



## Research Article

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### EVALUATION OF GUDUCHI YOGA IN THE MANAGEMENT OF VATARAKTA (GOUTY ARTHRITIS): A CLINICAL STUDY

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**ABSTRACT**

Vatarakta is one of the main articular diseases, which is characterized by severe pain, tenderness, inflammation and burning sensation in the affected joints. It is a tridoshaja vyadhi, with vata pradhanyata and rakta as main dushya. Sedentary lifestyle is one of the etiological factors of Vatarakta. The etiology and symptomatology of Gout is very much similar to that of Vatarakta. Gout is a pathological reaction of joint or periarticular tissues which results from deposition of monosodium urate monohydrate crystals in joints and tissues. In Ayurvedic classics, although we find plenty of dravyas for joint disorders, the area of joint diseases management still remains to be elusive. Hence the present clinical study aims to evaluate the efficacy of combined effect of 'Guduchi extract and cucumber juice extract' in the management of Vatarakta (Gouty arthritis). In the present study, 20 patients fulfilling the diagnostic criteria of Vatarakta and who met the American College of Rheumatology (ACR) criteria for acute Gouty arthritis were selected. Detailed profile which incorporated relevant data like symptomatology, physical signs and investigation reports were considered for assessment criteria. The 'Guduchi Yoga' (Aqueous extract of Guduchi and Trapusha) was administered to patients of either sex in the dosage of 1 g BID with lukewarm water after food for 12 weeks (3 months). After the course of therapy for 12 weeks, symptomatic improvement was observed with statistically significant results ( $P < 0.001$ ) along with attainment of normal serum uric acid levels followed by feeling of general wellbeing. From the present study it can be concluded that the combined effect of Guduchi and Trapusha extracts showed promising results in the management of vatarakta.

**Keywords:** Vatarakta, Gouty arthritis, Guduchi Yoga, Hyperurecemia, *Tinospora cordifolia***INTRODUCTION**

The health of an individual depends solely on his/her diet and life style. As a result of rapid modernization, consumption of baked food, half fried vegetables etc. causes impairment in the digestion and metabolism of protein structure making human being vulnerable to many life threatening disorders like stroke or functional impairment like in joint disorders. Among these, vatarakta is a common presentation which is characterized by severe pain, tenderness, inflammation and burning sensation in the affected joints<sup>1</sup>. Vatarakta is a disease related with khavaigunya found in raktavaha srotas which includes vitiated vata and blood. Small joints of feet and hands are mainly affected in vatarakta<sup>2</sup>. Purine is an important byproduct of incomplete protein metabolism, leading into the excess of production of uric acid through their metabolic pathways viz. denovo and salvage pathways. Reduced renal clearance of uric acid and urate increases their level in circulation. These crystals get deposited in the joint space, triggering as inflammatory response. This response causes crippling disease called Gouty Arthritis<sup>3</sup>. Gouty Arthritis is a complex metabolic disorder of protein metabolism which results from deposition of monosodium urate monohydrate crystals in joint space causing inflammatory arthritis. The fundamental biochemical hallmark of gout is hyper urecemia which results from increased production or decreased excretion of uric acid or from a combination of the 2 processes<sup>4,5</sup>. Reported prevalence of this Gouty Arthritis is 2.0 to 2.6 per 1000 patients, usually between

the age group of 25-50 years. The prevalence of gout is around 1 % with a strong male predominance (10:1). Primary gout is almost exclusively a male disease and most common cause of inflammatory arthritis in men over the age of 40 whereas secondary gout is due to renal impairment or drug therapy mainly affecting people over the age of 65 and this form is usually seen in women<sup>6</sup>. In principle, vata being predominant among the tridoshas<sup>7</sup> has the potential to cause more serious and long term diseases than the other two. The classical texts lay down ample of importance to the functions and characteristics of vata. At the same time, rakta being the foremost body tissue also plays an important role in sustaining the healthy life of the person. Vata rakta is an illness where both vata and rakta are afflicted by distinct etiological factors<sup>8</sup>. 'Vata dushitam raktam yatra roga visheshah' – the disease characterized by the abnormality of raktadhatu due to morbidity of vata dosha is called as vatarakta<sup>9</sup>. Nidanans like katu, amla, ushna, vidahi ahaaras, gaja, ushtra yaana is mentioned. When aggravated vata is obstructed by aggravated rakta, this obstructed vata again vitiates the rakta. This pathological state is known as Vatarakta<sup>10,11</sup>. According to modern treatment, anti-inflammatory drugs, NSAID's, glucocorticoids are administered/used to treat Gouty Arthritis symptomatically which have many adverse effects particularly in presence of renal insufficiency and gastrointestinal disorders making the disease chronic after prolong usage. Therefore, there is a definite need to explore more efficacious and radical cure to this illness.

