Observational review on integrated approach in Post Stroke Management - A Case Series Report

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ABSTRACT

Background: The common cause of hemiplegia is stroke which is of two types: hemorrhagic and infarct. However; there may be other causes like tumor, a space occupying lesion, thrombus or an embolus etc. Aims and Objectives: Integrated therapy approach which is Panchakarma, physiotherapy, acupuncture, occupational therapy in the management for stroke, is planned to facilitate the movement of Vata Dosha, by the obstruction of which the symptoms are manifested. Materials and Methods: 5 cases of Cerebrovascular Accidents presenting with stroke reported in Yenepoya Ayurveda College and Hospital are taken in the study, wherein an explorative observational study design was framed on basis of objective and subjective parameters of motor and sensory functions of the brain to observe the before and after effects of treatment. Discussion: The line of treatment is to bring back the motor and sensory functions of the brain. The treatment protocol included Panchakarma procedures like Snehana (Abhyanga) Swedana, Basti, physiotherapy, acupuncture, occupation therapy and diet. Internal medicines boost the blood supply and natural antioxidants increase the oxygenation to the brain, rejuvenates the brain cells, and decrease cell death. There was a marked improvement in motor function soon after starting the Bhahya Abhyanga and Swedana procedures with Basti and the modalities of Physiotherapy and occupational therapy helped in fast recovery to facilitate and improve motor control and hand functions in affected upper limb, to maximize the person’s ability to undertake his or her own personal self-care tasks and domestic tasks.

Key words: Pakshaghata, Integrated Approach, Panchakarma, Physiotherapy, Occupational Therapy.

INTRODUCTION

Considering the etymology, the term Pakshaghata ‘Paksha’ i.e. either side of the body and ‘Aghata’ denotes a blow or a severe destruction caused which is due to the impairment of sensory and motor system and its controller i.e. the brain it can be compared with hemiplegia (paralysis of half body) where “Hemi” means ‘half’ and “Plegia” means ‘loss of function’ in Greek. The common cause of hemiplegia is stroke which is of two types: hemorrhagic and infarct. However; there may be other causes like tumor, a space occupying lesion, thrombus or an embolus etc.

CASES PRESENTATION

Case no. 1

Female aged 57 complained of loss of strength Right upper and lower limb since 15 days. There was no history of fall or any accidental injury. Presenting complains were acute in onset with altered consciousness. An emergency management for stroke was carried in nearest hospital.

Case no. 2

Female aged 62 complained of loss of strength Left upper and lower limb since 20 days associated with slurred speech. There was no history of fall or any accidental injury. Presenting complains were acute in onset with altered consciousness. An emergency management for stroke was carried in nearest hospital.

Case no. 3

Male aged 55 complained of loss of strength Left upper and lower limb since 22 days associated with dribbling...
saliva and slurred speech. There was no history of fall or any accidental injury. Presenting complaints were acute in onset with altered consciousness. An emergency management for stroke was carried in nearest hospital.

**Case no. 4**

Male aged 62 complained of loss of strength Right upper and lower limb since 20 days. There was no history of fall or any accidental injury. Presenting complaints were acute in onset with altered consciousness. An emergency management for stroke was carried in nearest hospital.

**Case no. 5**

Female aged 59 complained of loss of strength Right upper and lower limb since 30 days. There was no history of fall or any accidental injury. Presenting complaints were acute in onset with altered consciousness. An emergency management for stroke was carried in nearest hospital.

