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Research Article

A CLINICAL STUDY TO EVALUATE THE EFFECT OF *AMRITA GUGGULU* AND *GUDUCHI KWATH* IN THE MANAGEMENT OF VATARAKTA W.S.R. TO GOUT

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ABSTRACT

In present time, lifestyle disorders are rapidly rising in our society. Over consumption of food, alcohol and fructose sweetened soft drinks in combination with a sedentary lifestyle has resulted in increased prevalence of visceral obesity, metabolic syndrome and gout in all socioeconomic groups of society including the lower socioeconomic status. Gout is one of the major life style disorders. The clinical manifestation and textual references of gout may be attributed with '*Vatarakta*', also known as *Vatashonita*. *Vata* and *Rakta* are the *Dosha* and *Dushya* respectively which are primarily involved in the pathology of *Vatarakta*. *Virudhaahar* and *Vihara* aggravate *Vata dosha* and *Rakta dhatu.* Provocated *Vata* gets *Aavrut* with vitiated *Rakta dhatu* leading to the beginning of pathophysiological cascade of *Vatarakta*. The patients for this study were diagnosed based on Ayurvedic and modern parameters. Clinical signs and symptoms described in classical texts were considered for the diagnosis of *Vatarakta,* whereas serum uric acid was considered as investigation based diagnostic tool. Total 15 patients were registered in trial. The selected patients were given the trial drug i.e., *Amrita guggulu* one gram *and Guduchi kwath* 50ml twice a day with plain water after food. Out of 15 registered patients, 1 dropout from the trial, 4 patients (28.57%) showed marked improvement, 7 patients i.e., 50% showed moderate improvement and 3 patients 21.43% showed mild improvement. None of patient in present clinical trial remained unimproved or deteriorated during the clinical trials. In the present study, none of the patient reported any adverse effect to the trial drug during study and follow up period.

INTRODUCTION

In present time, lifestyle disorders are rapidly rising in our society. Gout is one of the life style disorders. Relation between the association between gout and socioeconomic status is very old. Previously, gout was considered as the 'disease of kings', which relates it to lifestyle disease of rich people. With time, increase in food intake and junk food has been available and affordable for far more population.

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Over consumption of food, alcohol and fructose sweetened soft drinks in combination with a sedentary lifestyle has resulted in increased prevalence of visceral obesity, metabolic syndrome and gout in all socioeconomic groups of society including the lower socioeconomic status also.[1]

The clinical manifestation and textual references of gout may be attributed with '*Vatarakta*', also known as *Vatashonita*. In *Vedic kala,* there is no documented reference of *Vatarakata* although *Puranas* have some description of *Vatarakata*. However, reference of *Vatarakta,* as an independent disease is available from *Samhita kala*. It mentions an elaborated management including both internal and external treatment of *Vatarakata.*[2]

Vata and *Rakta* are the *Dosha* and *Dushya* respectively which are primarily involved in the pathology of *Vatarakta*. *Virudhaahar* and *Vihara* aggravate *Vata dosha* and *Rakta dhatu.* Provocated

Vata gets *Aavrut* with vitiated *Rakta dhatu* leading to the beginning of pathophysiological cascade of *Vatarakta*.

In modern era, the global burden of gout is substantial and seems to be increasing in many parts of World. Several studies suggest that incidence of gout has risen in recent decades. Different data collected over worldwide shows that, developed countries tend to have a higher burden of gout than developing countries. The prevalence is 0.12% as per International League of Associations for Rheumatology (ILAR). [3]

Gout mostly affects middle aged to elderly men and postmenopausal women. It is more common in men than women with estimated ratio of 10:1. The incidence of gout among black people is almost twice than white people. Another study revealed that 15.8% of the affected patients are less than 30 years of age due to metabolic syndrome in younger population.[4] Gout is the most prevalent form of inflammatory arthropathy. Numerous risk factors for the development of gout have been established, including genetic factors, dietary factors, alcohol consumption, metabolic syndrome, hypertension, obesity, diuretic drugs use and chronic kidney diseases. Elevation of serum uric acid level or hyperuricaemia is an essential prerequisite for the development of Gout. The disease is seen in one tenth of patients of hyperuricemia.

