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Research Article

A CLINICAL STUDY TO EVALUATE THE EFFECT OF *SHAMPAKADI KWATHA* IN THE MANAGEMENT OF *VATARAKTA* W.S.R. TO HYPERURICEMIA

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ABSTRACT

In the rapidly changing and modernizing era, human population is becoming vulnerable to many metabolic disorders related with lifestyle and food habits. *Vatarakta* is one of them which is caused by union of vitiated *Vata Dosha* and morbid *Rakta Dhatu*. In modern science, it resembles the symptomatology of gout which is caused by hyperuricemia. The epidemiology of hyperuricemia is different from that of gout. Gout is only present in 10% of people with hyperuricemia. The purpose of this study was to find out an effective and well accepted drug with minimal or no complications for this illness. 45 patients who were diagnosed with *Vatarakta* w.s.r. to hyperuricemia were allocated randomly into three groups. The trial drug i.e., *Shampakadi Kwatha* 50ml twice a day was given to 15 patients of Group I, the standard drug Allopurinol 100mg twice a day was given to 15 patients of Group II and both *Shampakadi Kwatha* 50ml twice a day and a standard anti-hyperuricemic drug allopurinol 100mg twice a day was given to 15 patients of Group III for duration of 6 weeks. Subjective parameters were assessed before and after the completion of trial. Data obtained during the trial was tabulated and statistically analysed.

INTRODUCTION

Nowadays, there is rise in the percentage of occurrence of various metabolic disorders, which have gripped the population worldwide and among them the *Vatarakta* (gout) is the blazing health issue among the public. *Vatarakata* is one of the unique disorders among *Vatavyadhi* compared to other *Vatavyadhis*. *Rakta dhatu* represents blood and associated metabolism. It signifies that association of *Vata* disorder along with vitiated *Pitta dosa* and *Rakta dhatu.*[1]

The pathology known as *Avarana* (occlusion) causes *Vata Pradhana Tridoshaj Vyadhi.* The illness starts with vitiation of *Rakta Dhatu* which obstructs the movement of already vitiated *Vata Dosha* leading to its further vitiation [2].

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In *Vatarakata Vata Dosha* and the *Dushya Rakta* are vitiated simultaneously. *Sushruta* described this condition under *Vatavyadhi*,[3] while *Charaka* and *Vaghbhata* assign a separate chapter to this disease[4,5]. Clinical symptomatology of *Vatarakta* and hyperuricemic arthritis is very similar to each other. It is characterized by severe pain, tenderness, inflammation and burning sensation in the affected joints.

Hyperuricemia is defined as serum or plasma urate concentration greater than 7mg/dl in males and 6mg/dl in females[6]. It is characterised by overproduction or under-excretion of uric acid. Uric acid is the end product of an exogenous pool of purines and endogenous purine metabolism. The daily endogenous purine production is estimated to amount to about 500-600mg while intake of exogenous purines with diet is approximately 100-200mg per day[7].

In early stage, urate crystals starts depositing in joints without manifesting any symptom but on occasion when serum uric acid level are not in optimum control, it may trigger an attack of acute

gouty arthritis. Its recurrence is common which results in destruction of joints and further complications.

According to modern medicine, anti-inflammatory drugs particularly NSAIDs are used to treat hyperuricemic arthritis, symptomatically which have many adverse effects particularly in presence of renal insufficiency and gastrointestinal disorders. There is definite need to explore more efficacious and radical cure to this illness. *Shampakadi Kwatha* possess various pharmacodynamic properties of *Dosha Shamana*, *Srotoshodhna*, *Vedanasthapana* and *Shothaharagunas,* which may be useful in the management of hyperuricemia. Hence this drug has been selected to evaluate its efficacy in *Vatarakta* w.s.r. to hyperuricemia.