Hence the present clinical study aims to evaluate the efficacy of combined effect of ‘Guduchi’ (*Tinospora cordifolia*. Willd), one of the drug of choice in Vatarakta<sup>12</sup> and ‘Trapusha’ (*Cucumis sativis*. Linn) quoted to have pain relieving and diuretic activity<sup>13</sup>. Thus the present study was carried out with a target to hit upon a better efficacious ‘Shamana Aushada’ for vatarakta.

**Aims and Objectives**

- To evaluate the therapeutic effect of ‘Guduchi Yoga’ in bringing about remission of the symptoms/illness in the patients suffering from Vatarakta (Gouty Arthritis)
- To evaluate the efficacy of Guduchi yoga in hyperurecemia.

**MATERIALS AND METHODS**

**Source of the Data**

The patients who attended the OPD and IPD of JSSAMC and Hospital, Mysore, Karnataka, India during May 2012 and April 2013 with the signs and symptoms of Vatarakta and with hyper urecemia were screened. Among these 20 patients who fulfilled the criteria of inclusion were included in the study.

**Ethical Clearance**

The study was cleared by the Ethical Committee of the institute dated 27.04.12 with the number bearing JSSAMC 955/ EC/ 2012- 2013. Written consent was taken from each patient willing to participate, before starting the study.

**Inclusion Criteria**

- Patients presenting with classical signs and symptoms of Vatarakta in relation to sandhis mentioned in Ayurvedic texts.
- Patients of Hyperurecemia with Gouty Arthritis.
- Patients between the age group of 18-60 years of either sex.
- Patients who has suffered from 3 or more acute Gouty Arthritic attacks in the previous 12 months and were either unresponsive or intolerant to common therapies.

**Exclusion Criteria**

- Patients associated with metabolic disorders and other systemic diseases
- Patients with autoimmune diseases of joints
- Patients who are on regular NSAID’s and steroidal anti-inflammatory drugs.

**Investigation**

Serum uric acid

**Design**

The study was randomized, single-blind, single-centre clinical study with pre-test and post-test design.

**Drug**

Guduchi kanda churna 1.5 g and Trapusha juice extract powder 0.5 g = Guduchi Yoga 2 g

**Interventions**

‘Guduchi Yoga’ was orally administered in a dose of 2 g twice (morning and evening) daily after food with lukewarm water for 12 weeks (3 months).

**Criteria for Assessment**

In the present study, before and after treatment, scores were assessed by using ‘symptoms ranking scale’ developed by Prof. A.K. Sharma *et.al*. In this study, patients were assessed after the completion of treatment for 12 weeks on the basis of subjective and objective parameters.

**Table 1: Assessment Criteria**

Subjective Parameter	Observation	Scale
Sandhishhula	No pain	0
	Mild pain	1
	Moderate pain	2
	Severe pain	3
Daha	Absent	0
	Mild	1
	Moderate	2
Sandhishohta	Severe	3
	No swelling	0
	Swelling but not apparent	1
Sparshaasahatva	Swelling obvious on lesser than 2 joints	2
	Swelling obvious on greater than 2 joints	3
	No tenderness	0
Twak Lohita	Mild, deep touch causes sparshaasahatva	1
	Moderate, little touch causes sparshaasahatva	2
	Severe	3
Twak Lohita	Absent	0
	Present	1

Objective Parameter	Observation
Investigation	
Serum Uric Acid	Before treatment
	After treatment

The obtained data, on the basis of the observation, were subjected to statistical analysis in terms of mean, standard deviation and standard error. The ‘t’ test conceded at a level of P > 0.05 (insignificant), P < 0.05 and P < 0.01 (significant) and P < 0.001 (highly significant) for the final results<sup>14</sup>.

**Assessment of overall effect**

Detailed clinical observations were done after 12 weeks of treatment for the assessment of results and the final data has been divided into 4 groups.

**Excellent/Marked Relief:** Patients who had obtained complete or above 75 % relief in signs and symptoms i.e. sandhishhula, daha, sandhishohta, sparshaasahatva and twak lohita were included in this group. Laboratory investigation such as serum uric acid within the normal range was included in this group.

**Good/Moderate Relief:** Patients who had obtained 50-75 % relief of the above mentioned signs and symptoms

were considered in this group. The patients whose lab investigations were close to normal (above normal range) or within 50 % reduction in their values were also considered in this group.

**Fair/Mild Relief:** The patients who had got 25-50 % relief of signs and symptoms and less than 50 % reduction in their laboratory values were considered in this group.

**Poor/No Relief:** Patients who had got less than 25 % relief of signs and symptoms, a lab test with no change were included in this group.

