

EVALUATION OF PARISHEKA-BASTI & VIRECHANA WITH NAVKARSHIK KWATH IN VATARAKTA W.S.R. TO SCLERODERMA

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ABSTRACT

The prototypic autoimmune diseases involving skin typically result in epithelial injury and autoantibodies to characteristic cellular antigens. Disease-specific autoantibodies are also found in scleroderma and scleroderma is different from other cutaneous autoimmune diseases. Multiple factors and combinations of factors (Immune system, vascular and extracellular matrix abnormalities) are the most likely triggers in an individual with a genetic predisposition to scleroderma. These lead to increased synthesis of normal collagen in skin, lungs and gut in the systemic form of scleroderma (Systemic sclerosis). Scleroderma or Systemic Sclerosis of contemporary medical science by its similarity in symptoms and aetiological factors can be correlated with "*Vatarakta*".

In Ayurveda three basic treatment principles are mentioned- *Shodhana*, *Shamana*, *Nidan parivarjan*. Basti is the prime treatment modality of Ayurveda and according to *Acharya Charka* there is no treatment of *Vatarakta* efficient as *Basti*. *Hapushadi Yapana Basti* is specially described for management of *Sarvang Vatarakta*. *Hapushadi Yapana Basti* and *Guduchiyadi Tail* administered as per *Yog Basti* and *Parisheka* with *Dashmool kwath* with *Godhan Arka*. After the completion of course of treatment all the patients were prescribed with *Navkarshik kwath*. In another group we employed *Virechana* which is mentioned in *Vatashonita chikitsa*. Assessment was done on subjective and objective parameters and obtained data was analysed using appropriated statistical tests and conclusion was drawn that the therapy of is highly significant in cases of *Vatarakta*. In

Subjective Parameters, In Group A 20% of the patients were showed moderate improvement and mild improvement in 50% patients. Group B provided marked improvement in 30% of the patients, moderate improvement in 40% patients, mild improvement in 30%.

KEYWORDS: *Vatarakta*, scleroderma, *Hapushadi Yapana Basti*, *Virechana*, *Navkarshik Mahakashaya*.

INTRODUCTION

Scleroderma is chronic systemic disorder of unknown aetiology. It is characterized by sclerodactyly (due of accumulation of collagen) in combination with Raynaud's and digital ischemia. It was first named by Goetz in 1945, as Progressive Systemic Sclerosis (PSS). The term "Scleroderma" comes from two Greek words- "Sclero" meaning hard and "Derma" meaning skin. Hardening of skin is one of the most visible manifestation of the disease and distinctive involvement of multiple internal organs like lungs, GIT, heart and kidney. The peak age of onset is in the fourth and fifth decades and overall prevalence is 10-20 per 100,000 with a 4:1 female preponderance. It is subdivided into Diffused Cutaneous Systemic Sclerosis (DCSS) 30% of cases and Limited Cutaneous Systemic Sclerosis (LCSS) 70% of cases.^[1] Many patients with LCSS have features that are phenotypically grouped into CREST (Calcinosis, Raynaud's, Oesophageal involvement, Sclerodactyly and Telangiectasia) Syndrome. Its similarity in symptoms and aetiological factors can be correlated with "*Vatarakta*".

The disease characterized by the abnormality of *Rakta Dhatu* due to morbidity of *Vata Dosha* is called as *Vatarakta*. *Vata* and *Rakta* are the *Dosha* and *Dushya* of *Vatarakta*. There are many factors which are responsible for vitiation of *Vata* and *Rakta* such as intake of foods which are predominantly of *Lavana*, *Amala*, *Katu Rasa*, *Snigdha*, *Kshara* and *Ushna Guna*, Indigestion of foods which are *Klinna* and *Shushka*, Excessive intake of *Anoopa Mamsa*, *Kulattha*, *Sura* and *Asava* etc. There are also some *Viharas* which are responsible for vitiation of *Vata* and *Rakta* like *Hasti-Asva-UShtarayana Gaman*, *Prajararana*, *Diwaswpana* and *Achankramansheelta*.^[2]

According to *Charaka*, there are eight types of *Vatarakta*- *Vataja*, *Pittaja*, *Kaphaja*, *Raktaja*, *Vata-Pittaja*, *Vata-Kaphaja*, *Kapha-Pittaja* and *Sannipataja*.^[3]

The symptoms of Scleroderma in a patient are comparable with the symptoms of *Dvandaj Vatarakta* such as *Vata- Kaphaja* and *Rakta- Pittaja*. For example, *Sira Ayama-* dilation of veins, *Shotha* - oedema (*Karsnya* (bluish black), *Stambhana* - stiffness, *Sheeta Pradvesha* - disliking for cold things, *Chimichimayana* - tingling sensation, *Raga* - reddishness, *Paka* – ulcer etc. Similarly, *Twak Vaivarnyata* in the form of *Panduvarna*, *Shyavavarna* and *Raktavarna* is correlated to Raynaud's Phenomenon. Further, *Kathin Shotha* is correlated to hardening of skin.