AIMS AND OBJECTIVES

Primary Objectives

- To evaluate the clinical efficacy of *Shampakadi Kwatha* in the management of *Vatarakta* w.s.r. Hyperuricemia.
- To evaluate the clinical efficacy of *Shampakadi Kwatha* as add on therapy to Allopurinol in the management of *Vatarakta* w.s.r. to hyperuricemia.

Secondary Objective

- To assess the clinical safety of *Shampakadi Kwatha* in the management of *Vatarakta* w.s.r. to Hyperuricemia.
- To assess the clinical safety of *Shampakadi Kwatha* as add on therapy to Allopurinol in the management of *Vatarakta* w.s.r. to Hyperuricemia.

MATERIALS AND METHODS

Selection of Patient

- Patients were selected from the hospital OPD/IPD Department of Kayachikitsa R.G.G.P.G. Ayu. College and Hospital, Paprola, Distt Kangra (H.P.)
- Total 50 patients were selected for the present study irrespective of the gender, caste and religion etc.

Study Design

- Study type - Randomized Clinical trial
- Masking- Single blind
- Timing- Prospective
- Study Subjects- 50
- No. of group- 3
- Duration of trial- 6 weeks
- Follow up visit- After every 2 weeks till the completion of trial.

Diagnostic Criteria

Subjective Criteria

The patients were diagnosed on the basis of clinical signs and symptoms of *Vatarakta* as described in classical texts:

Sandhi Shoola- Joint pain
Sandhi Shotha - Swelling of the joint
Raga- Redness
Twakavaivarnya- Discoloration of skin
Sparsashyata - Tenderness
Vidaha- Burning sensation

Objective Criteria

Serum uric acid more than 7mg/dl in males and 6mg/dl in female.

Inclusion Criteria

- Patient of either gender in the age group between 20-70 years.
- Patients who had serum uric acid level more than 7mg/dl (male) and more than 6mg/dl (female) with or without any associated features of joint inflammation.
- Willing to participate and able to provide signed informed consent.

Exclusion Criteria

- Patients not willing for the trial.
- Patients below age of 20 years and above 70 years of age.
- Patient suffering from any other form of arthritis like osteoarthritis, tubercular arthritis, rheumatoid arthritis etc.
- Patients suffering from chronic renal, respiratory, cardiac and hepatic disorders.
- Patients having malignant disorder.
- Patients who had completed participation in any other clinical trial during the past 3 months.
- Any condition which the investigator thinks may compromise with the safety of the subject.

Investigations

- Haematological
  CBC, ESR
- Biochemical investigations
  Serum Uric acid, FBS, Blood Urea, Serum Creatinine, R.A. factor, SGOT, SGPT
- Routine and microscopic urine examination.

Grouping of Patients: Study was conducted randomly on 45 patients in three groups (15 patients in each group). Group I was administered with *Shampakadi Kwatha* 50ml twice a day, group II was administered with standard anti-hyperuricemic drug allopurinol 100mg twice a day while group III was administered with *Shampakadi Kwatha* 50ml twice a day and a standard anti-hyperuricemic drug allopurinol 100mg twice a day.

Trial Drug

Shampakadi Kwatha

Dose: 50ml twice a day (50gm raw drug in 800ml water and it was reduced to 100ml, which was given in two equally divided doses)

Route of Administration- Oral

Table 1: *Shamapakadi Kwatha* Composition

S.No.	Name	Botanical Name	Family	Part Used	Proportion
1.	*Aaragwadha*	*Cassia fistula* (Linn.)	Caesalpinioidae	Root bark	1 part
2.	*Guduchi*	*Tinospora cordifolia* (Will. Mires.)	Menispermaceae	Stem	1part
3.	*Vasa*	*Adhatoda vasica* (Nees.)	Acanthaceae	Root	1 part

Criteria of Assessment

- Subjective parameters were assessed before and after the treatment as per grade score.
- The main criterion of assessment was serum uric acid which was done before the commencement of trial and after the completion of trial.

