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Research Article

A COMPARATIVE CLINICAL STUDY OF *TRIKARSHIKA KWATHA* WITH AND WITHOUT LIFESTYLE MODIFICATION IN THE MANAGEMENT OF *VATARAKTA* WITH SPECIAL REFERENCE TO HYPERURICAEMIA

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ABSTRACT

Nowadays, people are more vulnerable to metabolic disorders due to their faulty dietary and behavioural habits. One such disorder is *Vatarakta* which causes functional impairment due to involvement of *Sandhi* (joints). It is manifested by *Ruk*, *Toda*, *Sparsha asahatva*, *Shopha*, *Raga*, *Daha* and *Stabdhata* in *Sandhi*. *Vatarakta* can be correlated with Hyperuricaemia or Gout due to similarity in their clinical features. Hyperuricaemia is defined as abnormally high level of uric acid in blood (i.e. >6mg/dl in female and >7mg/dl in male). On the other hand, Gout is an inflammatory response to monosodium urate crystals formed secondary to hyperuricaemia. **Aims and objectives:** 1. To evaluate the effectiveness of *Trikarshika kwatha* and lifestyle modification in the management of *Vatarakta*. 2. To compare the effects of *Trikarshika kwatha* with and without lifestyle modification in the management of *Vatarakta*. **Materials and methods:** Raw herbs of the research formulation were collected after proper identification and *Kwatha* was prepared for oral administration. For the clinical study, total 60 patients were selected on the basis of selection criteria. Selected patients were randomly divided into two groups. **(i) Group A:** 30 patients were treated with *Trikarshika kwatha*. **(ii) Group B:** 30 patients were treated with *Trikarshika kwatha* along with Lifestyle modification. Individual patient was treated for 45 days along with follow up at the interval of every 15 days. To assess the effectiveness of treatment, scoring pattern was followed for subjective and objective parameters. They were assessed before and after treatment. The collected data were analysed statistically by using Paired t-test. **Results:** On the basis of all statistical data, it can be said that patients of Group B showed better results in all parameters in comparison to patients of Group A. **Conclusion:** Both *Trikarshika kwatha* and Lifestyle modification are effective but *Trikarshika kwatha* with Lifestyle modification is more effective than *Trikarshika kwatha* without Lifestyle modification in the management of *Vatarakta*.

INTRODUCTION

The disease which is caused due to vitiation of both *Vata* and *Rakta* is termed as *Vatarakta*.[1] It is a common joint disorder.

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Generally people of tender health who indulge in sweet food, leisurely eating and sedentary habits are more prone to be afflicted by this disease.[2] *Vayu* gets aggravated due to its etiological factors. This aggravated *Vayu* is obstructed in its course by vitiated *Rakta*, in turn leading to further aggravation of *Vayu*. Then this excessively aggravated *Vayu* vitiates the entire *Rakta* and as a result *Vatarakta* is produced.[3] It is also known by the synonyms like *Vatashonita*, *Khudavata*, *Vatabalasa* and *Adhyavata*.[4] This disease initiates from feet or sometimes from hand then spreads all over the body, just like the *Akhor visha* (poison of rat).[5]

As per Acharya Charaka, *Vatarakta* is of two types– *Uttana* (superficial) and *Gambhira* (deep seated). The former is located in the *Tvak* (skin) and *Mamsa* (muscle tissues) and latter is located in deeper tissues of the body.[6] But while describing their symptoms, Acharya Charaka has also described the symptoms of *Ubhayashrita Vatarakta*. This third type of *Vatarakta* is located both in exterior (*Uttana*) and interior (*Gambhira*) of the body. Acharya Sushruta has not accepted the two types (*Uttana* and *Gambhira*) of *Vatarakta*. He has described *Vatarakta* develops first as *Uttana* and becomes *Gambhira* in course of time, just like *Kushtha*.[7] *Uttana Vatarakta* is manifested by *Kandu* (itching), *Daha* (burning sensation), *Ruk* (pain), *Toda* (pricking pain), *Sphurana* (throbbing sensation) and skin becomes brownish black, red or coppery in colour. On the other hand, *Gambhira Vatarakta* is manifested by *Shvayathu* (swelling), *Stabdhata* (stiffness), *Antarbhrisha arti* (excruciating pain in the interior of the body), blackish brown or coppery discolouration of skin, *Daha* (burning sensation), *Toda* (pricking pain), *Sphurana* (throbbing sensation) and *Paka* (suppuration).[8]

Vatarakta can be treated by *Nidana parivarjana, Bahih parimarjana Chikitsa* (*Avagahana, Lepa, Seka, Upanaha* and *Abhyanga*) and *Antah parimarjana Chikitsa* (*Shodhana* and *Shamana*). Specific *Pathya* and *Apathya* are also mentioned for this disease.