A recent study identified gout as an indicator of increased risk for metabolic syndrome, NIDDM and adverse cardiovascular outcome. This constitutes a serious concern with the context of a global epidemic of NIDDM and CAD. An increase in all causes of mortality from CAD has also been found among men with gout. Women with gout have a much higher risk i.e. 39% to have a heart attack than women without gout.[5] This risk is comparatively less in males suffering from gout i.e., 11% than others.

A treatment option available for acute gout includes NSAIDs, colchicine, corticosteroids, anti-hyperuricemic drugs and uricosuric agents. These pharmacological agents are associated with significant adverse effects and thus have certain limitations. Surgery is occasionally required to deal with large or ulcerating tophus. So, modern medicines are neither promising nor fulfilling the expectation of patients. Hence there is need of safe and cheap drug that possess significant potency and efficacy with least side effects. Therefore, the present research work "A clinical study to evaluate the effect of *Amrita guggulu* [6] (Table no. 1) and *Guduchi kwath*[7] (Table no. 2) in the management of *Vatarakta* w.s.r. to gout" was conceived.

AIMS AND OBJECTIVES

- To evaluate the efficacy of *Amritaguggulu and Guduchi kwath* in the management of *Vatarakta* w.s.r. to gout.
- To evaluate the clinical safety of *Amritaguggulu* and *Guduchi kwath* in the patients of *Vatarakta* w.s.r. to gout.

MATERIALS AND METHODS

Selection of patients: A total of 15 uncomplicated patients of *Vatarakta* were selected for the present study from O.P.D. and I.P.D. of *Kayachikitsa* department, R.G.G.P.G. Ayurvedic College Hospital, Paprola, irrespective of their sex and socio-economic status, etc. IEC & consent: Approval from the Institutional Ethical Committee (IEC) vide letter no. IEC/2015/1015 dated 16/06/2015 was taken prior to the commencement of study. Written & informed consent of the patient was taken before their registration for the study.

Criteria of Diagnosis: The patients were diagnosed based on *Ayurvedic* and modern parameters. Clinical signs and symptoms as described in classical texts were considered for the diagnosis of *Vatarakta*.

- *Sandhi Shoola*- Joint Pain
- *Sandhi Sotha*- Swelling of the Joint
- *Raga*- Redness
- *Tvaka Vaivarnya*- Discoloration of Skin
- *Sparsha Asahyata*- Tenderness
- *Vidaha*- Burning Sensation
- *Stabdhata*- Stiffness
- *Shithilta*-Fatigue

Serum uric acid was considered as investigation based diagnostic tool. Serum Uric acid more than 7mg/dl in male and 6mg/dl in female was considered for diagnosis.

Inclusion Criteria

1. Patients willing and able to participation in the trial.
2. Patient in the age group between 20-70 years of either sex.
3. Patients with serum uric acid level more than 7 mg/dl (male) and more than 6 mg/dl (female) with associate features like joint pain and inflammation etc.

Exclusion criteria

1. Patients unwilling to participate in the trial.
2. Any other inflammatory joint disorder like RA, tubercular arthritis etc.
3. Patients suffering from chronic respiratory, cardiac, hepatic and hormonal diseases.
4. Patients with malignant disorder.
5. Mentally unstable and substance abuse patients.
6. Patient who have participated in any clinical trial during last 6 months.

Laboratory investigations: Following laboratory investigations were carried out in the registered patients to confirm the diagnosis and to rule out other concomitant disease both before and after the therapy.

1. Routine haematological investigations (Hb gm%, TLC, DLC, ESR).
2. Biochemical investigations (S. Uric acid, FBS, B. Urea, S. Creatinine, R.A factor and S. Lipid profile).
3. Urine routine and microscopic examination.
4. Radiological examination of the joints if required.

METHOD OF STUDY

Trial groups: Diagnosed patients, who fulfilled the inclusion criteria and rendered informed consent, were selected for present clinical study which lasted for 45 days. Total 15 patients were selected for the clinical trial. Most of the patients came regularly for their follow up except one which was dropped out from the study.

Total 15 patients were registered in trial. The selected patients were given the trial drug i.e., *Amrita guggulu* one gram *and Guduchi kwath* 50ml twice a day with plain water after food.

Duration of trial: Duration of trial was 45 days.