**Table 1: Patient medical history and clinical presentation.**

<table>
<thead>
<tr>
<th>Patient</th>
<th>Age</th>
<th>Gender</th>
<th>Medical History</th>
<th>Stroke presentation</th>
<th>Lab results - Cbc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient 1</td>
<td>57</td>
<td>F</td>
<td>Smoker HTN AF ISH BA</td>
<td>Hemiparesis RT hemihypesthesia RT UMN facial</td>
<td>HB 15.9 g/dl, WBC 13.6, Lymph. 1.06, Neutrophil 9.27</td>
</tr>
<tr>
<td>Patient 2</td>
<td>62</td>
<td>F</td>
<td>HTN DM</td>
<td>Hemiparesis LT hemihypesthesia LT UMN facial Partial gaze Dysarthria</td>
<td>HB 14 g/dl, WBC 8.2, Lymph. 1 neutrophil 5</td>
</tr>
<tr>
<td>Patient 3</td>
<td>55</td>
<td>M</td>
<td>HTN DM</td>
<td>LT hemiparesis LT hemihypesthesia Ataxia Dysarthria</td>
<td>HB 15.1 g/dl, WBC 6.5, Lymph. 1</td>
</tr>
</tbody>
</table>

**Table 2: Intervention Plan of Care**

<table>
<thead>
<tr>
<th>Medicine</th>
<th>Dosage</th>
<th>Procedure</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cap Vatapy[1]</td>
<td>1-1-1</td>
<td>Rookshana with Sarvanga Dashamoola Kashaya Dhara/ Dhanyamila Dhara</td>
<td>1st 3 days</td>
</tr>
<tr>
<td>Gandarvahastadi Kashaya</td>
<td>15ml-0-15ml</td>
<td>Abhyanga with Ksheere Bala Taila</td>
<td>Next 7 days</td>
</tr>
</tbody>
</table>

**Observation**

**Table 3: Before Treatment and After Treatment score of Barthel index[2]**

<table>
<thead>
<tr>
<th>SN</th>
<th>Domain name</th>
<th>Range of score</th>
<th>BT</th>
<th>AT (after 45 days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Feeding</td>
<td>0 = unable 5 = needs help in cutting, spreading butter, etc. or</td>
<td>0 (5)</td>
<td>5 (5)</td>
</tr>
</tbody>
</table>
**CASE REPORT**

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</table>

**DISCUSSION**

*Rookshnā*[^3] with *Sarvanga Dhanyamla Dhara*

*Rookshnā* is a variety of *Apatarpana* procedure mentioned under *Shadvidhopakrama*. *Rookshnā* is one of the important protocols embraced in *Apatarpana Chikitsa*, which can be implemented as *Vishesha Poorvakarma* to *Shodhana* as well as *Pradhana Karma*. *Rookshnā* is adopted in both preventive and promotive aspect.

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[^3]: Rookshnā is a specific protocol in Ayurveda that involves various procedures and is known for its rejuvenating effects. It is often used in conjunction with other therapies to enhance the body's ability to heal and maintain optimal health. In the context of post-stroke management, it might be used to aid in recovery and rehabilitation.

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**SNI: 2456-3110**
In Samsrushtajanya Vata Vyadhi, there will be Vata-Kapha Prakopa, hence initially to reduce Kapha, Ruksha Sweda and Vata-Kaphahara Chikitsa must be followed. In the condition like Avaranajanya Vata Vyadhi there will be Kapha Avarana to Vata Dosha, hence Vyatyasa Chikitsa like Ruksha and Snigdha Chikisa alternatively in the form of Udhwartana or Dhanyamla Seka and Abhyanga can be done.

When Ama combines along with vitiated Vata results in rigidity in the joints. Rookshana causes Pachana of Aama Dosha. In newly originated disease Ruksha Sweda is helpful, since it helps in liquefaction of Aama and relieving the stiffness. Deepana and Pachana Dravyas are given to tackle vitiated Aama. When Aama is corrected by Aama Pachana, in the next stage Snehana Karmas can be carried out to treat the Vata.

Rukshana in Panchakarma: it’s of two ways Abhyantara Rukshana achieved by Panchakarma procedure like Vamana, Virechana, Basti, Nasya and Bhaya Rukshana can be done with the help of Upakramas like Udvarthana, Valuka Sweda, Churna Pinda Sweda, Isteka Sweda, Dhanyamla Dhara, and some of Lepas.