Grading of Subjective Criteria: The signs and symptoms of *Vatarakta* were assessed on the basis of Visual Analogue Scale (VAS) and grading from 0-4 was done as follows-

Table 2: Grading of Subjective Criteria

S.No.	Signs & Symptoms	Grading
1.	***Sandhi Shoola* (Pain in Joints)**	
	No pain	0
	Mild pain	1
	Pain on movement and relieved on rest	2
	Constant pain	3
	Severe pain with distributing sleep	4
2.	***Sandhi Shotha* (Swelling in Joints)**	
	No swelling	0
	Mild swelling	1
	Moderate swelling	2
	Severe swelling	3
	Severe swelling with loss of movement	4
3.	***Sandhi Sparsh Asahyata* (Tenderness in Joints)**	
	No tenderness	0
	Mild tenderness present	1
	Tenderness present and patient winces	2
	Tenderness present, patient winces and withdraws the affected joints.	3
	Patient does not allow to touch the affected part	4
4.	***Sandhi Raga* (Redness in Joints)**	
	No redness	0
	Mild redness	1
	Moderate redness	2
	Severe redness	3
	Joint dusky red	4
5.	***Twak Vaivarnya* (Discoloration in Joints)**	
	No discoloration	0
	Mild discoloration of the skin	1

	Moderate discoloration of the skin	2
	Severe discoloration of the skin	3
	Very severe discoloration of skin	4
6.	***Sandhi Vidaha* (Burning Sensation in Joints)**	
	No burning sensation	0
	Mild burning sensation	1
	Moderate burning sensation	2
	Severe burning sensation	3
	Unbearable burning sensation	4
7.	***Stabdhata* (Stiffness)**	
	No stiffness	0
	Stiffness lasting for few minutes to one hour	1
	Stiffness lasting for more than 1 hour to half a day	2
	Stiffness lasting for more than half of day	3
	Stiffness throughout the day	4

Objective Criteria: The main criterion of assessment was serum uric acid (more than 7mg/dl in males and 6mg/dl in female) which was done before the commencement of trial and after the completion of trial.

Statistical Analysis

Data was collected and recorded in detailed in clinical proforma. The obtained data was analyzed statistically and expressed in the terms of mean score before treatment (BT), after treatment (AT), difference of mean (BT-AT), standard deviation (SD) and standard error (SE). Overall percentage improvement of each patient was calculated.

Data was arranged in MS Excel. Student's unpaired 't' test was used to compare difference in mean values between the two groups. Paired 't'-test has been used for within group analysis. The results were considered significant or insignificant depending upon the value of p.

Highly significant $p<0.001$

Significant $p<0.05$

Insignificant $p>0.05$

OBSERVATIONS AND RESULTS

Among 45 registered patients, 56% patients were male and 44% patients were female. Maximum patients (40%) were in the age group 41-50 years, 22% each in 31-40 years, 51-60 years and 10% in 61-70 years and 6% were in 20-30 years. Considering the religion, 100% patients were Hindu. All patients were married. 72% of the patients belonged to rural area and 28% of the patients were from urban area. Based on education, majority of the patients (54%) were matriculate, 16% of the patients were graduates and 30% of the patients were illiterate. Based on occupation, majority of the patients (34%) were homemaker whereas 24% of the patients were in private job and 18% were farmers. 12% patients each were in Govt. job and superannuated from Govt. services. 52% of the patients belonged to low socio-economic class whereas 48% of the patients belonged to middle socio-economic class. 76% patients had mixed dietary habit whereas 24% patients were vegetarian. 32% patients were addicted to smoking and alcohol and 8% of the patients were addicted to alcohol, 14% of the patients were addicted to smoking. 62% people were having sedentary lifestyle. 74% patients had regular bowel habit whereas 26% patients were constipated. 82% patients had adequate sleep whereas 18% of the patients had disturbed sleep. 72% patients had normal appetite whereas 28% patients had reduced appetite. Regarding *Deha Prakriti* 52% patients had *Vata-Pittaj Prakriti,* 30% were *Vata-Kaphaj Prakriti* and 18% of the patients were *Pitta-Kaphaj Prakriti.* Maximum i.e., 54% patients registered with acute onset whereas 46% patients presented with insidious onset. All patients had asymmetrical involvement of joint, MTP (Metatarsophalangeal joint) was involved in 34% patients. Heel of foot was involved in 24% and ankle joint was involved in 18% of the patients.