All the patients were advised to take low protein diet. Patients were advised to avoid alcohol, meat, egg, fish, cheese, *Ruksa* (dry), irritant, astringent, salty, sour foods and pulses with intact outer coat. Patients were also advised not to practice *Visma-asana, Nidra vipryaya* (sleeping at day time and remain awake at night). Overweight study subjects were encouraged to lose weight. Light exercise was advised to all registered patients. Patients were advised not to adopt stressful life style and advised to avoid long journeys and carry heavy weights.

Registered patients were thoroughly assessed after every 15 days for any improvement in the subjective parameters (Table No. 3), till the completion of trial period of 30 days. Serum uric acid was considered as main objective criteria of assessment. Various signs and symptoms were accorded grades according to the severity for the purpose of assessment. Hematological, biochemical and urine examination were done both before commencement and after completion of the therapy.

OBSERVATIONS AND DISCUSSION

The patients were ranging from 20 to 70 years. The patients set was spread over entire range of considered age limits. Maximum 53.32% patients were in the age of 41–60 years. There were roughly 13% of patients from each age group of 20-30 and 31-40 years. The highest age group considered (61-70 years) in this study had 20% representation. (Table No.4) Among 15 patients of *Vatarakta*, majority of patients were females i.e., 60% and rest were males i.e., 40% (Table No.5). There were four categories formed for assessment of the addiction status. In about half of patients there was no addiction at all. One patient had smoking addiction and three patients (20%) were consuming alcohol only remaining four study subjects i.e., 26.67% were addicted to both alcohol as well as smoking. (Table No.6) Lifestyle distribution of patients showed that 66.67% i.e., 10 patients were enjoying sedentary life style rest 33.33% of patients i.e., 5 were having active lifestyle. (Table No.7) Most of the registered patients (80%) were taking mixed diet. Only 3 (20%) patients were vegetarian. (Table No.8) Family history wise distribution of registered study subjects showed that 4 patients had positive family history of gout. Rest of the 11 patients (73.33%) had no familial history of the disease. (Table No.9) In this study, data revealed that 3 patients (20%) had symmetrical involvement of joints. Rest of 12 patients (80%) had asymmetrical involvement. (Table No.10) Duration of illness wise distribution of 15 patients of *Vatarakta* showed that 12 patients (80%) presented with less than 2 years of duration, 2 patients (13.33%) presented with 2-4 years of duration, only one patient reported with 4-6 years of duration. (Table No. 11) Observation regarding joint involvement showed that MTP (metatarsophalangeal) joint was involved in 7 patients (46.67%). Involvement of the knee joint, M.C.P., and I.P. joints was observed each in 5 patients. There were two patients each having affliction of ankle and wrist. Four patients had involvement of instep of foot. Elbow involvement was present only in 3 patients. (Table No. 12) All registered patients (100%) had *Sandhishoola* (joint pain), *Sandhisotha* (joint swelling) and *Sparshaasahyatavm* (tenderness). 14 patients (93.34%) presented with the complaint of *Vidaha* (burning sensation) and *Stabdhata* (stiffness). 13 patients (87.68%) presented with *Raga* (redness), 9 patients (60%) had *Shithilta* (fatigue) and 8 patients (53.34%) presented with the complaint *Tvakvaivarnyata* (discolouration). (Table No.13)

Effects of the therapy revealed that mean score of *Sandhi shoola* in registered study subjects before commencement of therapy was 2.92 after 45 days of therapy it came down to 1.07 showing 63.4% reduction in joint pain, which was statistically highly significant ($p<0.001$). Mean score of *Sandhi shotha* (joint swelling) before treatment was 2.07 which came down to 0.42 after treatment. The relief in percentage was 79.33%, which showed statistically highly significant ($p<0.001$). Mean score of *Sparsha asahyata* (tenderness) before treatment was 2.71, which came down to 1.07 after treatment. 60.54% reduction in tenderness was observed after therapy which was statistically significant ($p<0.01$). Among 13 patients, mean score of *Raga* before treatment was 1.76 which