Dhanyamla (Chiktsa Manjari, Vaata Vyadhi)

Table 5: Ingredients of Dhanyamla

<table>
<thead>
<tr>
<th>SN</th>
<th>Ingredients</th>
</tr>
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<tbody>
<tr>
<td>1.</td>
<td>Tandula</td>
</tr>
<tr>
<td>2.</td>
<td>Pruthuka</td>
</tr>
<tr>
<td>3.</td>
<td>Laja</td>
</tr>
<tr>
<td>4.</td>
<td>Kulattha</td>
</tr>
<tr>
<td>5.</td>
<td>Kangubeeja</td>
</tr>
<tr>
<td>6.</td>
<td>Kodrava</td>
</tr>
<tr>
<td>7.</td>
<td>Nagar</td>
</tr>
<tr>
<td>8.</td>
<td>Nimbuka</td>
</tr>
<tr>
<td>9.</td>
<td>Deepyaka</td>
</tr>
</tbody>
</table>

Probable mode of action of Dhanyamla Dhara\(^{[3]}\)

- **Amla Rasa** - According to Ayurveda kindles the Agni and acts as Deepana and gets rid of Ama (endotoxins formed due to errors of metabolism) and acts as Pachana. Since many diseases are manifested because of bad metabolism, Dhanyamla Dhara de-roots these diseases from base. Thus, Dhanyamla Dhara forms the first line of treatment in many systemic disorders having their origin from weak digestion or errors of metabolism.

- Apart from this, Amla Rasa is Hridya, Rochana, Laghu and Snigdha. The digestive power of Agni or core fire in the body will get enhanced due to the impact of Laghu and Teekshna Guna’s of Dhanyamla.

- Due to its Ushna Guna and Ushna Veerya, Dhanyamla destroys the vitiated Vata or Kapha or Vata-Kapha. The same properties make Dhanyamla antagonistic to Ama and Meda.

- With the help of these properties Dhanyamla removes the blocks in the cells and channels of transportation and nutrition. The cells will start getting proper nutrition and building elements, which in turn enhances the strength and immunity of the body. Dhanyamla is thus highly effective in Ama disorders, Vata disorders, Kapha disorders and Vata-Kapha Disorders.

- Owing to its properties of Vatanulomana, Shula Prashamana, Nadi Uttejaka, Vedana Sthapana, Dhanyamla effectively combats Vata and Vata disorders.

Dashamoola Kashaya Dhara\(^{[4]}\)

Table 6: Dashmoola Kashaya Ingredients

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>1 Part</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilva</td>
<td></td>
</tr>
<tr>
<td>Agnimantha</td>
<td></td>
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</tbody>
</table>
Probable mode of action on Dashmoolashaya Dhara

- Previous studies done on Pakshagahata had commendable results in post stroke patients. The Probable Mode of Action may be that as it Increases metabolic rate. By Swedana process, our body temperature is increased and due to increase in body temperature, sympathetic activities are also increased. Because of increased Sympathetic activities hormones like Epinephrine, Norepinephrine, Cortisol, Thyroid Hormones are released which accelerate the metabolic rate and stimulate the process of lipolysis. As a result of increased metabolism there is increased demand for oxygen and increased output of waste products. It can be correlated with digestion of Ama.

- Vasodilatation: If the body temperature rises a negative feedback action becomes active to reach at normal temperature. Higher temperature of the blood stimulates thermo receptors that send nerve impulses to the preoptic area of the brain. Which in turn stimulate the heat losing center and inhibit the heat promoting center. Nerve impulses from the heat losing center cause dilation of blood vessels in the skin so the excess heat is lost.

- Stimulation of Sweat Glands: A high temperature of blood stimulates sweat glands of the skin via hypothermic activation of sympathetic nerves and by this procedure excessive sweat production takes place. With the increased Sweat production more waste products are expelled out of the body through the medium of sweat. Hence, it can be said that Swedana corrects Swedavah-Srutho-Dushti.