Table 3: The incidence of signs and symptoms of *Vatarakta* in 50 patients

S.No.	Symptoms	Group I		Group II		Group III		Total	
		N	%	N	%	N	%	Pt	%
1.	*Sandhi Shoola*	17	100%	17	100%	16	100%	50	100%
2	*Sandhi Shotha*	16	94%	16	94%	12	75%	44	88%
3.	*Sparsh Asahatvam*	12	70%	13	76.4%	13	81.5%	38	76%
4.	*Raga*	9	94%	8	47%	9	43%	26	52%
5.	*Twaka Vaivarnya*	10	58%	9	52%	8	56.2%	27	54%
6.	*Vidaha*	8	76.4%	8	47.0%	7	43.7%	23	46%
7.	*Stabdhata*	5	35%	4	41%	9	56.2%	18	36%

Effect of Therapy Based on Subjective Criteria

All the patients were registered from OPD/IPD of R.G.G.P.G. Ayurvedic College & Hospital, Paprola, 50 patients were given the trial drug. Five patients did not turn for follow up, hence the effect of therapy was studied on 45 enrolled patients. The effect of *Shampakadi Kwatha* in 45 patients on various assessment criteria was obtained after statistical analysis of the data obtained and is presented in tabular form (Table no.4).

Table 4: Effect of therapy on Subjective criteria

S.No	Symptoms	Group	N	Mean			Change in %	SD±	SE±	't'	p value	Significance
				BT	AT	Diff.						
1.	*Sandhi Shoola*	GP-I	15	1.267	0.667	0.600	47.3%	0.737	0.190	3.154	P = 0.007	S
		GP-II	15	1.400	0.667	0.733	52.3%	0.799	0.206	t=3.556	P = 0.003	S
		GP-III	15	1.200	0.467	0.733	61%	0.458	0.118	t =6.205	P<0.001	HS
2.	*Sandhi Shotha*	GP-I	15	1.067	0.667	0.400	37.4%	0.507	0.131	t =3.055	P = 0.009	S
		GP-II	15	1.200	0.667	0.533	44%	0.640	0.165	t =3.228	P = 0.006	S
		GP-III	15	1.133	0.467	0.667	52%	0.724	0.187	t =3.568	P = 0.003	S
3.	*Sparsh Asahatvam*	GP-I	15	1.000	0.600	0.400	40%	0.507	0.131	t =3.055	P = 0.009	S
		GP-II	15	1.067	0.467	0.600	56%	0.632	0.163	t =2.449	P = 0.003	S
		GP-III	15	0.867	0.333	0.533	61%	0.516	0.133	t =4.000	P = 0.001	S
4.	*Raga*	GP-I	15	1.267	0.667	0.600	47.3%	0.737	0.190	t =3.154	P = 0.007	S
		GP-II	15	1.267	0.600	0.667	57%	0.724	0.187	t =3.568	P = 0.003	S
		GP-III	15	0.867	0.333	0.533	61.5%	0.516	0.133	t =4.000	P= 0.001	S
5.	*Twaka Vaivarnya*	GP-I	15	0.733	0.533	0.200	27.2%	0.561	0.145	t =1.382	P = 0.189	IS
		GP-II	15	1.133	0.667	0.467	41%	0.516	0.133	t =3.500	P = 0.004	S
		GP-III	15	0.733	0.200	0.533	72%	0.834	0.215	t =2.477	P = 0.027	S
6.	*Vidaha*	GP-I	15	1.000	0.533	0.467	46%	0.743	0.192	t =2.432	P = 0.029	S
		GP-II	15	0.933	0.600	0.333	35%	0.488	0.126	t =2.646	P = 0.019	S
		GP-III	15	0.933	0.400	0.533	57%	0.516	0.133	t =4.000	P = 0.001	HS
7.	*Stabdhata*	GP-I	15	0.867	0.600	0.267	30%	0.458	0.118	t =2.256	P= 0.041	S
		GP-II	15	0.867	0.533	0.333	38%	0.488	0.126	t =2.646	P= 0.019	S
		GP-III	15	0.733	0.333	0.400	56.2%	0.507	0.131	t =3.055	P= 0.009	S

