ISSN 2456-3110
Vol 6 · Issue 5
Sept-Oct 2021

JAiMS
INTERNATIONAL

Journal of Ayurveda and Integrated Medical Sciences

www.jaims.in

JAIMS

An International Journal for Researches in Ayurveda and Allied Sciences

Maharshi Charaka
Ayurveda

Indexed

Journal of
Ayurveda and Integrated Medical Sciences
ISSN 2456-3110
ORIGINAL ARTICLE Sept-Oct 2021

An explorative clinical study to evaluate the combined effect of *Shiropichu, Sthanika Abhyanga, Salvana Upanaha Sweda* and *Balarishta* in the management of *Pakshaghata* vis~a~vis Hemiplegia

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ABSTRACT

Pakshaghata is one among the *Vata Nanatmaja Vyadhi*, characterised by loss of function either in right or left half of the body. *Pakshaghata* is also considered among the ailments of *Madhyama Roga Marga*. Signs and symptoms of *Pakshaghata* is similar to that of stroke with hemiplegia as the cardinal clinical feature. It makes the affected person physically disabled and reduces quality of life. Even though western science had moved for in acute management of stroke, it is very difficult to handle the residual effect of stroke which makes person physically and mentally debilitated. In case of managing residual cases, it depends on physiotherapy and exercises, which gives good results if combined with Ayurvedic treatments such as *Abhyanga.* Present study is a single group open clinical trial with pre and post-test design with a sample size of 30 subjects. Subjects were administered with *Shiropichu, Sthanika Abhyanga, Salvana Upana Sweda* for first 10 consecutive days and *Shamanaaushadha* for all 30 days. The results obtained on parameter muscle power, muscle tone, finger movements and deep tendon reflexes was statistically non-significant in the management of *Pakshaghata* vis-à-vis hemiplegia. The results obtained on parameter stroke specific quality of life scale showed statistically significant result with p value 0.005 in the management of *Pakshaghata* vis-à-vis hemiplegia. Hence, it was inferred that the intervention selected for the present study possess combined effect in improving the quality of life of individual affected with *Pakshaghata* vis-à-vis Hemiplegia.

Key words: *Pakshaghata, Hemiplegia, Shiropichu, Sthanika Abhyanga, Salvana Upanaha Sweda.*

INTRODUCTION

Pakshaghata or *Pakshavadha* is one among the *Karmahani Pradhana Vatavyadhi.* It is characterised by loss of function either in right or left half of the body.[1] World health organisation defines the clinical syndrome of 'stroke' as "rapidly developing clinical signs of focal [or global] disturbance of cerebral function with symptoms lasting 24 hours or longer or leading to death with no apparent cause other than vascular origin."[2]

Community surveys for Indian population of 'hemiplegia' presumed to be cerebrovascular disease indicate an overall crude prevalence rate of 220 per 1,00,000 persons.[2]

Even though western science had moved for in acute management of stroke it is very difficult to handle the residual effect of stroke which makes person physically and mentally debilitated.

Ayurvedic management of *Pakshaghata* includes *Samanya* and *Vishesha Chikitsa. Samanya Chikitsa*

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Submission Date: 17/09/2021 Accepted Date: 19/10/2021

Access this article online

Quick Response Code

Website: www.jaims.in

DOI: 10.21760/jaims.6.5.2

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includes *Snehana, Swedana, Mrudu Shodana, Anuvasana* and *Asthapana Basti*.[3] *Vishesha Chikitsa* includes *Masthiskya, Snehana, Upanaha Sweda* and *Basti*. Among these *Snehana* in the form of *Sthanika Abhyanga, Swedana* in the form of *Salvana Upanaha Sweda* and *Masthiskya* in the form of *Shiropichu* were selected in this study. *Balarishta* was selected as *Shamanaoushadi.*

Objective of the Study

To evaluate the combined effect of *Shiropichu, Sthanika Abhyanga, Salvana Upanaha Sweda,* and the oral administration of *Balarishta* in the management of *Pakshaghata* vis~a~vis Hemiplegia.

Materials and Methods

Source of data

Subjects were selected from the OPD and IPD of Government Ayurveda Medical College and Hospital, Mysore and Government Hi-Tech Panchakarma Hospital, Mysore.

Inclusion Criteria

Subjects of all gender between the age group of 30-60 years with clinical features of *Pakshaghata* vis~a~vis Hemiplegia irrespective of etiopathological type were selected.

Both fresh and treated cases were included in this study.