Vatarakta can be correlated with Hyperuricaemia or Gout due to similarity in their clinical features. Hyperuricaemia is an abnormally high level of uric acid in the blood. It is defined as a serum uric acid level greater than 7mg/dl in males and 6 mg/dl in females. On the other hand, Gout is a disorder of purine metabolism. It is an inflammatory response to monosodium urate crystals formed secondary to hyperuricaemia. The major clinical manifestations are acute synovitis, chronic erosive and deforming arthritis, tophi, nephrolithiasis, and interstitial nephritis.[9] Gout develops in men more than women (10:1) and rarely occurs before adulthood (when it suggests a specific genetic defect), and seldom in premenopausal females.[10]

Recent reports of the prevalence and incidence of gout vary widely according to the population studied and methods employed but range from a prevalence of <1% to 6.8% and an incidence of 0.58-2.89 per 1,000 person-years.[11] Incidence of gout in India is not clear. The prevalence is 0.12% as per International League of Nations Against Rheumatism, Community Oriented Program for Control of Rheumatic Diseases (ILAR COPCORD) study in Bhigwan Village of India.[12] A study from Vellore revealed that 15.8% of the affected patients are less than 30 years of age; urban Indian population is involved more than rural population and due to increased prevalence of metabolic syndrome in younger population, the first attack of gout occurs a decade earlier to them.[13]

Drugs used for the treatment of hyperuricaemia or gout are NSAIDs, Colchicine, Glucocorticoids, Uricosuric agents (Probenecid, Sulphinpyrazone) and Uric acid synthesis inhibitors (Allopurinol, Febuxostat).[14] These drugs give temporary relief and have many adverse effects like nausea, vomiting, diarrhoea, hepatotoxicity, renal toxicity etc. So, there is need to find out the safe and effective remedy which also prevents the further progression of disease. For this reason, the present study has been selected.

In this study, *Trikarshika kwatha* and lifestyle modification have been selected for the management of *Vatarakta*. *Trikarshika kwatha* contains *Guduchi*, *Shunthi* and *Dhanyaka*. It is indicated in *Vatarakta*.[15] As *Vatarakta* is a lifestyle related joint disorder, Lifestyle modification is very effective for the management of this disease.

AIMS AND OBJECTIVES

1. To evaluate the efficacy of *Trikarshika kwatha* in the management of *Vatarakta*.
2. To evaluate the effectiveness of lifestyle modification in the management of *Vatarakta*.
3. To compare the effects of *Trikarshika kwatha* with and without lifestyle modification in the management of *Vatarakta*.
4. To find out any adverse reaction of *Trikarshika kwatha* during the treatment.
5. To prevent the excessive deposition of monosodium urate monohydrate crystals in joints or formation of tophi.
6. To find easily available, cost effective and safe remedy for this disease.

MATERIALS AND METHODS

Ethical Clearance: The present study has been approved from Institutional Clinical Ethical Committee, Institute of Post Graduate Ayurvedic Education and Research at Shyamadas Vaidya Shastra Pith, Kolkata. (Memo no. – SVP/321/2019 dated 16.05.2019)

Type of study: Randomized Comparative Clinical Study.

Study Population: Sufficient number of registered patients of *Vatarakta* who had met the inclusion criteria, were enrolled from OPD & IPD of Department of Kayachikitsa, I.P.G.A.E. & R. at S.V.S.P., Kolkata for the present study after given their proper consent.

Period of Study: 18 months (Individual patient– 45 days).

Sample Size: 60 patients

Sample Design: Selected patients were randomly divided into two groups (i.e. Group A and Group B).

(i) Group A: 30 patients were included in this group and treated with *Trikarshika kwatha* (30ml twice daily in empty stomach with water) for 45 days.

(ii) Group B: 30 patients were included in this group and treated with *Trikarshika kwatha* (in the same dose and same manner as mentioned in Group A) along with lifestyle modification for 45 days.

Follow up: Patients were reviewed at the interval of every 15 days for a period of 45 days.

Inclusion Criteria

1. Patients having classical signs and symptoms of *Vatarakta* mentioned in Ayurvedic texts like *Ruk* (pain), *Toda* (pricking pain), *Sparsha asahatva* (tenderness), *Shopha* (swelling), *Raga* (redness), *Daha* (burning sensation) and *Stabdhata* (stiffness) in *Sandhi*.
2. Age between 20 – 60 years.
3. Both male and female patients were randomly selected irrespective of social, economical, educational or religious status.
4. Patients who agreed to follow the study protocol and gave the consent for clinical trial.
5. Serum uric acid level – In female - >6mg/dl but ≤7mg/dl; in male **-** >7mg/dl but ≤8mg/dl.

Exclusion Criteria

1. Patients below the age of 20 years and above 60 years of age.
2. Patients who did not agree to come under trial.
3. Patients suffering from malignancy, chronic respiratory disease, hepatic disease, renal disease and uncontrolled diabetes mellitus.
4. Patients having any other inflammatory joint disorders like rheumatoid arthritis, tubercular arthritis, septic arthritis, psoriatic arthritis.
5. Patients having excessive deposition of monosodium urate monohydrate crystals in joints or having tophi.
6. Pregnant woman and lactating mother suffering from arthritis.
7. Severe deformity and Ankylosing of the joints.

Diagnostic Criteria

Patients were diagnosed on the basis of classical signs and symptoms of *Vatarakta* mentioned in Ayurvedic texts. Increased serum uric acid level was kept mandatory for the selection of patients.