In *Ayurveda* the success of *Chikitsa* depends totally upon "*Chikitsa Chatushpada*" Among these four basic factors of treatment '*Dravya*' has been awarded the second place. The selection of a proper drug in the management of disease is very important therefore sufficient thoughts should be given for selecting the drug. Drugs are the most significant tools for the physician. *Virechana* and *Basti* are the *Shodhan Chikitsa* indicated in *Vatarakta*.

Basti is the prime treatment modality of *Ayurveda*.^[4] *Basti* eliminates *Doshas* from the body, increase the strength of the body or spread the potency of drug in the body due to its *Prabhav*.^[5] According to *Acharya Charka* there is no treatment of *Vatarakta* efficient as *Basti*.^[6] So in this research work we employed in one group *Hapushadi Yapana Basti* which is mentioned to use in *Sarvang Vatarakta*.^[7] it is classified under *Niruha Basti*. *Hapushadi Yapana Basti* and *Guduchiyadi Tail* administered as per *Yog Basti* schedule after *Sthanik Abhyanga* (abdomen, low back, thigh and buttock) with *Guduchiyadi Tail* and *Nadi Swedana* as *Poorvakarma* and *Parisheka* with *Dashmool kwath* with *Godhan Arka*. After completion of course of treatment all the patients were prescribed with *Navkarshik Kwath*. In another group we employed *Virechana* which is mentioned in *Vatashonita chikitsa* i.e., after proper oleation, *Vatarakta* patient shall be treated with therapeutic purgation with unctuous substances or with dry substances (in case of excess oleated patient).^[8] Assessment was done after follow up.

The Aim and Objectives of this study are as

- To assess the effect of *Parisheka* and *Hapushadi Yapana Basti*
- To assess the effect of *Virechana* with *Navkarshik Kwath*.
- To compare the *Parisheka-Hapushadi Yapana Basti* and *Virechana* with *Navkarshik Kwath* in the management of *Vatarakta* w.s.r scleroderma.

MATERIALS AND METHODS

The present study includes a sample size of 20 patients of Scleroderma attending the OPD & IPD of Patanjali Bhartiya Ayurvigyan Avum Anusandhan Sansthan, Haridwar, Uttarakhand.

Total no. of patients -20

Type of study -Single blind clinically study

Level of study -OPD and IPD level

Period of study- 18 months

Inclusion criteria

1. Age 20- 60 years
2. Patients fulfil the criteria of *Vatarakta* (Scleroderma)
3. Patients with Limited Cutaneous Systemic Sclerosis (LCSS)
4. CREST (Calcinosis, Raynaud's, Oesophageal involvement, Sclerodactyly and Telangiectasia) Syndrome
5. Chronicity between 6 weeks to 10 years with not less than 30% involvement of body surface.
6. Digital Ulcers
7. Patients who are fit for *Basti Karma* and *Virechana Karma*

Exclusion criteria

1. Age < 20 and > 60 years
2. Diffuse Cutaneous Systemic Sclerosis
3. Patients with traumatic, malignant and chronic wound
4. Pregnancy & lactating mothers
5. Any other systemic disorders
6. Patients who are unfit for *Basti Karma* and *Virechana Karma*

Research design

It is a randomized open labelled clinical study. Patients were assigned in two groups each comprising 10 patients.

a) Group (A) - *Parisheka and Basti*

- *Parisheka* By *Dashmool Kwath* With *Godhan Arka*
- *Anuvasana Basti* With *Guduchyadi Taila*
- *Hapushadi Yapana Basti*

1 st Day	2 nd Day	3 rd Day	4 th Day	5 th Day	6 th Day	7 th Day	8 th Day
A	N	A	N	A	N	A	A