improved to 0.46 after treatment, giving a percentage relief of 73.94 which is statistically highly significant (p<0.001). In patients of *Vatarakta,* pretrial mean score of *Vidaha* was 3.31 which improved to 1.31 after treatment, giving percentage relief of 60.46% which is statistically significant (p<0.01). Before treatment, mean score of *Tvak vaivarnya* among 8 registered patients was 1.125 which came down to 0.25 after treatment, giving a percentage relief of 77.78 which is statistically significant (<0.01). Mean score of *Stabdhata* before treatment was 2.21 which came improved to 0.64 after treatment. 70.96% reduction in stiffness was observed after treatment which is highly significant statistically (p<0.001). In the patients of *Vatarakta*, the mean score of *Shithilta* before treatment was 1.25 which came down to 0.625 after treatment. The relief in percentage was 50% which was not significant statistically (p=0.017). (Table no. 14)

Effect of therapy on objective criteria revealed that the mean serum uric acid level in registered patients before treatment was 8.436mg/dl which came down to 5.543mg/dl after treatment. 34.29% reduction in uric acid was observed after the therapy, which was statistically highly significant (p<0.001). (Table no. 15) Among 14 patients mean value of haemoglobin, TLC, DLC and ESR was within normal limits before trial and remained same after trial also. Changes observed in these variables were statistically insignificant (p>0.05). Among 14 patients mean value of FBS, B. Urea, S. Creatinine was within normal limits before trial and remained same after trial also. Changes observed in these variables were statistically insignificant (p>0.05). Among 14 patients mean value of S. Lipid profile was within normal limits before trial and remained same after trial also. Changes observed in these variables were statistically insignificant (p>0.05).

Out of 14 registered patients, 4 patients (28.57%) showed marked improvement, 7 patients i.e., 50% showed moderate improvement and 3 patients 21.43% showed mild improvement.

None of patient in present clinical trial remained unimproved or deteriorated. In the present study, none of the patient reported any adverse effect to the trial drug during study and follow up period. The formulation needs to be evaluated further on large samples and for larger duration to establish its safety.

The probable mode of action of each ingredient of drug is discussed on both Ayurveda as well as on modern grounds. In nutshell, trial drugs though possess *Tridoshahara* properties but predominantly they are *Vatashamaka* and thus help in combating the vitiation of *Vata.*

In general, the formulation has *Tridosha shamaka* as well as *Raktashodhaka* properties. Most of the drugs have *Rasayana guna*. *Rasayana* is said to be '*Vyadhi vidhwansi'*. *Guggulu, Guduchi, Haritaki, Bibhitaka, Danti, Sunthi, Maricha* and *Tvaka* all these drugs have *Ushna veerya*, so have the potencial to pacify *Vatadosha* and hence work as *Vedanasthapaka* (analgesic). Most of the ingredient of drug i.e. *Guduchi, Amalaki, Haritaki, Danti, Vidanga, Pippali, Shunthi* and *Tvaka* due to *Pradhanata* of *Vayu* and *Agni mahabhoota* exhibit *Deepana* and *Pachana guna*. These properties ultimately help in combating *Aganimandya* which is one of the factors in causation of disease. Similarly, *Samarakta* cause *Sthansanshraya* in *Asthivahasrotas* by obstructing the normal pathway of *Vata. Pachana dravyas* help in combating that *Amavastha* which is responsible for *Srotoavarodha*. *Vishyandana* is liquification of deeply embedded *Dosha* which is a desired prerequisite for its mobilization. According to *Acharya Chakrapani*, *Vishyandana* and *Vilayana* both are synonyms. A drug should have *Ushna, Tikshna guna* for *Vilayana karma.* In the trial drug most of the contents have *Ushna veerya* and *Tikshna* properties, due to which they help in *Vilayana* of *Doshas* as well as in the *Pachana* of *Ama*. *Tikshna dravya* also possess the property of *Lekhana karma* which leads to *Srotoshodhana* at the level of microchannels. Through *Mutravirechana* or *Purishvirechana karma,* the involved *Dosha* are excreted out of the *Kostha*. The ingredients of trial drugs like *Guduchi, Amalaki, Haritaki, Vidanga, Pippali* and *Tvaka* have *Mutrala* or *Mutravirechana* property. About 90% of hyperuricemic patients have defect in the renal handling of uric acid (Harrison's Principles of Internal Medicine, 17th edition). Through the *Mutravirechaniya* action of these drugs, the excess of uric acid along with urine is excreted out of the body.