Investigations

(i) Haematological test: Hb%, TC, DC, ESR.

(ii) Biochemical Test:

- Serum uric acid
- FBS and PPBS
- Serum urea and creatinine
- LFT

(iii) Radiological: X-ray of affected joints

Preparation of medicine

(i) Ingredients of *Trikarshika kwatha*- *Amrita* (*Guduchi*), *Nagara* (*Shunthi*) and *Dhanyaka*.

(ii) Method for preparation of *Trikarshika kwatha*- Coarse powder of above mentioned ingredients are taken in the quantity of one *Karsha* (10gm) each. Add 8 times of water (i.e. 240ml) into them and boiled until reduction to 1/4th (i.e. 60ml). Then cooled down and filtered it. The prepared *Kwatha* is taken in empty stomach twice daily in divided doses.

Lifestyle Measures

(i) Diet Plan

Table 1: Showing diet chart for hyperuricaemia (2000 kcal /day)

Schedule	Items	Quantity
Breakfast	Whole wheat roti	3 pcs (35gm each)
	Lauki (bottle gourd) or *Karela* (bitter gourd) or *Papita* (papaya)	400gm 200gm 140gm
Snacks	Green tea + Honey	1 cup 1 tsf
Lunch	Brown rice	80gm
	Chicken breast or Alu + Papita or Alu + Karela or Mixed vegetable (lauki, parval etc.)	100gm 100gm + 140gm 100gm + 200gm 250-320gm
	Fruit (any one) - Mango Apple	 200gm 250gm

	Orange Guava	300gm 200gm
Snacks	Tea with milk + Sugar	180ml 1 tsf
	Suji upama	50gm
	Walnut or Almond	4 pcs 10 pcs
Dinner	Whole wheat roti	3 pcs (35gm each)
	Mixed lentil (Tadka)	50gm
Oil (rice bran, sunflower, olive etc.)		5-7 tsf

*Mentioned diet chart had been further customized as per individual's BMR and daily activity.

Inspite of given diet chart, patients had also advised to follow instructions given below.

Avoid

- Organ meats high in purine content (e.g. sweetbreads, liver, kidney).
- High fructose corn syrup – sweetened sodas, other beverages, or foods.
- Alcohol overuse

Limit

- Serving sizes of beef, lamb, pork and seafood with high purine content (e.g. sardines, shellfish etc.).
- Serving of naturally sweet fruit juices.
- Table sugar, and sweetened beverages and desserts.
- Table salt, including in sauces and gravies.

Encourage

- Low-fat or non-fat dairy products
- Vegetables

(ii) Other Lifestyle Measures

1. *Yoga-asana– Pranayama*, *Ardha matsyendrasana*, *Bhujangasana*, *Dhanurasana*, *Januhastasana*, *Tadasana*, *Uttana padasana*, *Vrikshasana*.
2. Drink plenty of water
3. Avoid stress
4. Avoid starvation
5. Stop smoking

Assessment criteria

(i) Subjective and Objective parameters

To assess the effectiveness of treatment, scoring pattern was followed for subjective parameters (*Ruk, Toda, Sparsha asahatva, Shopha, Raga, Daha* and *Stabdhata*) and objective parameter (Serum uric acid level) and they were assessed before and after treatment.

Table 2: Showing arbitrary scoring pattern of subjective and objective parameters

Sl. No.	Parameters	Score - 0	Score - 1	Score – 2	Score – 3
1.	*Ruk* (pain)	None	Mild	Moderate	Severe
2.	*Toda* (pricking pain)	None	Mild	Moderate	Severe
3.	*Sparsha asahatva* (tenderness)	None	Mild	Moderate	Severe
4.	*Shopha* (swelling)	None	Mild	Moderate	Severe
5.	*Raga* (redness)	None	Mild	Moderate	Severe
6.	*Daha* (burning sensation)	None	Mild	Moderate	Severe
7.	*Stabdhata* (stiffness)	None	Mild	Moderate	Severe
8.	Serum uric acid level	≤6 mg/dl	>6-7 mg/dl	>7-8 mg/dl	>8 mg/dl

(ii) Assessment of Overall Effect

Overall effect of treatment of each patient was calculated by following formula.

$$\textbf{Percentage of relief} = \frac{\textbf{Total BT score - Total AT score}}{\textbf{Total BT score}} \times 100$$

Patients were grouped under different categories mentioned below (Table 3), on the basis of their percentage of relief.

Table 3: Showing assessment of overall effect

Sl. No.	Remarks	Percentage of relief
1.	Complete remission	100% relief
2.	Marked improvement	≥75% – <100% relief
3.	Moderate improvement	≥50% – <75% relief
4.	Mild improvement	≥25% – <50% relief
5.	Insignificant improvement	<25% relief

Statistical Analysis

All the observations made on aforesaid criteria were compared. The grouping were analyzed statistically in terms of Mean difference ($\bar{x}$), Standard deviation (SD) and Standard error (SE).

The Paired t-test was carried out at the end and the informations thus collected were interpreted in the form of level of significance (P value).

- Insignificant – P > 0.05
- Significant – P < 0.05, P < 0.01
- Highly significant – P < 0.001

OBSERVATIONS AND RESULTS

The observations and results of the present study are mentioned as follows.