Note: A- Anuvasana Basti N- Niruha Basti

b) Group (B) – Virechana

- *Deepana Pachana* - 3-5 Days
- *Snehapan With Panchtik Ghrit* - 3-7 Days
- *Vishram Kala* - 3 Days
- *Virechana With Trivrit Avaleha And Navkarshik Kwath* - 1 Day
- *Sansarjana Karma* - 3-7 Days

Criteria for assessment

Assessment was based on Subjective parameters and Objective parameters of *Vatarakta*

Subjective parameters

1. *Twak Kathinta* (Skin Hardening)
2. *Twak Vaivarnyata* (Raynaud's Phenomenon)
3. *Sandhishotha* (Joint Swelling)
4. *Stabdhata* (Stiffness)
5. *Paka / Twak Lohita* (Digital Ulcer)
6. *Rukshata* (Dryness)

Associated symptoms

1. *Shula* (Pain)
2. *Kandu* (Itching)
3. *Daha* (Burning sensations)
4. *Jwara* (Fever)

Objective parameters

1. Modified Rodnan Skin Score (mRSS)
2. Digital Ulcer Size
3. Discharge
4. ESR
5. Antinuclear Antibody Titers
6. CRP

Selection of drug

Group A:

Hapushadi yapanbasti:

- *Hapusha* (*Juniperus Communis*) - $\frac{1}{2}$ *Kudav* (80 gm)
- *Yava* (*Hordeum Valgare*) - 1 *Kudav* (160 gm)
- *Godugdha* (Cow's Milk) - 6 *Prasrit* (480 mL)
- *Sneha* (*Til Taila* and *Ghrita*) - Each 1 $\frac{1}{2}$ *Prasrit* (240 mL)
- *Saindhava* - 2 *Karsha* (10 gm)
- *Madhu* - 2 *Prasrit* (160 mL)

Preparation of *hapushadi yapana basti*

According to text, first *Hapusha* (*Juniperus comunis*) and *Yava* (*Hordeum valgare*) in above mentioned quantity with twice its quantity of cow milk and water each were boiled till only *Ksheera* (Cow's milk) remained. Then *Saindhava* and *Madhu* were mixed to form a homogenous mixture. Then, *Sneha Dravya* i.e. *Tila Taila* and *Ghrita* 120 mL each were mixed in above mixture to form a homogenous mixture. In above mixture, lukewarm *Ksheerpaka* was added and churned to form a homogenous mixture.

Group B:

- *Trivrit Avaleha*
- *Navkarshik Kwath*

Collection and Authentication of drugs

The drugs used for procedures were obtained from *Divya Pharmacy of Patanjali Bhartiya Ayurvigyan Evam Anusandhan Sansthan* and *Guduchyadi Taila* was obtained from *Trimurti Ayuherbal Pvt. Ltd., Maharashtra*.

RESULTS AND DISCUSSION

Discussion on observations of the clinical Study and Results

The research study was carried out in 20 patients irrespective of any socio-economic status; both sexes and all ethnic origins, fulfilling the criteria of diagnosis and inclusive criteria were included in the study. All patients were diagnosed on the basis of the signs and symptoms of scleroderma. Physical examinations of each patient were performed. All the patients were examined before, during and after the trial, according to the case sheet format given in the annexure.

Demographic data

Gender- The observation reveals that 85% were female and 15% were male.

Age- The observation reveals that 60% patients belong to the age group between 31-45 years followed by 25% in the age group of 15-30 years and 15% patients in the age group of 46-60 years.

Marital status- The observation reveals that 80% patients were married and 20% were unmarried.

Religion- The observation reveals that 100% patients belong to the Hindu religion.

Occupation- 60% housewives, 20% students, 10% businessman and 10% serviceman.

Education- The observation reveals that about maximum 30% patients were graduate, 25% were post graduate, 25% patients were taking education up to matric and 20%

Economic status- This observation reveals that 85% patients were of middle class. While 5% were rich and 10% belonged to upper-middle class.

Psychological conditions- The observation reveals that 60% patients had tense psychological conditions whereas 30% had depressed and 10% had normal conditions.

Appetite- The observation reveals that 40% of the patients had shown poor appetite and 45% patients were having moderate appetite and 15% patients were having good appetite.

Diet- The observation reveals that 50% patients were taking vegetarian diet and 50% were taking mixed diet.