HS- Highly Significant, S- Significant, IS- Insignificant.

Table 5: Intergroup comparison of Subjective criteria

	% Change		Diff. of means	SD	SE	't'	p value	Significance
Sandhi Shoola								
GP I vs II	G-I	47.3%	-0.5%	1.02	0.45	0.159	1.000	IS
	G-II	52.3%						
GP II vs III	G-II	52.3%	-8.7%	0.675	0.255	t = 0.000	P = 1.000	IS
	G-III	61%						
GP I vs III	G-I	47.3%	-13.7%	0.636	0.241	t = -0.595	P = 0.556	IS
Sandhi Shotha								
GP I vs II	G-I	37.4%	-6.6%	0.599	0.227	t = -0.695	P = 0.499	IS
	G-II	44%						
GP II vs III	G-II	44%	-8%	0.708	0.268	t = -0.535	P = 0.597	IS
	G-III	52%						
GP I vs III	G-I	37.4%	-14.6%	0.648	0.245	t = -1.169	P = 0.252	IS
	G-III	52%						
Sparsha asahyatvam								
GP I vs II	G-I	40%	-16%	0.594	0.225	t= -0.956	P = 0.347	IS
	G-II	56%						
GP II vs III	G-II	56%	-5%	0.599	0.227	t= 0.316	P = 0.754	IS
	G-III	61%						
GP I vs III	G-I	40%	-21%	0.531	0.201	t= -0.714	P = 0.481	IS
	G-III							
Twaka Vaivarnya								
GP I vs II	G-I	27.2%	-13.8%	0.767	0.291	t = -0.247	P = 0.807	IS
	G-II	41%						
GP II vs III	G-II	41%	-31%	0.719	0.272	t = -0.263	P = 0.794	IS
	G-III	72%						
GP I vs III	G-I	27.2%	-44.8%	0.905	0.343	t = -0.418	P = 0.679	IS
	G-III	72%						
Vidaha								
GP I vs II	G-I	46%	11%	0.648	0.245	t = 0.292	P = 0.772	IS
	G-II	35%						
GP II vs III	G-II	35%	-22%	0.521	0.197	t = -1.090	P = 0.285	IS
	G-III	57%						
GP I vs III	G-I	46%	-11%	0.660	0.250	t = -0.574	P = 0.571	IS
	G-III							
Stabdhata								
GP I vs II	G-I	30%	-8%%	0.475	0.179	t = 0.000	P = 1.000	IS
	G-II	38%						
GP II vs III	G-II	38%	-18.2%	0.501	0.189	t = -0.756	P = 0.456	IS
	G-III	56.2%						
GP I vs III	G-I	30%	-26.2%%	0.501	0.189	t = -0.756	P = 0.456	IS
	G-III							

Effect of Therapy Based on Serum Uric acid

Table 6: Effect of Therapy Based on Serum Uric acid

S.No.	Symptoms	Group	N	Mean			Change in % age	SD±	SE±	't'	p value	Significance
				BT	AT	Diff.						
1.	S. Uric acid	GP-I	15	7.193	6.420	1.047	10.7%	0.246	0.0636	t = 12.160	P <0.001	HS
		GP-II	15	7.233	6.187	1.047	14%	0.272	0.0703	t = 14.892	P <0.001	HS
		GP-III	15	7.067	5.687	1.380	19%	0.540	0.139	t = 9.896	P <0.001	HS