**Abhyanga with Ksheera Bala Taila**

**Ksheera Bala Taila**

Ksheerabala Taila is one of the most popular oil preparations in Ayurveda and recognized as a very effective remedy for neurological disorders such as facial paralysis, sciatica, hemiplegia, paraplegia, poliomyelitis and other such conditions. The similar preparation has been mentioned by almost all ancient Ayurvedic texts but with different names. Charaka mentioned as Shatasahasra Paka Bala Taila,[5] Sushruta mentioned as Shata Paka Bala Taila[6] and Ashtanga Hridaya mentioned as Shata Paka-Sahasra Paka Bala Taila.[7] The ingredients of this preparation are Ksheera (Cow’s milk), Bala (Sida cordifolia Linn.) and Tila Taila (Sesame oil). Ksheerabala Taila is used for the purpose of Anuvasana Basti. S. cordifolia has been reported to possess analgesic, anti-inflammatory as well as hepatoprotective activity.[8,9,10]

**Abhyanga mode of action[5]**

Acharya Dalhana has indicated that Abhyanga should be done for specified times, also a description of the penetration of Sneha at various levels are given in the table below. Thus, Abhyanga should be performed for at least 5 minutes in each position if the desired outcome is to affect deeper tissues like Majja.

Joint movements - both assisted and resisted movements are performed.

There is different technique of massage according to their movements.

- Touch-sensation - sensation which is carried through brain.
- Stroke - Touch with movement with one/both palms slowly.
- Friction - Grasp the part and move with little amount of pressure.
- Kneading - Alternative compression of the tissues by grasping them against the underlined body surfaces.
- Vibrations - Fine vibratory/shaking movements communicated to the body through the hands.
- Percussion - The movements/blows administered in various ways with varying degrees of force.
- Joint movements - both assisted and resisted movements are performed.

**Physiological Effects**

The therapeutic value of massage lies in its numerous and combined physiological effects and technique dependent. Massage, be it manual or mechanical, imparts pressure and stimulates mechanically the various tissue approached at the time of application of a particular technique. It is the magnitude, duration, and the direction of force applied during a particular technique that determines the effects, produced by that technique on that body.

**Effects on the circulatory system**

A. On the venous and the lymphatic flow
   - Massage facilitates the forward movement of the venous blood and the lymph.
   - So reduces the chance of stagnation of the blood and the lymph in the tissue space. The Mechanical action of massage resembles with that of normal muscular contraction. The different techniques of massage alternately compress and release the soft tissue. This facilitates the venous and lymphatic flow.
   - Massage facilitates the drainage, and reduces the stagnation of fluids and speeds up the removal of waste products.

B. On the arterial flow

Massage improves the blood supply of the area being massaged. A definite vasodilation along with an increase in the peripheral blood flow is usually observed after massage.

- Increases Venous and lymphatic flow.
- Increases Arterial blood flow to the muscle and skin.
- Increases Stagnation of fluid in tissue space.

**Choorna Pinda Sweda (Kolakulathadi Choorna)**[6,7]

**Procedure Rooksha Sweda**

Charaka while explaining the effects of Swedana he says it is best in Sankocha, Ayama, Shoola, Sthambha etc. all the Vikaras of Sarvanga and Ekanga

Most of the ingredients of Kolakulathadi Churna are having Laghu Ushna Snigdha Gunas and Kapha Vata Hara properties. Apabhuka being a Vataja Vyadhi with Kapha Avarana gets regressed by the usage of this Choorna as Rooksha Sweda Busha Choorna the procedure of Swedana by using Busha Choorna is also a variety of Ushma Sweda and also it is cost effective. Busha having the property of Lekhana and pacifies the Kapha, by which Vata can be easily pacified. By the depletion of Kapha the channels get clarified resulting in lightness of body.