(Definition of fresh and treated cases -

A - Freshly detected and untreated cases of *Pakshaghata.* vis~a~vis Hemiplegia

B - Established and treated cases of *Pakshaghata* vis~a~vis Hemiplegia, who were on essential preventive medications.)

Exclusion Criteria

Subjects with space occupying lesion of brain and acute stage of haemorrhagic stroke were excluded.

Subjects with Intracranial infections were excluded.

Subjects with Hypertension >160/100mmHg and Diabetes mellitus (RBS->250mg/ dL) were excluded.

Comatose patients were excluded.

Diagnostic Criteria

- Clinical features of *Pakshaghata*
- *Dakshina* or *Vama Paksha Cheshta nivrutti/Akarmanya* - [loss of functions in right or left side of the body]
- *Dakshina* or *Vama Paksha Achetana* [loss of sensation]
- *Vakstambha* - [aphasia/dysarthria]
- Presence of *Toda* or *Shoola* [different types of pain]
- Clinical features of stroke/CVD
- Focal neurological deficit i.e., hemiplegia
- Higher mental functions-speech-aphasia/dysarthria
- Decreased strength in affected half of body.
- Increased Tone of muscle (Spasticity) in affected half of body.
- Absent superficial tendon reflexes in affected half of body.
- Exaggerated deep tendon reflexes, in affected half of body.
- Hemiplegic gait.

Assessment

Assessment schedule

The assessment was done in 3 schedules as follows

- Pre-test assessment was done on 0th day before starting the intervention
- Mid-test assessment was done on 11th day after completion of *Shiropichu, Sthanika Abhyanga* and *Salvana Upanaha.*
- Post-test assessment was done on 31st day of after completion of intervention.

Assessment parameters

Grading	Muscle power	Deep tendon reflexes	Finger Movements	Muscle tone
0	Complete paralysis	No response	No movements at all	No increase

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1	A flicker of contraction only	Diminished	Slight movements	Slight increase with catch and release
2	Movement with gravity eliminated	Average [normal]	Unable to hold objects	Minimal resistance throughout the range following catch
3	Contraction against the gravity alone	Brisk	Able to hold objects with less power	More marked increase tone through range of movement
4	Contraction against the gravity & some resistance	Very brisk	Normal	Considerable increase in tone with passive movements
5	Normal power	Clonus		Affected part is rigid

Stroke Specific Quality of Life Scale [SS-QOL]

Scoring: each item scored with the following key

- Total help - Couldn't do it at all - Strongly agree 1
- A lot of help - A lot of trouble - Moderately agree 2
- Some help - Some trouble - Neither agree nor disagree 3
- A little help - A little trouble - Moderately disagree 4
- No help needed - No trouble at all - Strongly disagree 5

Energy

I felt tired most of the time. ____

I had to stop and rest during the day. ____

I was too tired to do what I wanted to do. ____

Family Roles

I didn't join in activities just for fun with my family. ____

I felt I was a burden to my family. ____

My physical condition interfered with my personal life. ____

Language

Did you have trouble speaking? For example, get stuck, stutter, stammer, or slur your words? ____

Did you have trouble speaking clearly enough to use the telephone? ____

Did other people have trouble in understanding what you said? ____

Did you have trouble finding the word you wanted to say? ____

Did you have to repeat yourself so others could understand you? ____

Mobility

Did you have trouble walking? (If patient can't walk, go to question 4 and score questions 2-3 as 1.) ____

Did you lose your balance when bending over to or reaching for something? ____

Did you have trouble climbing stairs? ____

Did you have to stop and rest more than you would like when walking or using a wheelchair? ____

Did you have trouble with standing? ____

Did you have trouble getting out of a chair? ____

Mood

I was discouraged about my future. ____

I wasn't interested in other people or activities. ____

I felt withdrawn from other people. ____

I had little confidence in myself. ____

I was not interested in food. ____

Personality

I was irritable. ____

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I was inpatient with others. ____

My personality has changed. ____

Self Care

Did you need help preparing food? ____

Did you need help eating? For example, cutting food or preparing food? ____

Did you need help getting dressed? For example, putting on socks or shoes, buttoning buttons, or zipping? ____

Did you need help taking a bath or a shower? ____

Did you need help to use the toilet? ____

Social Roles

I didn't go out as often as I would like. ____

I did my hobbies and recreation for shorter periods of time than I would like. ____