Dietary habit- The observation reveals that about 30% patients were taking *Samasana* type of dietary habit. 50% patients were taking *Vishamasana* that leads to the *Agnivaishamya* which in turn to *Ama* and 20% were taking *Adhyasana* which in turn impairs the *Agni*, *Ama*, *Vata Prakopa* and *Mandagni* are the chief *Nidana* for developing *Vatarakta*.

Sleep- This observation reveals that maximum number of patients i.e. 55% was having disturbed sleep and 5% patients were having good sleep and sleep was sound in 40% patients.

Agni- Maximum numbers of patients i.e. 85% patients were having *Mandagni* and 15% patients were having *Vishamagni*.

Koshta- The observation reveals that about 10% patients were having *Mridu Koshta*, 75% patients were having *Madhyam Koshta* and 15% patients were having *Krura Koshta*. assessment of *Koshta* is also essential in formation of disease and diagnosis of disease.

Sharirik prakriti- *Vataj-Kapha Prakriti* patients were 40%, *Pitta-Kaphaj Prakriti* patients were 35% and *Vata-Pittaj Prakriti* patients were 25%.

Physical exercise- The observation reveals that about 65% patients were having *Madhyama Vyayama*, 30% patients were having *Avara Vyayama* and 5% patients were having *Pravara Vyayama*. Less and irregular exercise lead to *Kapha Vridhi* and *Stroto-Avrodha*.

Twak kathinta- Before treatment in Group A, Grade 0 patients were 0%, Grade 1 patient were 10%, Grade 2 patient were 80% and Grade 3 patient were 10%. After treatment In Group A, Grade 0 patients were 0%, Grade 1 patient were 50%, Grade 2 patient were 40% and Grade 3 patient were 10%. Before treatment in group B, Grade 0 patients were 0%, Grade 1 patient were 50%, Grade 2 patient were 50% and Grade 3 patient were 0%. After treatment in Group B, Grade 0 patients were 10%, Grade 1 patient were 90%, Grade 2 patient were 0% and Grade 3 patient were 0%.

Twak vaivarnyata- Before treatment in Group A, Grade 0 patients were 0%, Grade 1 patients were 0%, Grade 2 patients were 20%, Grade 3 patients were 80%, and Grade 4 patients were 0%. After treatment in Group A, Grade 0 patients were 0%, Grade 1 patients were 50%, Grade 2 patients were 40%, Grade 3 patients were 10%, and Grade 4 patients were 0%. Before treatment in Group B, Grade 0 patients were 0%, Grade 1 patients were 10%, Grade 2 patients were 70%, Grade 3 patients were 20% and Grade 4 patients were 0%. After treatment in Group B, Grade 0 patients were 30%, Grade 1 patients were 70%, Grade 2 patients were 0%, Grade 3 and Grade 4 patients were 0%.

Sandhi shotha- Before treatment in Group A, Grade 0 patients were 50%, Grade 1 patient were 30%, Grade 2 patient were 20% and Grade 3 patient were 0%. After treatment in Group A, Grade 0 patients were 80%, Grade 1 patient were 10%, Grade 2 patient were 10% and Grade 3 patient were 0%.

Before treatment in Group B, Grade 0 patients were 50%, Grade 1 patient were 20%, Grade 2 patient were 30% and Grade 3 patient were 0%. After treatment in Group B, Grade 0 patients were 70%, Grade 1 patient were 30%, Grade 2 patient were 0% and Grade 3 patient were 0%.

Stabdhatata- Before treatment in Group A, Grade 0 patients were 0%, Grade 1 patients were 50%, Grade 2 patients were 50%, Grade 3 patients were 0% and Grade 4 patients were 0%. After treatment in Group A, Grade 0 patients were 30%, Grade 1 patients were 40%, Grade 2 patients were 30%, Grade 3 patients were 0% and Grade 4 patients were 0%.

Before treatment in Group B, Grade 0 patients were 10%, Grade 1 patients were 70%, Grade 2 patients were 20%, Grade 3 patients were 0% and Grade 4 patients were 0%. After

treatment in Group B, Grade 0 patients were 60%, Grade 1 patients were 40%, Grade 2 patients were 0%, Grade 3 patients were 0% and Grade 4 patients were 0

Twak Lohita (Paka)- Before treatment in Group A, Grade 0 patients were 80%, Grade 1 patient were 10%, Grade 2 patient were 10% and Grade 3 patient were 0%. After treatment in Group A, Grade 0 patients were 80%, Grade 1 patients were 20%, Grade 2 patients were 0%, Grade 3 patients were 0%, and Grade 4 patients were 0%.

