
4.	Service	02	7.14
5.	Business	04	14.28
6.	Other	01	3.57
Total		28	

Table 3: Onset distribution of 28 patients of Aamavata

S. No	Onset	No. of pts.	%
1.	Insidious	03	10.72
2.	Gradual	12	42.85
3	Sudden	13	44.65
Total		28	

Table 4: Agni wise distribution of 28 patients of Aamvata

S. No	Agni	No. of pts.	%
1.	Manda	18	64.28
2.	Tikshna	0	0
3.	Vishama	10	35.72
4.	Samagni	0	0
Total		28	

Effects of therapy

Table 5: Effect of "Vardhamana Bhallataki Rasayana on symptoms of Aamvata in 23 Patients

S. No	Symptoms	B T	A T
1.	Sandhishool	23 (100 %)	3 (13.04 %)
2.	Sandhishoth	23 (100 %)	1 (4.34 %)
3.	Sandhigraha	23 (100 %)	1 (4.34 %)
4.	Sparsha-asahtva	23 (100 %)	0 (0 %)
5.	Agnimandya	23 (100 %)	02 (8.69 %)
6.	Trishna	15 (65.21 %)	0 (0 %)
7.	Jwar	23 (100 %)	02 (8.69 %)
8.	Jadya	22 (95.65 %)	02 (8.69 %)
9.	Bahumutrata	23 (100 %)	0 (0 %)
10.	Vidavibandha	18 (78.26 %)	01 (4.34 %)

Table 6: Effect of "Vardhamana Bhallataki Rasayana on Cardinal Features of Aamvata in 23 patients

S. No.	Sandhishool		Mean		%	d	S.D	S.E (M) ±	t_{cal}	P
			BT	AT						
1	Right	Shoulder	2.72	1.1	59.56	1.62	0.79	0.16	7.34	< 0.001
2		Elbow	2.26	0.56	75.22	1.7	0.68	0.14	8.77	< 0.001
3		Wrist	2.75	1.6	41.82	1.15	0.89	0.18	7.68	< 0.001
4		Hip	2.46	1.34	45.53	1.12	0.68	0.14	1.81	> 0.05
5		Knee	2.45	1.21	50.61	1.24	0.87	0.18	11.16	< 0.001
6		Ankle	2.15	0.88	59.07	1.27	0.86	0.18	6.99	< 0.001
7	Left	Shoulder	2.56	1.33	48.05	1.23	0.82	0.17	7.6	< 0.001
8		Elbow	2.42	1.04	57.02	1.38	0.71	0.14	9.05	< 0.001
9		Wrist	2.9	1.26	56.55	1.64	0.91	0.19	6.6	< 0.001
10		Hip	2.66	0.69	74.06	1.97	0.61	0.12	2.02	> 0.05
11		Knee	2.63	1.85	29.66	0.78	0.69	0.14	12.9	< 0.001
12		Ankle	1.93	0.81	58.03	1.12	0.83	0.17	6.74	< 0.001

Table 7: Effect of therapy on Cardinal Features of Aamavata in 23 patients

S. No.	Sandhishoth		Mean		%	d	S.D	S.E (M) ±	t_{cal}	P
			BT	AT						
1	Right	Shoulder	33.95	32.34	4.74	1.61	1.44	0.3	3.98	< 0.001
2		Elbow	23.14	22.05	4.71	1.09	7.06	1.47	2.01	> 0.05
3		Wrist	15.06	14.86	1.33	0.2	4.54	0.94	2.44	< 0.05
4		Hip	66.25	65.04	1.83	1.21	0.44	0.09	2.10	< 0.05
5		Knee	33.14	32.56	1.75	0.58	1.10	0.23	3.96	< 0.001
6		Ankle	24.56	22.65	7.78	1.91	1.70	0.35	4.04	< 0.001
7	Left	Shoulder	34.15	32.34	5.30	1.81	1.58	0.33	3.32	< 0.01
8		Elbow	23.22	22.24	4.22	0.98	1.04	0.21	4.46	< 0.001
9		Wrist	15.19	14.16	6.78	1.03	1.43	0.3	3.17	< 0.01
10		Hip	66.08	65.04	1.57	1.04	0.51	0.10	2.20	< 0.05
11		Knee	33.41	31.75	4.97	1.66	1.61	0.33	3.72	< 0.01
12		Ankle	24.04	21.86	9.07	2.18	1.37	0.28	4.21	< 0.001