Drugs *Bibhitaka, Amalaki*, *Trivrita, Danti,* and *Pippali* have *Purishvirechana* property. In *Charaka samhita*, *Vatarakta* has been described as *Raktaja roga* in *Vidhishonita adhyaya*[8]. Hence in this disease, there is involvement of *Rakta dhatu* because *Pitta* has been considered as *Mala* of *Rakta dhatu*, hence its involvement is also inevitable. In *Charaka samhita Virechana* has been mentioned as the treatment of choice in *Pittaja vikara. Amrita guggulu* contains *Triphala*, which works as a Xanthine Oxidase inhibitor like Allopurinol and suppresses the production of uric acid[9]. Extracts of *Guduchi* has potent uricosuric action[10]. So, by this property it excretes the excessive uric acid from body by urine and helps in reduction of serum uric acid level. The ethanolic extract of stem of *Guduchi* have inhibitory effect on CaOx crystallization thus may be beneficial in the prevention of uric acid stone formation[11]. *Guduchi, Amalaki, Haritaki* and

Pippali have *Rasayana* effect. *Guduchi* is main ingredient of trial drug. It is a potent immunomodulator with very good anti- cytotoxic effects[12].

Dyslipidemia, hypertension, diabetes mellitus etc. are co-morbidities present along with gout. Few drugs like *Guggulu*[13], *Haritaki, Amalaki* and *Bibhitaka*[14] have hypolipidemic activity. In human studies also, it corrects lipid profile. Some other drugs i.e. *Guduchi, Vidanga*, *Tvaka, Amalaki, Shunthi, Pippali* have hypoglycemic action[15]. However statically insignificant effect has been observed over S. lipid profile in the present trial which may be due to shorter duration of trial. *Maricha* is another content that has vasodilatory[16] property increases the blood circulation to the affected joint and enhances the process of phagocytosis of antigen-antibody complexes responsible for hypersensitivity which leads to inflammation. The cumulative effects of these drugs help in relieving the symptoms of *Vatarakta.*

Trial drugs i.e., *Amritaguggulu* and *Guduchi kwath* have been proved useful in the management of *Vatarakta*. Probably these drugs are having dual action. Firstly, the analgesic and anti-inflammatory action might be helping in alleviating sign and symptoms. Secondly, antihyperuricemic action by reduced production and increased excretion of uric acid from the body.

In this way, *Amrita guggulu* and *Guduchi kwath* as a compound formulation contain the drugs which have multi directional effect on the management of gout. Hence, it has shown highly significant results in the management of the disease.

CONCLUSION

On clinical evaluation, the trial drug *Amritaguggulu* and *Guduchi kwath* has proved effective and safe remedy for patients of *Vatarakta*. *Vatarakta* (Gout) is a disease of adult males which usually occurs in 4th to 7th decade of life. After menopause due to lack of hormonal effect, females become equally prone to this disease. Gout is also called as "rich man's disease" but in present era, it affects the persons of all socioeconomic groups who consume rich protein diet and indulge in sedentary lifestyles. Regarding etiological factors it is found that high protein diet like non vegetarian diet, pulses, alcohol addiction, sedentary or stressful lifestyle etc. are the most common factors which are accountable for precipitation of gouty attack. Hypertension is the most common associated diseases with gout. The trial drug in this study was a combination of *Deepana, Amapachak, Vedanasthapana, Mutrvirechana* and *Shothaghna dravyas* which helpes in the treatment of *Vatarakta* by breaking the pathology at various levels. *Triphala* is an ingredient of *Amritaguggulu* which work as a Xanthine Oxidase inhibitor like Allopurinol and suppresses the production of Uric Acid. The ingredients of this drug like *Guduchi, Triphala* and *Guggulu* with their *Rasayana* properties help in maintaining homeostasis in *Doshas* and *Dhatu*. About 90% of patients have under secretion of uric acid due to abnormality in renal excretion. So, few ingredients of trial drug formulations like G*uduchi, Vidang, Tvak, Pippali* etc. have *Mutravirechana* property. These drugs help in excretion of excess uric acid present in blood. Statistically, the trial drugs showed highly significant results on subjective as well as on objective parameters. The trial drugs are acceptable, safe and cost effective. The drugs can be administered for a long time without any side effects.