Before treatment in Group B, Grade 0 patients were 40%, Grade 1 patient were 40%, Grade 2 patient were 20% and Grade 3 patient were 0%. After treatment in Group B, Grade 0 patients were 80%, Grade 1 patients were 20%, Grade 2 patients were 0%, Grade 3 patients were 0%, and Grade 4 patients were 0%.

Rukshata- Before treatment in Group A, Grade 0 patients were 0%, Grade 1 patients were 10%, Grade 2 patients were 40%, Grade 3 patients were 40% and Grade 4 patients were 10%. After treatment in Group A, Grade 0 patients were 0%, Grade 1 patients were 70%, Grade 2 patients were 10%, Grade 3 patients were 20% and Grade 4 patients were 0%. Before treatment in Group B, Grade 0 patients were 0%, Grade 1 patients were 30%, Grade 2 patients were 30%, Grade 3 patients were 30% and Grade 4 patients were 10%. After treatment in Group B, Grade 0 patients were 20%, Grade 1 patients were 60%, Grade 2 patients were 20%, Grade 3 patients were 0% and Grade 4 patients were 0%.

Daha- Before treatment in Group A, Grade 0 patients were 90%, Grade 1 patient were 0%, Grade 2 patient were 10% and Grade 3 patient were 0%. After treatment in Group A, Grade 0 patients were 90%, Grade 1 patient were 10%, Grade 2 patient were 0% and Grade 3 patient were 0%.

Before treatment in Group B, Grade 0 patients were 40%, Grade 1 patient were 20%, Grade 2 patient were 30% and Grade 3 patient were 10%. After treatment in Group B, Grade 0 patients were 70%, Grade 1 patients were 30%, Grade 2 patient were 0% and Grade 3 patient were 0%.

Shula- Before treatment in Group A, Grade 0 patients were 10%, Grade 1 patients were 90%, Grade 2 patients were 0%, Grade 3 patients were 0% and Grade 4 patients were 0%. After treatment in Group A, Grade 0 patients were 50%, Grade 1 patients were 40%, Grade 2 patients were 10%, and Grade 3 and 4 patients were 0%.

Before treatment in Group B, Grade 0 patients were 30%, Grade 1 patients were 50%, Grade 2 patients were 20%, Grade 3 patients were 0% and Grade 4 patients were 0%. After

treatment in Group B, Grade 0 patients were 70%, Grade 1 patients were 30%, Grade 2 patients were 0%, Grade 3 patients were 0% and Grade 4 patients were 0%.

Kandu- Before treatment in Group A, Grade 0 patients were 0%, Grade 1 patient were 20%, Grade 2 patient were 50% and Grade 3 patient were 10%. After treatment in Group A, Grade 0 patients were 0%, Grade 1 patient were 50%, Grade 2 patient were 30% and Grade 3 patient were 20%. Before treatment in Group B, Grade 0 patients were 50%, Grade 1 patient were 40%, Grade 2 patient were 10% and Grade 3 patient were 0%. After treatment in Group B, Grade 0 patients were 20%, Grade 1 patient were 70%, Grade 2 patient were 10% and Grade 3 patient were 0%.

DISCUSSION ON RESULTS

Discussion on subjective improvement

Group A

The relief percentage on symptoms of each patient was evaluated after scoring before treatment and after treatment. In *Twak Kathinta*, *Twak Vaivarnyata*, *Sandhi Shotha*, *Stabhdata*, *Twak Lohita (Paka)*, *Rukshata*, *Daha*, *Shula*, *Kandu* and *Jwara*, relief observed was 20%, 42.86%, 57.14%, 33.33%, 33.33%, 40%, 50%, 33.33%, 26.09% and 69.23% respectively.

Group B

The relief percentage on symptoms of each patient was evaluated after scoring before treatment and after treatment. In *Twak Kathinta*, *Twak Vaivarnyata*, *Sandhi Shotha*, *Stabhdata*, *Twak Lohita (Paka)*, *Rukshata*, *Daha*, *Shula*, *Kandu* and *Jwara*, relief observed was 40%, 66.67%, 62.5%, 63.64%, 75%, 54.55%, 72.73%, 66.67%, 43.75% and 57.14% respectively. Virechana was found to be impressively effective in the treatment of *Vatarakta* (scleroderma).