I didn't see as many of my friends as I would like. ____

I had sex less often than I would like. ____

My physical condition interfered with my social life. ____

Thinking

It was hard for me to concentrate. ____

I had trouble remembering things. ____

I had to write things down to remember them. ____

Upper Extremity Function

Did you have trouble writing or typing? ____

Did you have trouble putting on socks? ____

Did you have trouble buttoning buttons? ____

Did you have trouble zipping a zipper? ____

Did you have trouble opening a jar? ____

Vision

Did you have trouble seeing the television well enough to enjoy a show? ____

Did you have trouble reaching things because of poor eyesight? ____

Did you have trouble seeing things off to one side? ____

Work/Productivity

Did you have trouble doing daily work around the house? ____

Did you have trouble finishing jobs that you started? ____

Did you have trouble doing the work you used to do? ____

Total score ____

Minimum score-49

Maximum score-245

Poor quality of life(49-97)-1

Satisfactory quality of life(98-146)-2

Good quality of life (147-195)-3

Better quality of life (196-245)-4

Statistical Methods

Following statistical methods were selected

- Descriptive statistics.
- Chi square test.
- Paired 't' test.
- SPSS for window software

Intervention

Total duration of the intervention was 30 days. Intervention includes,

Shiropichu with *Karpasasthyadi Taila* for 53 minutes (10,000 *Matrakala*) duration during day time was done for first 10 consecutive days.

Sthanika Abhyanga with *Karpasasthyadi Taila* for 30 minutes duration followed by *Salvana Upanaha Sweda* to affected limbs for 12 hours during day time was done for first 10 consecutive days.

Internal administration of 48 ml of *Balarishta* diluted with equal quantity of water was given in two equally divided doses during morning and night after food for all 30 days.

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Observation and Results

The data was collected from the subjects based on diagnostic criteria. The results were analysed statistically using Pearson Chi-Square test.

Parameter	Pearson Chi-Square test value	DF	p-value	Level of significance
Power-upper limb;				
Shoulder extension	6.550	8	0.586	Nonsignificant
Shoulder flexion	12.180	6	0.58	Nonsignificant
Shoulder adduction	9.444	6	0.150	Nonsignificant
Shoulder abduction	8.797	6	0.185	Nonsignificant
Elbow extension	5.045	8	0.753	Nonsignificant
Elbow flexion	6.657	6	0.354	Nonsignificant
Wrist extension	4.793	8	0.779	Nonsignificant
Wrist flexion	9.618	8	0.293	Nonsignificant
Finger extension	6.247	10	0.794	Nonsignificant
Finger flexion	7.851	10	0.643	Nonsignificant
Power-lower limb				
Hip extension	5.425	6	0.491	Nonsignificant
Hip flexion	4.786	6	0.572	Nonsignificant
Hip adduction	4.208	6	0.649	Nonsignificant
Hip abduction	4.413	6	0.621	Nonsignificant
Knee extension	4.189	6	0.651	Nonsignificant
Knee flexion	3.955	6	0.683	Nonsignificant
Ankle dorsiflexion	5.578	8	0.694	Nonsignificant
Ankle plantarflexion	3.962	8	0.861	Nonsignificant
Finger extension	4.770	10	0.906	Nonsignificant
Finger flexion	4.586	10	0.917	Nonsignificant
Muscle tone	20.540	10	0.025	Nonsignificant
Finger movement	7.109	8	0.525	Nonsignificant
Deep tendon reflex				
Biceps reflex	12.960	4	0.011	Nonsignificant
Triceps reflex	7.033	4	0.134	Nonsignificant
Brachio-radialis reflex	8.540	4	0.074	Nonsignificant
Knee reflex	13.430	6	0.037	Nonsignificant
Ankle reflex	8.476	6	0.205	Nonsignificant

Effect of intervention on stroke specific quality of life scale

No difference was observed in mean stroke specific quality of life score between 0th day and 11th day.

The mean stroke specific quality of life score was increased from 2.9000 on 0th day to 3.0667 on 31st day.

The result obtained regarding the parameter stroke specific quality of life scale showed statistically significant result with P value p-0.005.

Discussion

The loss of function of one side of the body is called *Pakshaghata*. Signs and symptoms of *Pakshaghata* is similar to that of Hemiplegia. *Abhyanga* involves the application of medicated oil over body surface. *Twak, Snayu* and *Raktavahini Dhamani* are the *Moola* of

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Mamsavaha Srotas hence *Abhyanga* may nourish the superficial and deep muscles and make the muscles strong and joints stable. *Abhyanga* yields result possibly by either modulating interneuron activity promoting spasticity or improving selective voluntary motor control. As spasticity is caused by unregulated alpha moto-neuron over activity, its variable presentations are related to interneuron activity. It was believed that the *Abhyanga* modulated this activity yielding better outcome.[4] The ingredients of *Karpasasthyadhi Taila* possesses *Ushnaveerya, Balya,* and *Vatakaphahara* action which may also help in relieving the symptoms.