Table 8: Effect of therapy on Cardinal Features of Aamavata in 23 patients

S. No.	Sandhigraha		Mean		%	d	S.D	S.E (M) ±	t_{cal}	P
			BT	AT						
1	Right	Shoulder	2.43	1.86	23.46	0.57	0.75	0.15	8.04	< 0.001
2		Elbow	2.86	1.74	39.16	1.12	0.71	0.14	7.85	< 0.001
3		Wrist	2.14	1.45	32.24	0.69	0.79	0.16	6.01	< 0.001
4		Hip	1.08	1.25	15.74	0.17	0.38	0.08	2.15	< 0.05
5		Knee	2.53	1.48	41.50	1.05	0.68	0.14	2.07	< 0.05
6		Ankle	2.06	1.46	29.13	0.6	0.91	0.18	2.19	< 0.05
7	Left	Shoulder	2.86	1.24	100.0	2.86	0.76	0.15	8.17	< 0.001
8		Elbow	2.65	1.49	100.0	2.65	0.68	0.14	8.77	< 0.001
9		Wrist	2.06	1.25	100.0	2.06	0.77	0.16	7.23	< 0.001
10		Hip	2.32	0.96	100.0	2.32	0.38	0.08	2.15	< 0.01
11		Knee	2.59	1.88	100.0	2.59	0.58	0.12	11.66	< 0.001
12		Ankle	2.16	1.45	100.0	2.16	0.87	0.18	5.69	< 0.001

Table 9: Effect of therapy on Cardinal Features of Aamavata in 23 patients

S. No.	Sparsha-asahtva		Mean		%	d	S.D	S.E (M) ±	t_{cal}	P
			BT	AT						
1	Right	Shoulder	219	300	36.99	81	72.66	15.15	6.25	< 0.001
2		Elbow	202	298	47.52	96	96.92	20.21	5.01	< 0.001
3		Wrist	183	297	62.30	114	121.36	25.31	2.86	< 0.01
4		Hip	292	300	2.74	8	27.46	5.72	1.36	> 0.05
5		Knee	164	296	80.49	132	49.78	10.38	12.85	< 0.001
6		Ankle	145	297	104.83	152	68.75	14.33	7.82	< 0.001
7	Left	Shoulder	226	296	30.97	70	62.58	13.05	5.69	< 0.001
8		Elbow	219	290	32.42	71	83.41	17.39	6.39	< 0.001
9		Wrist	166	297	78.92	131	72.7	15.16	6.62	< 0.001
10		Hip	294	300	2.04	6	21.07	4.39	1.18	> 0.05
11		Knee	147	288	95.92	141	54.17	11.29	11.06	< 0.001
12		Ankle	156	298	91.03	142	69.33	14.46	5.83	< 0.001

Table 10: Effect of therapy on Clinical Assessments in 23 Patients of Aamavata

S. No	Clinical Assessments	Mean		%	d	S.D	S.E (M)+	t_{cal}	P
		BT	AT						
1	Grip Strength	2.782	0.76	72.68	2.022	0.92	0.19	10.55	< 0.001
2	Foot Pressure	2.565	0.695	72.90	1.87	0.75	0.15	10.81	< 0.001
3	Walking Time	17.652	8.931	49.41	8.721	5.46	1.13	7.67	< 0.001
4	Weight	47.913	49.13	2.54	1.217	1.24	0.25	4.7	< 0.001

Table 11: Effect of therapy on Haematological Parameter 23 Patients of Aamavata

S. No.	Hematological Parameter	Mean		%	d	S.D	S.E (M) ±	t_{cal}	P
		BT	AT						
1	Hb %	9.35	11.39	21.82	2.04	0.8	0.16	12.11	< 0.001
2	TLC	9385.18	9231.82	9.59	900	1184.01	236.8	3.8	< 0.001
3	ESR	63.56	36.64	42.35	26.92	0.55	0.11	9.1	< 0.001
4	RA Titre	37.17	25.74	30.75	11.43	9.29	1.93	5.67	< 0.001
5	ASO Titre	890	650	26.97	240	315.1	65.71	2.64	< 0.05
6	CRP Titre	25.95	9.1	64.93	16.85	16.18	3.37	3.65	< 0.01
7	Platelet count.	261000	315714	20.96	54714	25351.7	5287.12	9.75	< 0.001

Table 12: Total effects of therapy wise distribution of 23 patients of Aamavata

S. No.	Effect of Therapy	No. of patients	% of patients
1.	Excellent	12	52.17
2.	Good	09	39.13
3.	Fair	02	8.69
4.	Poor	0	0

Table 1 shows that maximum patients were in the age group of 11-60 years.

Table 2 shows that out of 56 patients of Aamavata, most of the patients were farmers 11 (39.28 %), followed by 7 (25 %) patients from labour class.

It has been shown in Table 3 that out of 28 patients of Aamavata, 13 (44.65 %) patients were having sudden onset and 12 (42.85 %) patients were having gradual onset.

In the present clinical study, it reveals that majority of the patients 18 (64.28 %) were having Mandagni where as 10 (35.72 %) patients were having Vishmagni. (Table 4)

In the present study all the patients were having Sandhishool, Sandhishoth, Sandhigrsha, Sparsha-asahtva. After the treatment 3 patients have got complete improvement in Sandhishool, 1 patients have got relief in Sandhishoth and 1 in Sandhigrsha. Sparsha-asahtva was cured in total number of patients. (Table 5)

"Vardhamana Bhallataki Rasayana found highly significant in right shoulder (59.56 %), elbow (75.225 %), wrist (41.82 %), knee (50.61 %), ankle (59.07 %) and left shoulder (48.05 %), elbow (57.02 %), wrist (56.55 %), knee (29.66 %), ankle (58.03 %) where as it was insignificant in right hip (45.53 %) and left hip (74.06 %) (Table 6).