**OBSERVATION AND RESULTS**

The descriptive statistical analysis of the whole sample was divided into 2 sections as demographic data and effect of treatment on the disease stated as below.

**Demographic Data**

From Table 2-6, it can be observed that maximum numbers of patients were in the age group of 41-50 years (40 %), followed by 30 % in 51-60 years age group. The maximum number of patients were males (60 %) and out of 20 patients large proportion were from middle class 12 (60 %) followed by 5 (25 %) patients of upper middle class socio-economic status. Among the patients 12 (60 %) had sedentary life style. Most of the patients 16 (80 %) had mixed diet.

**Disease Related Data**

The effect of treatment are shown in Table 9.

**Effect on Pain (Table 7A)**

The study revealed that there was a reduction by 67 % in pain. The initial mean score was 6.051, which came down to 1.952 after treatment, exhibiting a statistically highly significant improvement, with P < 0.001.

**Effect on Burning Sensation (Table 7 B)**

There was a tremendous improvement in burning sensation by 76.8 %. The treatment showed that burning sensation in vatarakta came down to a mean score of 0.960 from 4.121 with P < 0.001 indicating highly significant improvement.

**Effect on Swelling (Table 7 C)**

There was 50 % reduction in swelling. The mean score of swelling came down to 1.451 from an initial score of 2.952 after 12 weeks of treatment with the P value of 0.050 which is statistically significant.

**Effect on Tenderness (Table 7 D)**

Tenderness is another symptom of vatarakta. The initial mean score of the patients was 3.101, which was reduced to 1.002 after the treatment by 67 % with the P value equal to 0.005 which showed a statistically significant change.

**Effect on Local Color Change / Discoloration (Table 7 E)**

The local colour change of the skin was reduced by 61 %. It had a mean score of 0.902 before the treatment which

came down to 0.351 giving a P value of < 0.001 exhibiting a statistically highly significant change.

The effect on investigational parameter i.e. Serum Uric acid levels is shown in Table 8. Among the 20 patients of hyperurecemia i.e. with raised Serum Uric Acid values, 14 (70 %) patients came to within the normal limits, whereas 6 (30 %) patients came near to the normal limits of serum uric acid values after 12 weeks of treatment.

In the present study, excellent results were found in 65 % patients, good results were observed in 20 % patients and fair results were found in 15 % patients (Table 10). The descriptive statistical analysis of the whole sample was divided into 2 sections as demographic data and data related to disease stated as below.

**Demographic data**

**Table 2: Distribution according to age**

Age Groups	No. of Patients	Percentage
21 – 30	3	15 %
31 – 40	3	15 %
41 – 50	8	40 %
51 – 60	6	30 %

**Table 3: Distribution according to Sex**

Sex	No. of Patients	Percentage
Male	12	60 %
Female	8	40 %

**Table 4: Distribution according to Socio-Economic Status**

Socio-economic status	No. of Patients	Percentage
Poor	0	0 %
Lower Middle	2	10 %
Middle	12	60 %
Upper Middle	5	25 %
Rich	1	5 %

**Table 5: Distribution according to Occupation**

Physical Activity	No. of Patients	Percentage
More active	3	15 %
Less active	5	25 %
Sedentary	12	60 %

**Table 6: Distribution according to Diet**

Type	No. of Patients	Percentage
Vegetarian	4	20 %
Mixed	16	80 %

**Data relating to subjective and objective parameters**

**Table 7 A: Sandhishula (Joint Pain)**

Type of Pain	No. of Patients		Percentage	
	BT	AT	BT	AT
Mild Pain	4	5	20 %	25 %
Moderate Pain	10	2	50 %	10 %
Severe Pain	6	-	30 %	-

**Table 7 B: Daha (Burning Sensation)**

Type	No. of Patients		Percentage	
	BT	AT	BT	AT
Mild	2	4	10 %	20 %
Moderate	12	1	60 %	5 %
Severe	6	--	30 %	--

**Table 7 C: Sandhishotha (Swelling)**

Type	No. of Patients		Percentage	
	BT	AT	BT	AT
Slight swelling	6	7	30 %	35 %
Moderate swelling	10	3	50 %	15 %
Gross swelling	4	-	20 %	-

**Table 7 D: Sparshaasahatva (Tenderness)**

Type	No. of Patients		Percentage	
	BT	AT	BT	AT
Mild tenderness	2	4	10 %	20 %
Moderate tenderness	16	3	80 %	15 %
Severe tenderness	2	-	10 %	-

**Table 7 E: Twak Lohita (Local Color Change)**

Type	No. of Patients		Percentage	
	BT	AT	BT	AT
Absent	0	12	-	60 %
Present	20	8	100 %	40 %