Discussion on objective improvement

Group A

The relief percentage on symptoms of each patient was evaluated after scoring before treatment and after treatment. In *mRSS*, *Digital Ulcer Size*, *Discharge*, *ESR*, *ANA Titers* and *CRP*, relief observed was 31.25%, -50%, -100%, 28.57%, 0% and 14.29% respectively.

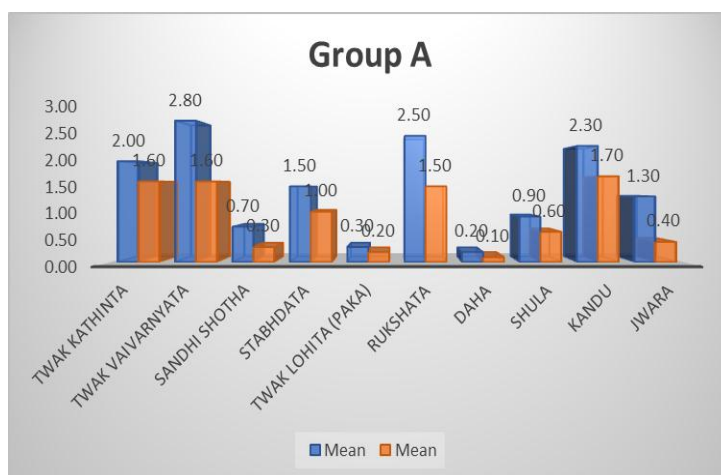
Group B

The relief percentage on symptoms of each patient was evaluated after scoring before treatment and after treatment. In *mRSS*, Digital Ulcer Size, Discharge, *ESR*, *ANA Titers* and *CRP*, relief observed was 60%, 87.5%, 85.71%, 63.64%, 17.65% and 0% respectively.

Statistical analysis

Effect of therapy in Group A

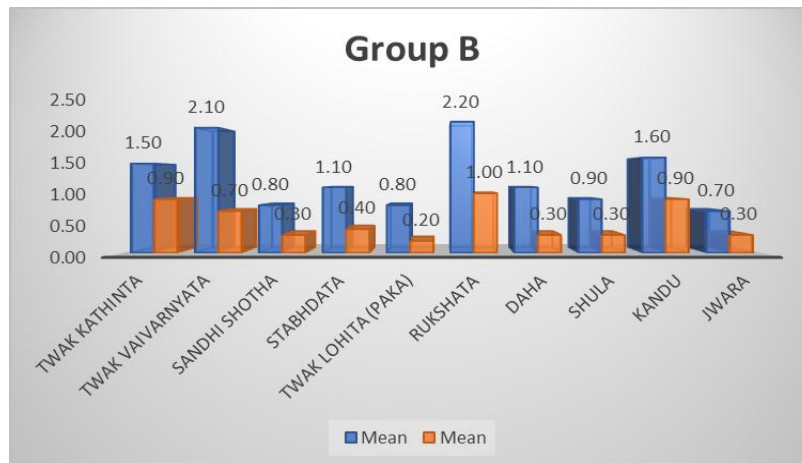
Group A	Mean		Median		SD		Wilcoxon W	P-Value	% Effect	Result
	BT	AT	BT	AT	BT	AT				
<i>Twak Kathinta</i>	2.00	1.60	2.00	2.00	0.47	0.67	-1.932 ^b	0.043	20.00	Sig
<i>Twak Vaivarnyata</i>	2.80	1.60	3.00	1.50	0.42	0.70	-2.762 ^b	0.006	42.86	Sig
<i>Sandhi Shotha</i>	0.70	0.30	0.50	0.00	0.82	0.67	-2.000 ^b	0.046	57.14	Sig
<i>Stabhdatta</i>	1.50	1.00	1.00	1.00	0.48	0.82	-1.342 ^b	0.180	33.33	Sig
<i>Twak Lohita (Paka)</i>	0.30	0.20	0.00	0.00	0.67	0.42	-.577 ^b	0.564	33.33	NS
<i>Rukshata</i>	2.50	1.50	2.50	1.00	0.85	0.85	-2.640 ^b	0.008	40.00	Sig
<i>Daha</i>	0.20	0.10	0.00	0.00	0.63	0.32	-1.000 ^b	0.317	50.00	NS
<i>Shula</i>	0.90	0.60	1.00	0.50	0.32	0.70	-1.342 ^b	0.180	33.33	NS
<i>Kandu</i>	2.30	1.70	2.00	1.50	1.06	0.82	-2.449 ^b	0.014	26.09	Sig
<i>Jwara</i>	1.30	0.40	1.00	0.00	0.95	0.97	-2.460 ^b	0.014	69.23	Sig