Intergroup Comparison on Uric Acid

Table 7: Inter group comparison of effect of therapy on Serum Uric acid

Comparison	% Change		Diff. of means	SD±	SE±	't'	p value	Significance
GP I vs II	G-I	10.7%	-3.3%	0.290	0.110	t=-1.434	P=0.163	IS
	G-II	14%						
GP II vs III	G-II	14%	-5%	0.443	0.168	t = -2.135	P=0.042	S
	G-III	19%						
GP I vs III	G-I	10.7%	-8.3%	0.449	0.170	t = -3.038	P=0.005	S
	G-III	19%						

Effect of Therapy on Haematological Parameters

Table 8: Effect of therapy on haematological parameters

S.No.	Category	Group	N	Mean			Change in % age	SD±	SE±	't'	p valve	Significance
				BT	AT	Diff.						
1.	Hb	GP-I	15	12.147	12.207	-0.0600	-0.49%	0.220	0.0567	t = -1.058	P = 0.308	IS
		GP-II	15	12.053	12.047	0.00667	0.6%	0.526	0.136	t = 0.0491	P = 0.962	IS
		GP-III	15	12.187	12.080	0.107	0.8%	1.058	0.273	0.390	P = 0.702	IS
2.	TLC	GP-I	15	8.369	8.255	0.114	1.3%	1.047	0.270	t = 0.422	P = 0.680	IS
		GP-II	15	8.679	8.631	0.0473	0.55%	0.711	0.184	t = 0.258	P = 0.800	IS
		GP-III	15	7.341	7.202	0.139	1.89%	0.447	0.115	t = 1.208	P =.247	IS
3.	Neutrophils	GP-I	15	63.280	63.080	0.200	0.31%	1.703	0.440	t = 0.455	P = 0.656	IS
		GP-II	15	59.907	59.867	0.0400	0.16%	4.739	1.224	t = 0.0327	P = 0.974	IS
		GP-III	15	68.413	67.927	0.487	0.7%	1.473	0.380	t = 1.280	P = 0.221	IS
4.	Lymphocytes	GP-I	15	29.867	29.453	0.413	1.3%	2.670	0.689	t = 0.600	P = 0.558	IS
		GP-II	15	32.600	32.513	0.0867	0.31%	4.899	1.265	t = 0.0685	P = 0.946	IS
		GP-III	15	27.707	27.600	0.107	0.36%	3.095	0.799	t = 2.094	P = 0.055	IS
5.	Mixed cells	GP-I	15	7.767	7.447	0.320	4.1%	0.592	0.153	t = 0.218	P = 0.831	IS
		GP-II	15	8.567	8.273	0.293	3.3%	1.196	0.309	t = 0.950	P = 0.358	IS
		GP-III	15	7.720	7.627	0.0933	1.2%	0.854	0.220	t = 0.423	P = 0.679	IS
6.	ESR	GP-I	15	33.933	31.400	2.533	4.7%	3.021	0.780	t = 3.248	P = 0.006	S
		GP-II	15	33.067	30.333	2.733	8.2%	3.173	0.819	t = 3.337	P = 0.005	S
		GP-III	15	34.467	31.933	2.533	7.3%	3.420	0.883	t = 2.869	P = 0.012	S