Demographic profile

Out of 60 patients of *Vatarakta*, maximum patients i.e. 38.33% belonged to age group 31-40 years followed by 35% patients were from age group 41-50 years. In this study, 60% patients were male and 40% patients were female. Maximum patients i.e. 70% were Hindu followed by 30% were Muslim. Most of the patients i.e. 30% were businessmen followed by 28.33% were housewives. Among 60 patients, 81.67% were from urban areas. On the other hand, remaining patients i.e. 18.33% were from rural areas. On the basis of marital status, maximum patients i.e. 83.33% were married. Majority of the patients i.e. 65% belonged to middle class.

Clinical profile

In this study, all the 60 patients i.e. 100% had *Ruk*, while 81.67% of the patients had *Shopha*. 73.33%, 68.33%, 63.33% and 60% of the patients had *Toda*, *Raga, Daha* and *Sparsha asahatva*, respectively. Only 53.33% of the patients had *Stabdhata*. Most of the patients i.e. 58.33% were suffering from this disease for < 6 months. 40% and 1.67% of the patients were suffering from this disease for 6 months – 1 year and > 1 year, respectively. As per mode of onset, 63.33% of the patients had gradual onset of disease, while 36.67% of the patients had sudden onset of disease. Maximum patients i.e. 85% had no family history of *Vatarakta*, while remaining 15% had family history of *Vatarakta*.

Among 60 patients, 63.33% had moderate appetite, while 20% and 16.67% of the patients had poor and good appetite, respectively. Majority of the patients i.e. 88.33% consumed mixed (both veg. and non veg.) diet. On the other hand, only 11.67% of the patients consumed vegetarian diet. Maximum patients i.e. 46.67% of the patients had irregular bowel habit. 96.67% of the patients had normal micturition, while 3.33% of the patients had abnormal micturition. On the basis of sleep, 56.67% of the patients had normal sleep, while 43.33% of the patients had disturbed sleep. 26.67% of patients had no addiction. 21.67%, 20%, 16.67% and 15% of patients had addiction to tea, smoking, alcohol and tobacco chewing, respectively. This study reveals that maximum patients i.e. 58.33% had sedentary lifestyle.

Among 60 patients, maximum patients i.e. 38.33% had *Mandagni* followed by 35% had *Vishamagni*. Most of the patients i.e. 45% had *Krura koshtha*. Maximum patients i.e. 53.33% had *Vata-pittaja prakriti*. 71.67% had *Rajasika prakriti*, while 28.33% had *Tamasika prakriti*. Maximum patients i.e. 30% had *Meda Sara*. Majority of the patients i.e. 63.33% and 68.33% had *Madhyama Samhanana* and *Madhyama Pramana*, respectively. On the basis of *Satmya*, maximum patients i.e. 61.67% had *Vyamishra* type of *Satmya*. This study reveals that 55%, 28.33% and 16.67% of the patients had *Madhyama*, *Avara* and *Pravara Sattva*, respectively. Maximum patients i.e. 71.67% and 61.67% had *Madhyama Abhyavaharana Shakti* and *Madhyama Jarana Shakti*, respectively. Most of the patients i.e. 51.67% had *Madhyama Vyayama Shakti*.

Laboratory Profile

Among 60 patients, 60% of the patients had serum uric acid level > 7-8mg/dl, whereas 40% of the patients had serum uric acid level > 6-7mg/dl.

Effects of treatment

(i) Effect of treatment in Group A patients

Table 4: Statistical data showing effect of treatment on subjective and objective parameters in Group A patients

Parameters	n	Mean Score		MD	% of Relief	SD	SE	't' value	'P' value
		BT	AT						
Ruk	30	1.933	1.033	0.9	46.56%	0.759	0.139	6.47	<0.001
Toda	21	1.905	1.048	0.857	44.99%	0.655	0.143	5.99	<0.001
Sparsha asahatva	16	1.625	1.0625	0.5625	34.62%	0.629	0.157	3.58	<0.01
Shopha	24	1.667	1.00	0.667	40.01%	0.565	0.115	5.8	<0.001
Raga	22	1.591	1.091	0.5	31.43%	0.672	0.143	3.50	<0.01
Daha	17	1.647	1.059	0.588	35.70%	0.712	0.173	3.40	<0.01
Stabdhata	18	1.889	1.333	0.556	29.43%	0.705	0.166	3.35	<0.01
Serum uric acid level	30	1.567	0.9	0.667	42.57%	0.661	0.121	5.51	<0.001

n = Number of patients, BT = Before treatment, AT = After treatment, MD = Mean difference,
SD = Standard deviation, SE = Standard error, t = Paired t-test, P = Level of significance.

The above table shows that the result was statistically highly significant i.e. P<0.001 for *Ruk, Toda, Shopha* and serum uric acid level. On the other hand, the result was statistically significant i.e. P<0.01 for *Sparsha asahatva, Raga, Daha* and *Stabdhata*.