On the basis of this study, it can be concluded that trial drug, *Amrita guggulu and Guduchi kwath* may prove effective in the management of *Vatarakta*. No untoward effects of the drugs were noted during the trial and follow up period. However, this study was a humble attempt in small number of patients and in a fixed duration of time thus requires further study on large sample for longer duration to prove its beneficial effects on patients.

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Tables

Table 1: Ingredients of *Amrita Guggulu*

S.no.	Ingredient	Botanical name	Quantity
1.	*Guduchi*	*Tinospora cordifolia*	1part
2.	*Guggulu*	*Commiphora mukul*	½part
3.	*Haritaki*	*Terminalia chebula*	½part
4.	*Bibhitaka*	*Terminalia bellirica*	½part
5.	*Amalaki*	*Emblica officinalis*	½ part

Prakshep Dravya			
6.	*Danti*	*Baliospermum montanum*	1/32 part
7.	*Maricha*	*Pepper nigrum*	1/32 part
8.	*Pippali*	*Piper longum*	1/32 part
9.	*Shunti*	*Zingiber officinalis*	1/32 part
10.	*Vidanga*	*Embelia ribes*	1/32 part
11.	*Guduchi*	*Tinospora cordifolia*	1/32 part
12.	*Haritaki*	*Terminalia chebula*	1/32 part
13.	*Bibhitaka*	*Terminalia bellirica*	1/32 part
14.	*Amalaki*	*Emblica officinalis*	1/32 part
15.	*Tvacha*	*Cinnamon cardamom*	1/32 part
16.	*Trivrita*	*Operculina turpethum*	1/64 part

Table 2: Ingredients of *Amrita Kwath*

S.no.	Ingredient	Botanical name	Quantity
1.	*Guduchi*	*Tinospora cordifolia*	1 part
2.	Water	H_2O	4 parts

Table 3: Subjective Criteria

S.no.	Subjective Criteria	Status	Grade
1.	*Sandhi Shoola* (Joints pain)	No pain	0
		Mild pain of bearable nature, feel occasionally	1
		Moderate pain, no difficulty on movement and relieved on rest	2
		Constant pain, slight difficulty in moving the joints	3
		Severe pain causing disturbance in sleep, more difficulty in moving joints	4
2.	*Sandhi Shotha* (Swelling of joints)	No swelling	0
		Mild swelling	1
		Moderate swelling	2
		Severe swelling without loss of movements	3
		Severe swelling with loss of movements	4
3.	*Sparsh Asahyata* (Tenderness)	No tenderness	0
		Patient says it is tender	1
		Patient says it is tender and winces	2
		Patient says it is tender, winces and withdraws the limb	3
		Patient does not allow touching the affected part	4
4.	*Raga* (Redness of the joints)	No redness	0
		Mild redness	1
		Moderate redness	2
		Severe redness	3
		Joint dusky red	4
5.	*Tvakvaivarnyata* (discolouration)	No discoloration	0
		Mild discoloration	1
		Moderate discoloration	2
		Severe discoloration with excoriation of skin	3
6.	*Vidaha* (Burning sensation)	No burning sensations	0
		Mild burning sensation	1
		Moderate burning sensation	2
		Severe burning sensation	3
7.	*Stabdhata*	No stiffness	0

	(Stiffness)	Stiffness lasting for few minutes to 1 hour	1
		Stiffness lasting for 1 hour to half of day	2
		Stiffness lasting for more than half of day	3
		Throughout the day	4
8.	*Shithilta* (Fatigue)	No fatigue	0
		Only on doing heavy work	1
		On doing accustomed work	2
		Fatigue on doing less than accustomed work	3
		Even at rest	4

Table 4: Showing the Different Age Group

S. No.	Age (years)	Number of patients	Percentage (%)
1.	20-30	2	13.34
2.	31-40	2	13.34
3.	41-50	4	26.66
4.	51-60	4	26.66
5.	61-70	3	20
	Total	15	100