Effect of therapy in Group B

Group B	Mean		Median		SD		Wilcoxon W	P-Value	% Effect	Result
	BT	AT	BT	AT	BT	AT				
<i>Twak Kathinta</i>	1.50	0.90	1.00	1.00	0.52	0.32	-2.236 ^b	0.025	40.00	Sig
<i>Twak Vaivarnyata</i>	2.10	0.70	2.00	1.00	0.57	0.48	-2.739 ^b	0.006	66.67	Sig

<i>Sandhi Shotha</i>	0.80	0.30	0.50	0.00	0.92	0.32	-2.070 ^b	0.038	62.50	Sig
<i>Stabhdata</i>	1.10	0.40	1.00	0.00	0.57	0.42	-2.714 ^b	0.007	63.64	Sig
<i>Twak Lohita (Paka)</i>	0.80	0.20	1.00	0.00	0.79	0.32	-2.333 ^b	0.020	75.00	Sig
<i>Rukshata</i>	2.20	1.00	2.00	1.00	1.03	0.67	-2.762 ^b	0.006	54.55	Sig
<i>Daha</i>	1.10	0.30	1.00	0.00	1.10	0.00	-2.232 ^b	0.026	72.73	Sig
<i>Shula</i>	0.90	0.30	1.00	0.00	0.74	0.42	-2.070 ^b	0.038	66.67	Sig
<i>Kandu</i>	1.60	0.90	1.50	1.00	0.70	0.57	-2.646 ^b	0.008	43.75	Sig
<i>Jwara</i>	0.70	0.30	0.50	0.00	0.82	0.00	-2.070 ^b	0.038	57.14	Sig



Comparison between Group A and Group B:

Subjective parameters

Variable	Group	N	Mean Rank	Sum of Ranks	Mann-Whitney U	P-Value
<i>Twak Kathinta</i>	Group A	10	9.50	95.00	40.000	0.037
	Group B	10	11.50	115.00		
	Total	20				
<i>Twak Vaivarnyata</i>	Group A	10	9.60	96.00	41.000	0.045
	Group B	10	11.40	114.00		
	Total	20				
<i>Sandhi Shotha</i>	Group A	10	9.60	96.00	41.000	0.044
	Group B	10	11.40	114.00		
	Total	20				
<i>Stabhdata</i>	Group A	10	8.20	82.00	27.000	0.041
	Group B	10	12.80	128.00		
	Total	20				
<i>Twak Lohita (Paka)</i>	Group A	10	8.20	82.00	27.000	0.041
	Group B	10	12.80	128.00		
	Total	20				
<i>Rukshata</i>	Group A	10	9.70	97.00	42.000	0.490
	Group B	10	11.30	113.00		
	Total	20				
<i>Daha</i>	Group A	10	7.80	78.00	23.000	0.016

	Group B	10	13.20	132.00		
	Total	20				
<i>Shula</i>	Group A	10	9.35	93.50	38.500	0.341
	Group B	10	11.65	116.50		
	Total	20				
<i>Kandu</i>	Group A	10	10.00	100.00	45.000	0.648
	Group B	10	11.00	110.00		
	Total	20				
<i>Jwara</i>	Group A	10	11.30	113.00	42.000	0.516
	Group B	10	9.70	97.00		
	Total	20				

Mann Whitney U Test is carried out for comparison between Group A and Group B. From above table, we can observe that, P-Value for almost parameters is less than 0.05. Hence, we can conclude that, there is significant difference between Group A and Group B.

Further we can observe that, mean rank for Group B is greater than Group A. Hence, we can conclude that, effect observed in Group B is better than Group A.