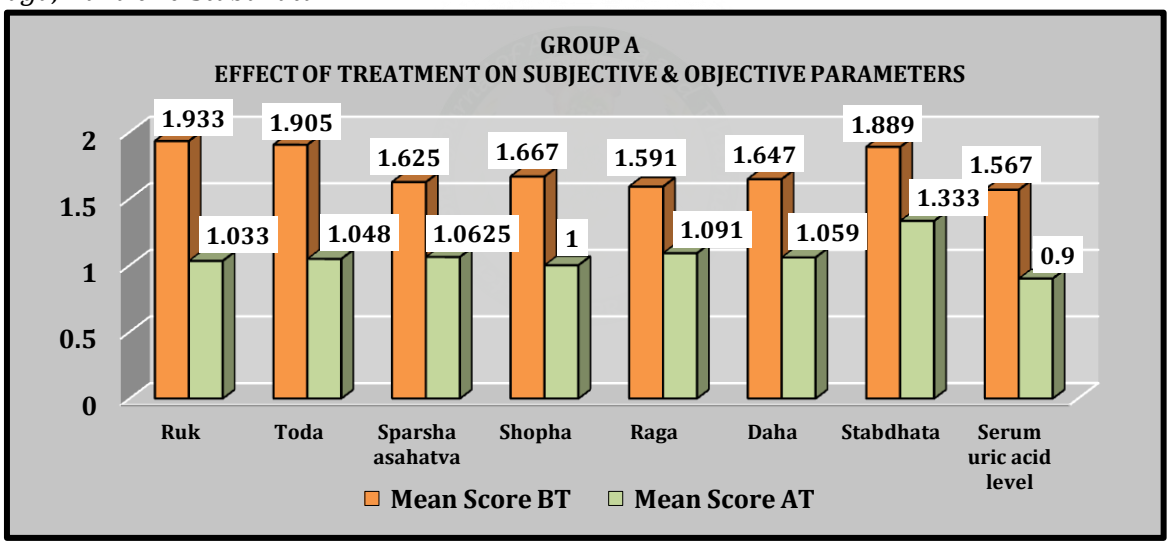

Fig. 1: Showing effect of treatment on subjective and objective parameters in Group A patients.

(ii) Effect of treatment in Group B patients

Table 5: Statistical data showing effect of treatment on subjective and objective parameters in Group B patients

Parameters	n	Mean Score		MD	% of Relief	SD	SE	't' value	'P' value
		BT	AT						
Ruk	30	2.033	0.767	1.267	62.32%	0.74	0.135	9.38	<0.001
Toda	23	2.00	0.783	1.217	60.85%	0.795	0.166	7.33	<0.001
Sparsha asahatva	20	1.45	0.7	0.75	51.72%	0.639	0.143	5.24	<0.001
Shopha	25	1.72	0.76	0.96	55.81%	0.54	0.108	8.89	<0.001
Raga	19	1.579	0.737	0.842	53.32%	0.602	0.138	6.10	<0.001
Daha	21	1.857	0.809	1.048	56.44%	0.74	0.161	6.51	<0.001
Stabdhata	14	1.929	0.786	1.143	59.25%	0.77	0.206	5.55	<0.001
Serum uric acid level	30	1.633	0.7	0.933	57.13%	0.583	0.106	8.8	<0.001

The above table shows that the result was statistically highly significant i.e. P<0.001 for all the parameters.

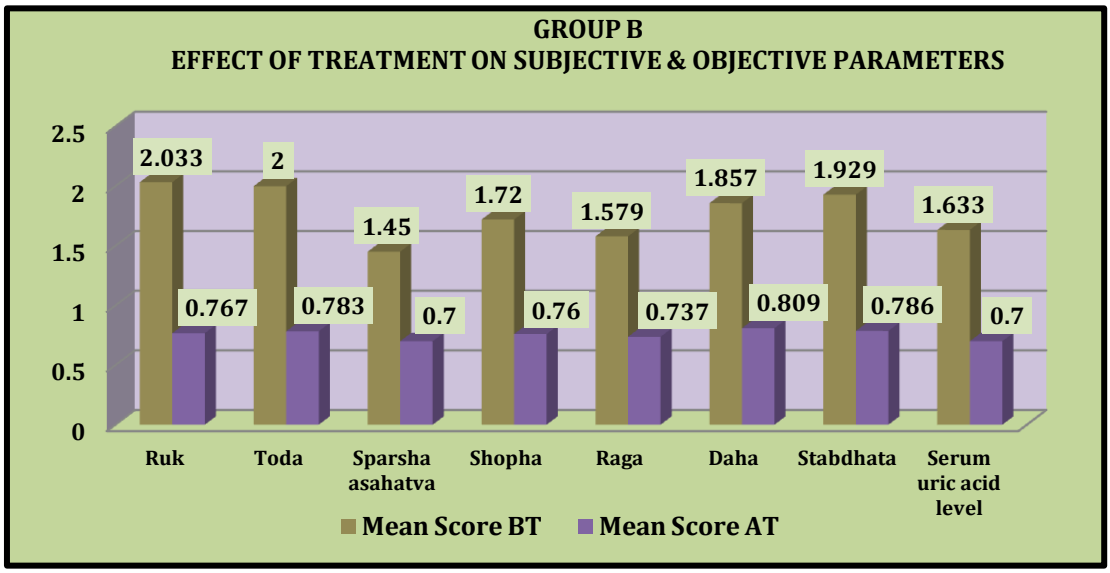

Fig. 2: Showing effect of treatment on subjective and objective parameters in Group B patients