Table 9: Effect of therapy on Biochemical parameters

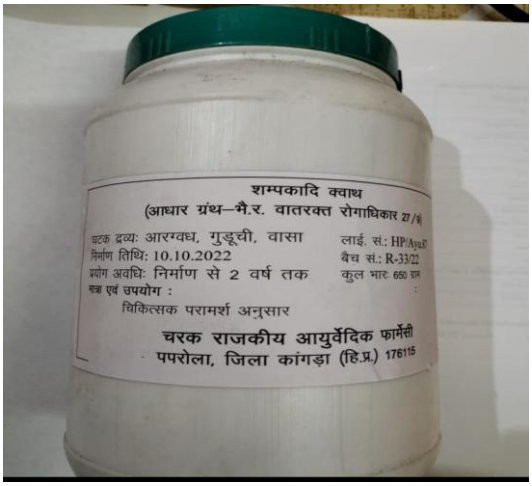
S.No.	Category	Group	N	Mean		Diff.	Change in %	SD±	SE±	't'	p value	Significance
				BT	AT							
1.	Blood Urea	GP-I	15	21.400	21.000	0.400	1.8%	1.121	0.289	t = 1.382	P = 0.189	IS
		GP-II	15	23.467	23.133	0.333	1.42%	1.234	0.319	t = 1.046	P = 0.313	IS
		GP-III	15	24.333	24.000	0.333	1.35%	1.345	0.347	t = 0.960	P = 0.353	IS
2.	Serum Creatinine	GP-I	15	0.840	0.813	0.0267	3.2%	0.110	0.0284	t = 0.939	P = 0.364	IS
		GP-II	15	0.813	0.807	0.00667	0.73%	0.0961	0.0248	t = 0.269	P = 0.792	IS
		GP-III	15	0.847	0.813	0.0333	3.9%	0.123	0.0319	t = 1.046	P = 0.313	IS
3.	SGOT	GP-I	15	28.733	28.667	0.0667	0.24%	1.710	0.441	t = 0.151	P = 0.882	IS
		GP-II	15	27.733	27.667	0.0667	0.25%	2.604	0.672	t = 0.0992	P = 0.922	IS
		GP-III	15	27.733	27.600	0.133	0.46%	2.532	0.654	t = 0.204	P = 0.841	IS
4.	SGPT	GP-I	15	33.933	33.333	0.600	1.76%	2.098	0.542	t = 1.108	P = 0.287	IS
		GP-II	15	27.800	27.533	0.267	0.97%	3.575	0.923	t = 0.289	P = 0.777	IS
		GP-III	15	26.067	25.467	0.600	2.3%	2.384	0.616	t = 0.975	P = 0.346	IS
5.	FBS	GP-I	15	85.133	85.067	0.0667	0.08%	2.764	0.714	t = 0.0934	P = 0.927	IS
		GP-II	15	91.600	91.400	0.200	0.21%	3.764	0.972	t = 0.206	P = 0.840	IS
		GP-III	15	85.933	85.267	0.667	0.77%	2.582	0.667	t = 1.000	P = 0.334	IS

Ingredients of *Shampakadi Kwatha*

Aragwadha

Guduchi

Vasa



Prepared Drug: *Shampakadi Kwatha*

Effect of Therapy on Subjective Criteria

Signs and symptoms (Table no. 4)

Sandhi Shoola

In the present study, all the registered patients (100%) presented with *Sandhi Shoola.* 47.3% relief in Group I, 52.3% in group II and 61% relief in Group III was found. The result was statistically highly significant (p value <0.001) in group I, II and highly significant in Group III (P<0.001). The result was statistically insignificant between group I and group II, group II and group III and group I and group III.

Sandhi Shotha

In present study, 94% presented with *Sandhi Shotha*. 37.4% relief in Group I, 44% in group II and 52% relief in Group III was found. The result was statistically significant (p value <0.001) in all three groups The result was statistically insignificant between group I and group II, group II and group III and group I and group III.

Sparsh Asahatvam

In present study, 70% presented with *Sparsh Asahatvam.* 40% relief in Group I, 56% in group II and 61% relief in Group III was found. The result was statistically significant (p value <0.001) in all three groups The result was statistically insignificant between group I and group II, group II and group III and group I and group III.

Raga

In present study, 76% presented with *Raga* 47.3% relief in Group I, 57% in group II and 61.5% relief in Group III was found. The result was statistically significant (p value <0.001) in all three groups The result was statistically insignificant between group I and group II, group II and group III and group I and group III.