Objective parameters

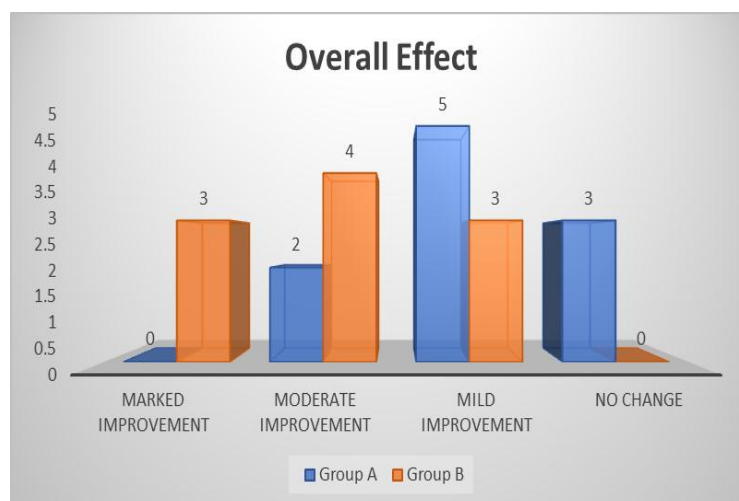
Variable	Group	N	Mean Rank	Sum of Ranks	Mann-Whitney U	P-Value
mRSS	Group A	10	7.75	77.50	22.500	0.021
	Group B	10	13.25	132.50		
	Total	20				
Digital Ulcer Size	Group A	10	7.50	75.00	20.000	0.012
	Group B	10	13.50	135.00		
	Total	20				
Discharge	Group A	10	7.60	76.00	21.000	0.014
	Group B	10	13.40	134.00		
	Total	20				
ESR	Group A	10	10.05	100.50	45.500	0.712
	Group B	10	10.95	109.50		
	Total	20				
ANA Titers	Group A	10	10.00	100.00	45.000	0.317
	Group B	10	11.00	110.00		
	Total	20				
CRP	Group A	10	11.00	110.00	45.000	0.317
	Group B	10	10.00	100.00		
	Total	20				

Mann Whitney U Test is carried out for comparison between Group A and Group B. From above table, we can observe that, P-Value for almost parameters is less than 0.05. Hence, we can conclude that, there is significant difference between Group A and Group B.

Further, we can observe that, mean rank for Group B is greater than Group A. Hence, we can conclude that, effect observed in Group B is better than Group A.

Assessment of overall effect of therapy

Group A showed moderate improvement in 20% of the patients, mild improvement in 50% patients and no improvement in 30% patients. Group B showed marked improvement in 30% of the patients and moderate improvement in 40% of the patients and mild improvement in 30% patients. No patient showed marked improvement in Group A and no patient was observed in no improvement category in Group B.



CONCLUSION

- The conclusion is that Scleroderma is complex syndrome dominated by *Prakupita Vata* (vitiating *Vata*) taking *Ashraya* (base) in *Rasa* (circulating fluid tissue), later the *Samprapti* (pathogenesis) extends to deeper tissues especially *Sira* (blood vessels), *Kandara* (tendons), *Snayu* (ligaments) and *Asthisandhi* (bony joints).
- In therapeutic perspective, the condition is managed with *Vataprasamana* (pacifying *Vata*) and *Raktaprasadana* (pacifying *Rakta*) and *Strotoshodhana* line of treatment in accordance with the *Chikitsa* (treatment) advocated for *Vatavyadhi* and *Vatarakta* in classical Ayurvedic literatures.
- Middle aged married and mostly females are more found to be Scleroderma due to excessive *Mithya Ahaar Vihaar* leads to be *Mandagni* or *Vishamagni* ultimately results in *Sroto Avrodh* and gets *Ama* formation which results in *Vatarakta* (scleroderma).
- The total effect of treatment provided statistically significant result in subjective parameter i.e., *Twak Kathinta*, *Twak Vaivarnyata*, *Sandhi Shotha*, *Stabhdhata*, *Rukshata*,

Kandu, Jwara in both groups and non-significant results in the symptom *Twak Lohita (Paka), Daha* and *Shula* in group A.

- The total effect of treatment provided statistically significant result in objective parameter i.e., mRSS and ESR in both groups. Digital Ulcer Size and Discharge have significant result in group B nonsignificant in group. ANA Titers, CRP Non-significant in both groups.
- The effect observed in Group B was more than Group A. In Subjective Parameters, In Group A 20% of the patients were showed moderate improvement and mild improvement in 50% patients. Group B provided marked improvement in 30% of the patients, moderate improvement in 40% patients, mild improvement in 30%.
- As we all know the symptoms of scleroderma vary for each person and effects of scleroderma can range from very mild to life threatening. The seriousness will depend on the parts of body which are affected and the extent to which they are affected. A mild case becomes more serious if not properly treated. With the help of *Ayurveda* and *Panchkarma* we can improve the life span of the patient and quality of life.

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