**Gandarvahastadi Kashaya**[8]

Gandharva Hastadi Kashaya: The Kashayam was prepared by following herbs in equal parts. Gandharvahasta, Chirabilva, Hutasha, Vishwa, Pathya, Punarnava, Yavasa, Bhumitaala • Duration: 21 days. • Dose: 20-40 ml at bedtime. • Usage: For Nitya Virechana in both groups

**Brief Note On Occupational Therapy**[9]

The aim of occupational therapy is to help people to live their lives more independently. Occupational therapists can help, for instance, if you have limited use of your hand or arm due to a medical condition. They may recommend various exercises or activities, offer you advice, or suggest changing certain things in your everyday life. Occupational therapy can be useful for people of any age. The goal of occupational therapy is to improve the skills that are needed to live life as independently as possible. This includes being able to take care of yourself and to work, for example – as well as being able to leave your home and meet other people.

Occupational therapy can help you to cope with a (new) mental or physical limitation and manage better in everyday life. This can improve your quality of life and health. Family members can also get useful tips and advice from an occupational therapist.
Depending on the type of limitation and your personal circumstances, occupational therapy may include the following:

- Re-training of everyday skills (getting dressed, preparing food, managing the household)
- Learning and practicing skills for school, work or free time
- Movement and perception exercises
- Concentration and memory exercises
- Manual and creative exercises
- Help in structuring your daily routine
- Modification of your home or workplace
- Using medical aids such as a walker or prosthesis
- Advice and, if needed, guidance for family members

The treatment goals are planned together with the therapist as much as possible, and the progress is also monitored together. For occupational therapy to succeed, you need to actively participate and use the techniques that you have learned in everyday situations as often as possible.

**Brief note on Physiotherapy**[^10]

Most survivors of a stroke are left with chronic disability. Rehabilitation efforts during the initial three to six months after stroke should aim to maximize patients’ physical, communicative, and cognitive functioning. Continued improvement in the chronic phase of stroke can occur with regular, progressive skills practice of goal-directed tasks in the home. Many new rehabilitation strategies, built upon attempts to leverage technological developments to augment the effects of practice, are opening innovative avenues to amplify gains in performance at any time after stroke. The future of stroke rehabilitation remains one of promise and challenge in treating residual disabilities, especially for testing biological interventions for neural repair in the most profoundly affected individuals.

**Brief Note On Acupuncture**[^11]

Acupuncture is the practice of penetrating the skin with thin, solid, metallic needles which are then activated through gentle and specific movements of the practitioner’s hands or with electrical stimulation. Acupuncture is part of the ancient practice of Traditional Chinese medicine.

**Effect of acupuncture in Post stroke patients:**

1) Promotion of cell proliferation in the CNS, limited to neurogenic areas and some ischemic tissues;
2) Regulation of cerebral blood flow via angiogenesis and modulation of vaso active mediators;
3) Anti-apoptosis via direct intervention in the intrinsic and extrinsic pathways or related pathways;
4) Regulation of neurochemicals involved in crucial steps in the ischemic cascade as neurotransmitters, antioxidants, inflammatory-related substances, neurotrophic factors, and metabolic substrates; and finally,
5) By potentiation and recovery of hippocampal memory and learning processes

The five major mechanisms involved in the beneficial effects of acupuncture / EA therapy in ischemic stroke rehabilitation are illustrated in Scheme.

These five mechanisms are supported by evidence from the literature review, as follows:

1. Promotion of neurogenesis and cell proliferation in the central nervous system (showing neurogenesis in the subventricular zone of the lateral ventricle (LV) and the dentate gyrus (DG) are as in the hippocampus, and cell proliferation in ischemic tissue);
2. Regulation of cerebral blood flow in the ischemic area (showing angiogenesis in the LV and DG, and vaso active modulation in ischemic tissue);
3. Anti-apoptosis in the ischemic area (through modulation of specific and non-specific apoptotic pathways);
4. Regulation of neurochemicals, such as:
   (a) Neurotransmitters and receptors,
   (b) Antioxidant enzymes,
   (c) Inflammatory mediators,
(d) Neurotrophic factors,
(e) Anaerobic metabolism

REFERENCES

5. Charaka Samhita, Chikitsa Sthana, Vatavadyadhi Chikitsa Adhyaya, 29/119-120. [Google Scholar]


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