Twaka Vaivarnya

In present study, 58% presented with *Raga* 27.2% relief in Group I, 41% in group II and 72% relief in Group III was found. The result was statistically significant (p value <0.001) in all three groups The result was statistically insignificant between group I and group II, group II and group III and group I and group III.

Vidaha

In present study, 76.4% presented with *Raga* 46% relief in Group I, 35% in group II and 57% relief in Group III was found. The result was statistically significant (p value <0.001) in all three groups The result was statistically insignificant between group I and group II, group II and group III and group I and group III.

Stabdhata

In present study, 35% presented with *Raga* 46% relief in Group I, 38% in group II and 56.2% relief in Group III was found. The result was statistically significant (p value <0.001) in all three groups The result was statistically insignificant between group I and group II, group II and group III and group I and group III.

Effect of Therapy on Objective Criteria

Serum uric acid (Table No. 6)

The mean score of S. Uric acid in Group I, II and III before treatment was 7.193, 7.233, 7.067 and after treatment it came down to 6.420, 6.181 and 5.687 giving 10.7%, 14% and 19% reduction in mean score respectively which was statistically highly significant p<0.001.

Effect of Therapy on Haematological and Biochemical Parameters (Table no. 8, 9)

All the Biochemical parameters were within normal limits before and after the trial in all three groups. There was no statistically significant difference between the three trial groups.

DISCUSSION

Probable mode of action *Shamapakadi Kwatha* can be explained on the following basis- *Aaragwadha* is the best *Mridu Virechana* as per Ayurvedic principals,[8] *Virechana* i.e., laxation tend to remove *Pitta* followed by *Kapha* which helps to control *Pitta*, *Kapha*, thus removing obstruction of *Vata Dosha* which ultimately results in suppression of pain. *Pitta* is the main *Dosha* directly related to the acuteness, inflammation, ulcerations and severity of gout. Leaves of *Vasa* contain vasicine, vasicinone, adhatodine and adhatonine which possesses anti-inflammatory properties.

Guduchi and *Aaragwadha* plant possesses *Snigdha Guna* and *Madhura Vipaka* and is *Tridoshahara*,[9] which helps in relieving pain which is mainly caused due to vitiation of *Vata Dosha*. *Guduchi* is said to possess alkaloids, glycosides, steroids and terpenoids. The analgesic effect of this drug can be attributed to any of these phytoconstituents, the flavanoids present might be mediated by inhibiting the production of prostaglandins. Due to *Mutra Virechana* property, it helps in excretion of excess of uric acid present in the blood. It also helps in relieving pain which is caused by vitiation of *Vata Dosha*.

CONCLUSION

After the careful review of the results obtained from the study entitled “A clinical study to evaluate the effect of *Shampakadi Kwatha* in the management of *Vatarakta* w.s.r. to Hyperuricemia”, following

conclusion can be drawn:

- The trial drug i.e., *Shampakadi Kwatha* showed statistically significant results on Subjective parameters i.e., *Sandhi Shoola*, *Sandhi Shotha*, *Sparsh Asahatvam, Raga*, *Vidaha* and *Stabadhata.*
- The Serum Uric acid level was statistically significantly decreased in all groups but maximum decrease was found in Group III, wherein the patients were managed with *Shampakadi Kwatha* along with Tab. Allopurinol. This shows that best results were observed when *Shampakadi Kwatha* was given along with allopurinol.
- Statistically significant reduction in ESR was observed after the therapy in all three groups. However other haematological and biochemical values i.e., Hbgm%, TLC, DLC, FBS, blood urea, serum creatinine, R.A. factor, SGOT and SGPT remained within normal range in all three groups during and after the completion of trial.
- No untoward effect of *Shampakadi Kwatha* was observed during the entire trial period after administration of drug.
- Thus on the basis of clinical study, it can be concluded that *Shampakadi Kwatha* is effective in management of *Vatarakata* and also possess significant hypouricemic effect.

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