(iii) Overall effect of treatment

Table 6: Showing overall effect of treatment

Overall Effect	Group A (30 patients)		Group B (30 patients)		Total (60 patients)	
	No. of patient	% of patient	No. of patient	% of patient	No. of patient	% of patient
Complete remission (100% relief)	0	0%	0	0%	0	0%
Marked improvement (≥ 75% - < 100% relief)	2	6.67%	8	26.67%	10	16.67%
Moderate improvement (≥ 50% - < 75% relief)	11	36.67%	16	53.33%	27	45%
Mild improvement (≥ 25% - < 50% relief)	13	43.33%	6	20%	19	31.67%
Insignificant improvement (< 25% relief)	4	13.33%	0	0%	4	6.67%

In Group A– 13 (43.33%) patients showed mild improvement, 11 (36.67%) patients showed moderate improvement, 4 (13.33%) patients showed insignificant improvement and 2 (6.67%) patients showed marked improvement. No one showed complete remission.

In Group B– 16 (53.33%) patients showed moderate improvement, 8 (26.67%) patients showed marked improvement and 6 (20%) patients showed mild improvement. No one showed complete remission and insignificant improvement.

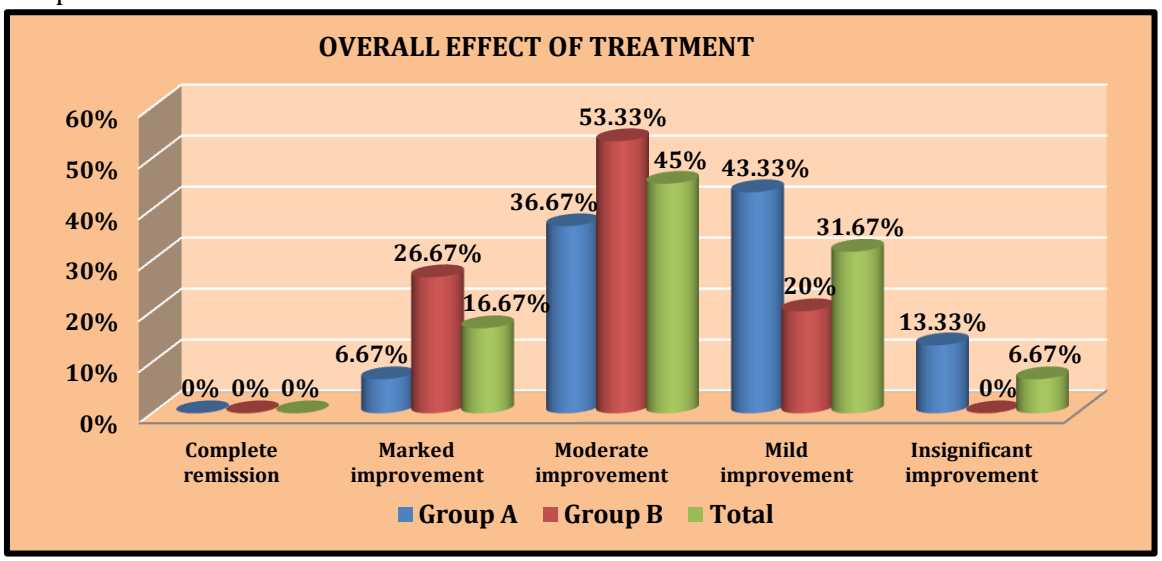

Fig. 3: Showing overall effect of treatment

DISCUSSION

Vatarakta is a variety of *Vata roga*. It is caused due to vitiation of both *Vata* and *Rakta*. Here, *Vata* and *Rakta* get vitiated by their respective etiological factors. In the pathogenesis of this disease, aggravated *Vayu* is obstructed in its course by vitiated *Rakta*. So, it can be said that *Marga avarana* is a main pathology of this disease. The sites where *Vatarakta* is manifested are hands, feet, fingers including toes and all the joints.[16]

On the basis of site of origin or involved *Dhatu*, *Vatarakta* is of two types. They are *Uttana* and *Gambhira*. It is also classified on the basis of *Doshika* predominance. As per this classification, it is of eight types. They are *Vatadhika, Pittadhika, Kaphadhika, Raktadhika, Samsargaja* (*Vata-pittaja, Pitta-kaphaja* and *Vata-kaphaja*) and *Sannipataja Vatarakta*.

Upadrava of this disease can be classified into systemic and localised complications. Its systemic complications are *Arochaka, Swasa, Kasa, Hikka, Jwara, Trishna* etc. and localised complications are *Paka, Toda, Sphota, Anguli vakrata* etc.

Sadhya-asadhyata of *Vatarakta* depends on number of involved vitiated *Dosha*, presence or absence of *Upadrava* and chronicity of the disease.

In this study, *Trikarshika kwatha* and lifestyle modification have been used for the management of *Vatarakta*.