The effect on cardinal symptoms were shown in the table indicates that statistically highly significant relief was found in right shoulder (4.74 %), knee (1.75 %), ankle (7.78 %) and left elbow (4.22 %), ankle (9.07 %) where as it significant in right wrist (1.33 %), hip (1.83 %) and left shoulder (5.30 %), wrist (6.78 %), hip (1.57 %) and knee (4.97 %). While it was insignificant in right elbow (4.71 %) (Table 7).

The effect on cardinal symptoms were shown in the table indicates that statistically highly significant relief was found in right shoulder (23.46 %), elbow (39.16 %) , wrist (32.24 %) and left shoulder (100 %), elbow (100 %) , wrist (100 %), knee (100 %), ankle (100 %) where as it was significant in right hip (15.74 %), knee (41.50 %), ankle (29.13 %) and left hip (100 %) (Table 8)

The effect on cardinal symptoms were shown in the table indicates that statistically highly significant relief was found in right shoulder (36.99 %), elbow (47.52 %), knee (80.49 %), ankle (104.83 %) and left shoulder (39.97 %), elbow (32.42 %), wrist (78.92 %), knee (95.92 %), ankle (91.03 %) where as it was significant in right wrist (62.30 %) while it was insignificant in right hip (2.74 %) and left hip (2.04 %) (Table 9)

The effect on clinical assessments were shown in the table indicates that statistically highly significant relief was found in grip strength (72.68 %), foot pressure (72.90 %), walking time (49.41 %) and weight (2.54 %). (Table 10)

The effect on haematological parameters were shown in the table indicates that statistically highly significant

relief was found in Hb percentage (21.82 %), TLC count (9.59 %), ESR (42.35 %), RA Titre (30.75 %) and Platelet count (20.96 %) while it was signification in ASO Titre (26.97 %) and CRP Titre (64.93 %). (Table 11)

In the present study Vardhamana Bhallataki Rasayana excellent results were found in 52.17 % patients, good results were observed in 39.13 % patients whereas fair results were found in 8.69 % patients. From clinical study it was also observed that, before the treatment RA titre was positive in 20 patients and after the treatment it was negative in 10 patients

DISCUSSION

Bhallatak is Madhur, Kashay Ras, Ushana Veerya, Madhur Vipak and Laghu, Snigdha, Tikshana, and Ushna Guna[10-11]. It has several Karma like Kaphavatashamak (Alleviates Kapha and Vata Dosha), Pitta shodhak (Expels out Pitta Dosha) Medhya (Beneficial to brain), Vanhikar (Improves digestive fire), Vrishya (Aphrodisiac), Bruhan (Anabolic in effect) and hence indicated in many diseases. It improves Jatharagni and leads to the formation of other Dhatu and checks the formation of Ama. Due to Ushna Veerya, it digests and absorbs the vitiated Aama by its Shoshan Karma. The most significant components of the Bhallatak (*Semecarpus anacardium* linn.) are phenolic compounds – Bhilavanol A (Monoenepentadecyl Catechol I), Bhilavanol B (Dienepentadecyl Catechol II) and Glucoside – Anacardoside[12-13]. Vesicant reactions of Bhallatak are possibly attributable to these Phenolic compounds. Important Biflavanoids such as semecarpuflavanone, Galluflavanone have potential antioxidant activity[14]. Anticancer, anti-inflammatory, anti- arthritic and antioxidant activity have been reported in experimental animals[15]. Taking the positive lead from clinical trial, Patients with various Rheumatic disease such as Rheumatic arthritis, ankylosing spondylitis, sciatica, periarthritis of shoulder and Osteoarthritis studied by pervious scholar has shown positive response[16]. Hence taking the above points in to consideration, Bhallatak is effective in correcting the pathological condition of disease Aamavata. The Rheumatism is auto immune disorder. It is observe that, the Acharya charka had mentioned that Bhallatak as Rasayana drug[17] so in general Bahallatak improve the qualities of body elements there by cure disease as well as maintaining the healthy status of body.

CONCLUSION

"Vardhamana Bhallataki Rasayana" has shown significant reduction in sign and symptoms of Aamvata. It also reduces the positivity of RA Titre ($t > 5.67$, at 0.1 % level), ASO Titre ($t > 2.64$, at 5 % level), CRP Titre ($t > 3.65$, at 1 % level) and also weight gain ($t > 4.70$, at 0.1 % level), increases the Hb % ($t > 12.11$, at 0.1 % level) and platelet count ($t > 9.75$, at 0.1 % level), and decrease in ESR ($t > 9.10$, at 0.1 % level). From above observations, it can be concluded that "Vardhamana Bhallataki Rasayana" gives "Rasayana" and "Bruhana" effect and improves non specific immunity against Aamavata.

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