Table 5: Showing the Ratio of Male and Female

S. No.	Sex	No. of patients	Percentage (%)
1.	Males	6	40
2.	Females	9	60
	Total	15	100

Table 6: Showing Addiction in Patients

S.No.	Addiction	No. of patients	Percentage (%)
1.	No addiction	07	46.66
2.	Alcohol	03	20
3.	Smoking	01	6.67
4.	Alcohol & Smoking	04	26.67
	Total	15	100

Table 7: Showing Lifestyle Distribution

S.No.	Lifestyle	No. of patients	Percentage
1	Sedentary	10	66.67
2	Active	05	33.33
	Total	15	100

Table 8: Showing Dietary Habits

S.No.	Dietetic Habits	No. of patients	Percentage (%)
1.	Mixed diet	12	80
2.	Vegetarian diet	3	20
	Total	15	100

Table 9: Showing Family History

S.No.	Family history of gout	No. of patients	Percentage (%)
1	Present	04	26.67
2	Not present	11	73.33
	Total	15	100

Table 10: Showing Symmetry of Involved Joints

S.No.	Nature of involvement	No. of patients	Percentage (%)
1	Asymmetrical	12	80
2	Symmetrical	03	20
	Total	15	100

Table 11: Showing Duration of Illness

S.No.	Chronicity (in yrs.)	No. of patients	Percentage (%)
1	< 2 yrs.	12	80
2	2-4 yrs.	02	13.33
3	4-6 yrs.	01	6.67
4	>6 yrs.	0	0
	Total	15	100

Table 12: Showing Involvement of Joints

S.No.	Name of joints involved	Rt.	Lt.	B/L	Total	Percentage (%)
1	M.T.P.	4	2	1	7	46.67
2	Knee	2	-	3	5	33.34
3	Instep of foot	3	-	1	4	26.67
4	Ankle	-	1	1	2	13.33
5	M.C.P.	1	2	2	5	33.34
6	I.P.	1	2	2	5	33.34
7	Elbow	1	2	-	3	20
8	Wrist	-	1	1	2	13.33

Table 13: Showing Cardinal Symptoms

S.No	Signs & Symptoms	No. of Patients	Percentage (%)
1	*Sandhi shoola* (joint pain)	15	100
2	*Sandhi shotha* (joint swelling)	15	100
3	*Sparsha asahyata* (tenderness)	15	100
4	*Raga* (redness)	13	86.67
5	*Vidaha* (burning sensation)	14	93.34
6	*Tvakvaivarnyata* (discolouration)	08	53.34
7	*Stabdhata* (stiffness)	14	93.34
8	*Shithilta* (fatigue)	09	60

Table 14: Showing Effect of Therapy on Various Cardinal Symptoms

S.no.	Cardinal symptom	N	Mean score		% of change	SD±	SE±	T	P
			BT	AT					
1.	*Sandhi shoola* (joint pain)	14	2.92	1.07	63.4	0.363	0.097	19.135	<0.001
2.	*Sandhi shotha* (joint swelling)	14	2.07	0.42	79.33	0.633	0.169	9.706	<0.001
3.	*Sparsha asahyata* (tenderness)	14	2.71	01.07	60.54	0.929	0.248	6.618	<0.01
4.	*Raga* (redness)	13	1.76	0.46	73.94%	0.63	0.175	7.479	<0.001
5.	*Vidaha* (burning sensation)	13	3.31	1.31	60.46	0.577	0.16	12.49	<0.01
6.	*Tvakvaivarnyata*(discolouration)	8	1.125	0.25	77.78%	0.354	0.125	7	<0.01
7.	*Stabdhata* (stiffness)	14	2.21	0.64	70.96	0.514	0.137	11.449	<0.001
8.	*Shithilta* (fatigue)	8	1.25	0.625	50%	0.518	0.183	3.416	=0.017

Table 15: Showing Effect of Therapy on Objective Criteria

S.no.	Cardinal symptom	N	Mean score		% of change	SD±	SE±	T	P
			BT	AT					
1.	Serum uric acid	14	8.436	5.543	34.29	1.242	0.332	8.712	<0.001

Table 16: Showing the Overall Result of the Therapy

Result	No. of patients	Percentage (%)
Complete remission	0	0
Marked improvement	4	28.57
Moderate improvement	7	50
Mild improvement	3	21.43

No improvement	0	0
Deteriorated	0	0
Total	14	100

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