Probable mode of action of *Trikarshika kwatha*

Vatarakta is a *Vata pradhana tridoshaja vyadhi* and *Rakta* is the main *Dushya* of this disease. Like other diseases, it is also caused due to *Mandagni*. As a result, *Amotpatti* takes place. *Trikarshika kwatha* contains *Guduchi, Shunthi* and *Dhanyaka*. *Guduchi* and *Dhanyaka* are *Tridosha shamaka*, while *Shunthi* is *Vatakapha shamaka*. Hence, all three of them help in the pacification of aggravated *Doshas* involved in this disease. *Guduchi* has *Rakta shodhaka* property and *Dhanyaka* is indicated in *Rakta dosha*. So, they collectively help to normalize the vitiated *Rakta* involved in this disease. All three of them have *Dipana* and *Pachana* properties. Hence, they help to correct *Mandagni* by *Dipana* property and cause *Ama pachana* by *Pachana* property. In this disease, *Sanga* type of *Srota dushti* present. *Dhanyaka* helps to correct this *Sanga* by its *Srotovishodhana* property. Main signs and symptoms of *Vatarakta* are *Ruk, Toda, Sparsha asahatva, Shopha, Raga, Daha* and *Stabdhata* in the *sandhi*. All types of pain like *Ruk, Toda, Sparsha asahatva* etc. and *Stabdhata* are mainly caused by the aggravated *Vata*. All three of them (i.e. *Guduchi*, *Shunthi* and *Dhanyaka*) are *Vata shamaka*, while *Guduchi* and *Shunthi* have *Vedana sthapana* property. Hence, they help to relieve the *Ruk, Toda, Sparsha asahatva* and *Stabdhata*. This *kwatha* also reduces the *Shotha* because *Shunthi* and *Dhanyaka* have *Shothahara* property. *Raga* and *Daha* are occurred by the aggravated *Pitta*. *Guduchi* and *Dhanyaka* are *Pitta shamaka* because *Guduchi* has *Tikta* and *Kashaya rasa*, while *Dhanyaka* has *Madhura*, *Tikta* and *Kashaya rasa* and both of them have *Madhura Vipaka*. On the other hand, both *Guduchi* and *Dhanyaka* also have *Daha nashaka* property. So, they help to reduce the *Raga* and *Daha*.

In modern view, *Trikarshika kwatha* is a good metabolic corrective and blood purifier. It has anti-inflammatory, analgesic, antiarthritic, hypouricaemic, diuretic etc. activities. It helps to reduce the serum uric acid level by improving the excretion of uric acid from the body.

Lifestyle modification plays a vital role for the successful management of lifestyle disorders. Therefore, in this study lifestyle modification is included for the management of *Vatarakta*. Lifestyle modification is nothing but the quitting of faulty dietary and behavioural habits and adopting the healthy habits. If we look at the Ayurvedic view of lifestyle modification, there are specific *Pathya* and *Apathya* of every disease mentioned in different Ayurvedic texts. *Pathya* includes wholesome diet and regimen, while *Apathya* includes unwholesome diet and regimen. For the effective treatment, *Pathya* should be adopted and *Apathya* should be avoided. *Pathya* and *Apathya* of *Vatarakta* are mentioned in Table-7.

Table 7: Showing list of *Pathya-apathya* of *Vatarakta* [17,18]

Pathya Ahara	***Pathya Vihara***
Yava, Shashtika, Nivara, Kalama, Aruna shali, Godhuma, Chanaka, Mudga, Tuvari, Makushthaka, Upodika, Kakamachi, Vetragra, Sunishannaka, Vastuka, Karavella, Tanduliya, Prasarani, Pattura, Vriddha kushmanda, Sampaka pallava, Patola, Mamsa of Lava, Tittira, Vartika, Tamrachuda, Vishkira, Pratuda, Shuka, Datyuha, Kapota and *Chataka, Mridvika, Dugdha of Aja, Mahisha and Go, Sarpi, Navanita, Eranda taila, Sveta sarkara, Somavalli, Kasturi, Shveta chandana, Shimshapa, Aguru, Devadaru, Tikta dravya.*	*Upanaha, Parisheka, Pradeha, Abhyanjana, Mridu samvahana.*
Apathya Ahara	***Apathya Vihara***
Masha, Kulattha, Nishpava, Kalaya, Kshara, Ambuja mamsa, Anupa mamsa, Viruddha ahara, Dadhi, Ikshu, Mulaka, Madya, Pinyaka, Kanjika, Katu, Ushna, Guru, Abhishyandi, Lavana and *Amla dravya, Saktu.*	*Vyayama, Maithuna, Kopa, Diva svapna, Agni santapa, Atapa.*

Patients should also follow *Dinacharya*, *Ritucharya* and practice *Yoga-asana*. *Pathya* should be used regularly in proper manner. It helps in the nourishment of *Dhatus* and causes pacification of aggravated *Doshas*. It also reduces the severity of disease and prevents the further progression of disease. On the other hand, we can say that *Apathya* is nothing but similar to *Nidana* of the disease. If we avoid *Apathya* that means we are doing *Nidana parivarjana* (avoidance of etiological factors). It is known that *Nidana parivarjana* is one of the important treatment principles. It helps in *Samprapti vighatana* of the disease which is a prime objective of *Chikitsa*. *Yoga-asana* helps in managing the weight, improves the blood circulation in and around the joints, reduces inflammation and stiffness of joints and improves excretion of uric acid from the body.