**Table 8: Investigation: Serum Uric Acid**

	Values	No. of Patients	Percentage
BT	6-6.9 mg/dl	0	0
	7-7.9 mg/dl	1	5 %
	8-8.9 mg/dl	5	25 %
	9-9.9 mg/dl	8	40 %
	10 and above	6	30 %
AT	3.5-7.5 mg/dl	14	70 %
	7 and above	6	30 %

**Table 9: Effect of treatment on subjective and objective parameters**

Parameter	Mean Score		Mean (Diff)	% of relief	Paired 't' test			
	BT	AT			SD	SEM	't'	P value
Pain	6.051	1.952	4.101	67.1 %	2.23	0.495	8.26	< 0.001
Burning sensation	4.121	0.960	3.152	76.8 %	3.118	0.698	4.55	< 0.001
Swelling	29.952	1.451	1.502	50.8 %	3.205	0.718	2.09	= 0.05
Tenderness	3.101	1.002	2.102	67.5 %	2.92	0.658	3.199	= 0.005
Local color change	0.902	0.351	0.551	61.2 %	0.61	0.136	4.067	< 0.001

BT – Before treatment, AT – After treatment, SE – Standard Error, SD – Standard Deviation, SEM – Standard Error of Mean

**Table 10: Total effect of treatment on patients of Vatarakta**

Effect of Treatment	No. of Patients	Percentage
Excellent	13	65 %
Good	4	20 %
Fair	3	15 %
Poor	0	0

**DISCUSSION**

Vatarakta is one of the unique disorders among the Vatavyadhi. Compared with other vatavyadhi, vatarakta possesses a special place in the literature, due to its high prevalence in the society, increased incidence as age advances and so on. Vatarakta is caused by vataprakopaka hetu and rakta prakopaka hetu. This prakupita vata along with rakta dushti moves throughout the body and takes sthanasamshraya at the padangushta sandhi due to its vyadhiprabhava. This is told as anyonya avarana by Chakrapani. So Vatarakta is considered as avaranajanya Vatavyadhi. Due to properties like sukshmatva and saratva of vayu, dravatva and saratva of rakta they spread all over the body. The spreading is facilitated by vyana vayu. The doshas get lodged in sandhis. The main and first site of manifestation is pada mula (1<sup>st</sup> metatarsophalangeal joint) and then hasta and pada and from there onwards spread upwards. Guduchi is considered as the Agyaoushadhi in Vatarakta. Vatarakta being a raktavahasrota vyadi, raktavahasrotogami property of guduchi may be helpful here. Tinosporine (chemical constituent) is a natural diuretic agent which may aid in the excretion of serum uric acid. It is also analgesic and anti-inflammatory. Guduchi is having tikta

as pradhona rasa and sheetaguna. Due to this quality it helps to relieve raktadushti. Acharya Charaka in Sutrastana, Vidhishoniteeya adhyaya says that any of the disease which does not subside by guru, snigdha, sheetha and ushna guna independently that disease is known as Raktaja vikara. Moreover dominant dosha is vata in it. Here vata and rakta possess different qualities. Rakta having ashraya of pitta has snigdha, visra, drava, ushna gunas while vata has opposite qualities like ruksha, sheeta etc. To subside vatarakta; the drug should have the qualities to relieve both the factors. Guduchi having tikta rasa has the ability to give knowledge about inclusion of ruksha guna. On the other end guduchi is having snigdha guna that helps to subside ruksha guna of vata. Usually tikta rasa converts into katu vipaka which cause vibanda, but Guduchi exceptionally having madhura vipaka expels pureesha etc. Tikta rasa subsides rakta and madhura vipaka subsides vata. Trapusha is mentioned as mutrala and raktadoshahara in Raja nighantu. Since Guduchi and Trapusha is attributed to mutrala activity it is helpful in excretion of uric acid and helpful in renal calculi. Raja nighantu also quotes as Trapusha being indicated in vidaha and arti. These qualities of Trapusha have been considered to act in the pathogenesis of Vatarakta.

**CONCLUSION**

Based on the entire symptomatology Vatarakta can be well correlated to Gouty Arthritis of contemporary medicine. The present clinical study has been undertaken to see the efficacy of 'Guduchi Yoga' and the study

revealed that a maximum number of patients showed remarkable relief in signs and symptoms of Vatarakta. 'Guduchi Yoga' has also shown significant reduction in serum uric acid levels. Hence it can be concluded that the combined effect of Guduchi kanda and Trapusha is found to be more effective in the management of Vatarakta which is relatively safe and cost effective treatment. Thus Guduchi Yoga is a reliable therapeutic treatment for Vatarakta.

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