Salvana Upanaha is the type of *Upanaha Sweda.* It is a variety of *Snigdhasweda* and it works as *Brimhana* and provide *Dhatu Poshana* (Nourishment). The procedure works due to *Ushna Guna* which stimulates the sympathetic nervous system and perform vasodilation. Due to same *Guna* it helps in reliving *Stabdhata* (rigidity of muscle), *Guruta.* The ingredients of *Salvana Upanaha* have *Balya* action. Hence it helps in increasing muscle power. *Prabhuta Matra* of *Lavana* used in *Upanaha* helps in easy absorption of the drug. As *Lavana* is having *Shushma Guna* it penetrates into minute channels and helps in liquefying the *Lina Dosha*, which comes out through pores of skin as sweat. *Lavana Yukta Taila* helps in relieving *Sankocha* of *Sira* and *Snayu.*

Trance dermal drug delivery is the newly emerged system of drug delivery. These therapeutics are safe, efficacious and may improve patient treatment compliance. The advantages of using transdermal drug delivery include bypassing the gastrointestinal tract and hepatic first pass biotransformation and metabolism, control of absorption and the availability of multiple sites for application. Avoiding the gastrointestinal environment which may significantly affect bioavailability would seem intuitive.[5]

Systemic absorption after topical application depends on lipid solubility of drugs, here in *Salvana Upanaha* we use *Taila* also which act as vehicle for drug absorption. Occlusive dressing after application of *Upanaha* drug which we do also helps in enhancing the absorption.[6]

Shiropichu is one among the *Murdhnitaila.* In order of effectiveness, it comes next to *Shirobasti*. Absorption of substances through the skin depends on a number of factors, the most important of which is duration of contact, solubility of medication, and physical condition of the skin and part of the body exposed. In *Shiropichu* the drug kept insitu for about 1 hour. The form of drug used here is oil, lipid media helps in solubility and easy absorption of medication through the skin.[7] When coming to part of body, it is said that scalp is far more permeable than forearm and requires less drug for equivalent effect.[8] Local effect of *Shiropichu* depends on the type of medicine used for the procedure. Local effect is based on cellular absorption of drugs through transdermal route.

The Ingredients of *Balarishta* includes *Bala, Ashwaganda, Dhataki, Ksheerakakoli, Eranda, Rasna, Ela, Prasarini, Lavanga (Devapushpa), Usira, Swadamstra, Guda.* It is having *Balavardhana*, *Pustivardhana* and *Agnivardhana* properties and it is indicated in *Vataroga*, pharmacologically these drugs possess nervine tonic, neuroprotective antioxidant properties. Thus, it is therapeutically effective in *Pakshaghata.*

The results obtained on parameter muscle power, muscle tone, finger movements and deep tendon reflexes was statistically non-significant in the management of *Pakshaghata* vis-à-vis hemiplegia.

The results obtained on parameter stroke specific quality of life scale showed statistically significant result with p value 0.005 in the management of *Pakshaghata* vis-à-vis hemiplegia.

The non-significant result obtained may be due to short duration of the intervention. As *Pakshaghata* is one of the chronic debilitating disorders it needs months of regular effort to stimulate the nerves in brain by doing different therapies. Even *Sushrusta Samhitha* has mentioned that 3-4 months of unobstructed treatment have to be done in *Pakshaghata*, which is having practical difficulty. The result is based on how well we can get back the nerve of ischemic penumbra region which is easy if patient approaches in early stage in present study most of

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subjects had a chronicity of more than 2 months which also contributed for statistically negative results.

The quality-of-life scale consist of 12 components. It includes psychological and social aspect other than motor activity, which may be the reason for statistically significant result in this parameter even though there are statistical non-significant results with power and tone parameter.

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How to cite this article: Swarna M. Ballal CS, Sanjay Kumar MD, V. Rajendra. An explorative clinical study to evaluate the combined effect of Shiropichu, Sthanika Abhyanga, Salvana Upanaha Sweda and Balarishta in the management of Pakshaghata vis~a~vis Hemiplegia. J Ayurveda Integr Med Sci 2021;5:10-16. http://dx.doi.org/10.21760/jaims.6.5.2

Source of Support: Nil, **Conflict of Interest:** None declared.

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