Discussion on Observations

This study shows that majority of the patients i.e. 73.33% belonged to 31-50 years i.e. middle age group. The epidemiological study of hyperuricaemia or gout also states that middle age group is mostly affected by this disease because this age group mostly lives with faulty lifestyle.

The present study shows that majority of the patients i.e. 60% were male. The epidemiological study of hyperuricaemia or gout also shows the same incidence i.e. males are more affected than females. This is because oestrogen that is released during the female reproductive cycle increases removal of uric acid by the kidneys. Uric acid levels rise in women mainly after the menopause.

The present study depicts that, maximum patients i.e. 81.67% were from urban areas. Urban people are more affected in comparison to rural people because urban people have more stressful life and faulty lifestyle.

The present study shows that majority of the patients i.e. 88.33% consumed mixed (both veg. and non veg.) diet. Intake of food having high purine content raises the serum uric acid level. Non veg. diet like organ meat, beef, pork, sea foods etc. are high purine diet. So, person having mixed diet is more prone to this disease in comparison to person who takes only veg. diet. Finding of the present study also support this fact.

The present study shows that majority of the patients i.e. 58.33% had sedentary lifestyle. Sedentary lifestyle is one of the most important causative factors of this disease. So, the person who has sedentary lifestyle is more prone to develop this disease. Observation of the present study also supports this fact.

Discussion on Results

Effect of treatment on subjective parameters (i.e. *Ruk, Toda, Sparsha asahatva, Shopha, Raga, Daha* and *Stabdhata*) and objective parameter (i.e. Serum uric acid level) in both groups (i.e. Group A and Group B) are discussed below.

(i) Effect on *Ruk*- The percentage of relief was 46.65% in Group A, whereas 62.32% in Group B. The result was statistically highly significant i.e. P<0.001 in both the groups. Although both the groups showed statistically highly significant results, percentage of relief in Group B was more than that of Group A. Hence, effect of treatment on *Ruk* in Group B is better than that of Group A.

(ii) Effect on *Toda*- The percentage of relief was 44.99% in Group A, whereas 60.85% in Group B. The result was statistically highly significant i.e. P<0.001 in both the groups. Although both the groups showed statistically highly significant results, percentage of relief in Group B was more than that of Group A. Hence, effect of treatment on *Toda* in Group B is better than that of Group A.

(iii) Effect on *Sparsha asahatva*- The percentage of relief was 34.62% in Group A, whereas 51.72% in Group B. The result was statistically significant i.e. P<0.01 in Group A, whereas statistically highly significant i.e. P<0.001 in Group B. Hence, effect of treatment on *Sparsha asahatva* in Group B is better than that of Group A.

(iv) Effect on *Shopha*- The percentage of relief was 40.01% in Group A, whereas 55.81% in Group B. The result was statistically highly significant i.e. P < 0.001 in both the groups. Although both the groups showed statistically highly significant results, percentage of relief in Group B was more than that of Group A. Hence, effect of treatment on *Shopha* in Group B is better than that of Group A.

(v) Effect on *Raga*- The percentage of relief was 31.43% in Group A, whereas 53.32% in Group B. The result was statistically significant i.e. P < 0.01 in Group A, whereas statistically highly significant i.e. P < 0.001 in Group B. Hence, effect of treatment on *Raga* in Group B is better than that of Group A.

(vi) Effect on *Daha*- The percentage of relief was 35.70% in Group A, whereas 56.44% in Group B. The result was statistically significant i.e. P < 0.01 in Group A, whereas statistically highly significant i.e. P < 0.001 in Group B. Hence, effect of treatment on *Daha* in Group B is better than that of Group A.

(vii) Effect on *Stabdhata*- The percentage of relief was 29.43% in Group A, whereas 59.25% in Group B. The result was statistically significant i.e. P < 0.01 in Group A, whereas statistically highly significant i.e. P < 0.001 in Group B. Hence, effect of treatment on *Stabdhata* in Group B is better than that of Group A.

(viii) Effect on Serum uric acid level- The percentage of relief was 42.57% in Group A, whereas 57.13% in Group B. The result was statistically highly significant i.e. P < 0.001 in both the groups. Although both the groups showed statistically highly significant results, percentage of relief in Group B was more than that of Group A. Hence, effect of treatment on serum uric acid level in Group B is better than that of Group A.

On the basis of all statistical data, it can be said that patients of Group B showed better results in all parameters in comparison to patients of Group A.

CONCLUSION

Vatarakta is a lifestyle related joint disorder. It can be managed by proper treatment. This study shows that both *Trikarshika kwatha* and Lifestyle modification are effective but *Trikarshika kwatha* with Lifestyle modification is more effective than *Trikarshika kwatha* without Lifestyle modification in the management of *Vatarakta*. No adverse effects were noticed during this study. Hence, it can be concluded that the treatment modalities used in this study are effective and safe.

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