Research Article

EFFECT OF BASTI AND NASYA IN HEMORRHAGIC STROKE SPECIFICALLY ON BARTHEL INDEX, GRIP POWER AND NIH STROKE SCALE: A PILOT STUDY

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ABSTRACT

Cerebrovascular diseases include some of the most common and devastating disorders; ischemic stroke and hemorrhagic stroke. Intracranial hemorrhage usually results from rupture of blood vessel within the brain parenchyma but may also occur in patients with subarachnoid haemorrhage, if the artery ruptures into the brain substance as well as into the subarachnoid space. It produces neurological symptoms by producing mass effect on neural structures, from the toxic effects of blood itself or by increasing intracranial pressure. According to Ayurved hemorrhagic stroke can be linked with *Urdhva Raktapitta*. *Chikitsa* of *Urdhva Raktapitta* was *Virechana* and *Adho Raktapitta* was *Vamana* as stated by Charak. So initial management was planned to stabilize *Prakupit Dosh* and hence *Basti* and *Nasya* were selected in these 5 patients of pilot study. Observations and results obtained were encouraging and assessed on different parameters which are presented in full paper. The patients of acute hemorrhagic stroke (not less than 1yr) were selected on the basis of CT/ MRI of brain and sign- symptoms of stroke. Observation and results are mention by applying appropriate statistical tests. Clinically encouraging results were observed on signs and symptoms. Statistically significant results were observed on parameters. These results are presented in full paper in details. Combination of this *Ayurvedic* treatment can be helpful in treating the cases of hemorrhagic stroke however the study on the larger compound will be helpful to validate its effect on hemorrhagic stroke.

KEYWORDS: *Urdhva Raktapitta*, Hemorrhagic Stroke, *Basti*, *Nasya*

INTRODUCTION

Cerebrovascular diseases include some of the most common and devastating disorders; ischemic stroke and hemorrhagic stroke¹. Intracranial hemorrhage usually results from rupture of blood vessel within the brain parenchyma but may also occur in a patient with subarachnoid hemorrhage if the artery ruptures into the brain substance as well as into the subarachnoid space. It produces neurological symptoms by producing mass effect on neural structures, from the toxic effects of blood itself or by increasing intracranial pressure². Hemorrhage frequently occurs into an area of brain infarction and if the volume of hemorrhage is large, it may be difficult to distinguish from primary intracranial hemorrhage both clinically and radiologically³. Incidence shows intracranial hemorrhage in nearly 10% of all strokes out of which about 35-45% of patients die within the first month. Incidence rates are particularly high in Asians and blacks. Hypertension, coagulopathy, sympathomimetic drugs (cocaine, methamphetamine), brain tumor, vasculitis usually polyarthritis nodosa or lipus erythematosus, sepsis also leads to small petechial hemorrhage throughout the cerebral white matter, aneurismal rupture and cerebral amyloid angiopathy cause the majority of these hemorrhages. Advanced age and heavy alcohol consumption increased the risk, and cocaine and methamphetamine use are one of the most important causes in the young. The common site of hypertensive intracranial haemorrhage are basal ganglia (specially putamen), thalamus, cerebellum and pons⁴. Clinical features includes deviation of eyes, ipsilateral Horner's syndrome, while in pontine hemorrhage, deep coma with quadriplegia, decerebrate rigidity and pinpoint

pupils that react to light. Cerebellar hemorrhage develops over several hours and characterised by occipital headache, repeated vomiting and ataxia of gait. PT-INR and platelet count are important to identify coagulopathy. MRI or CT scan show hematoma with spot sign increase risk of hematoma expansion and increased mortality.

In the management of hemorrhage rapid correction of coagulopathy is important along with rapid infusing prothrombin complex concentrates (PCC). If hematoma is <1 cm in diameter surgical removal is usually unnecessary, if 1-3 cm with impaired consciousness, progressive hydrocephalus and precipitous respiratory failure then it should be removed surgically.

According Ayurved hemorrhagic stroke can be linked with *Urdhva Raktapitta*. Intracranial hemorrhage means rupture of blood vessels in brain. Charak stated that *Raktapitta* has *Urdhva* and *Adha Gati*. *Urdhva Pradesh* means *Shir* has 9 opening while *Adhobhag* has 2 openings⁵. In *Raktapitta* there is *Dushti* of *Pitta* and *Rakta* as *Dushya*. *Urdhva Pradesh* is *Sthana* of *Kapha* so it has *Kaphanubandh* and *Adha Pradesh* *Vatanubandh*, while *Raktapitta* is in both *Marg* then it has both *Doshas Vatkapha* as stated by Charak⁶. *Samsargat*⁷ means *Pitta* and *Rakta* has *Ashrayashrayi Sambandh* it has similar *Gandh*, *Varna*, and *Guna* so it is called *Raktapitta*.

As Vagbhat stated that *Asruj Pitta* means *Rakta*⁸ *Dhatu* is *Sthana* of *Pitta*. As constant indulgence of *Hetu Sevana* like *Ushna*, *Tikshna*, *Amla*, *Katu*, *Lavana*, *Aatap*, *Vidahi Anna Sevana* leads to *Vikriti* of *Pachak Pitta* and *Vidaha* will be *Utpana* this all

factors causes *Prakopa* of *Pitta* and cause *Dushti* of *Rakta Dhatu*, because of *Pitta Dhatu Ushma* leads to *Mamsadi Dhatu Dravyansh* will be secreted so along with *Pitta* this all *Dhatu* secretion will be increased and finally *Rakta Dhatu Vriddhi* occurs. This *Prakupit Pitta* along with *Rakta* moves towards *Urdhva* (*Ushna+Snigdha Guna*) and *Adhah* (*Ushna+Ruksha Guna*) direction along with specific *Gunatmak Aahar Sevan*^{9,10}. *Aamashaya* is *Sthana* of *Pitta* from this *Rakta* was *Gaman*. *Pitta Yoni* was *Rakta*. *Yakrit* and *Pliha* are *Adhithana* of *Raktapitta*¹¹. According to *Charak Chikitsa* of *Raktapitta* was given according to *Matra*, *Desh*, *Kala*, *Santarpana* or *Apatarpana Chikitsa* or *Madhur*, *Tikta*, *Mrudu*, *Shital*, *Kashaya Rasa Pradhan Aahar* was given.

While discussing about *Sadhya-asadhyata Urdhva Raktapitta* was *Sadhya* because *Pitta Doshas* main *Chikitsa* was *Virechana* and there is more availability of drugs so it can be treated easily. *Tikta* and *Kashaya* are *Kapha-pitta Virodhi Aushadha*. While *Adho Raktapitta Asadhya* because *Vaman* is given it is not best treatment of removal of *Pitta* and less drug were available so *Yapya* and *Ubhaya Marg* was *Asadhya*. Hence *Charak* called *Pratimarg Haran Chikitsa* was advised. ICH stroke can cause focal neurological deficit, there is weakness on one side affected limb, difficulty in walking all stroke sign and symptoms were developed. So initial management was to bring down *Prakupit Dosha* so *Basti* and *Nasya* was selected in this 5 patients of pilot study¹².

MATERIALS AND METHODS

This pilot study is carried out as per International conference of Harmonization –Good Clinical Practices Guidelines (ICH-GCP) or as per Declaration of Helsinki guidelines and was done in Government Ayurved College and Hospital, Nagpur, Maharashtra, India

Design of Study: Open Randomised Pilot Study

Sample Size: Total 5 patients were selected for Study

Aim: To evaluate the effect of *Basti* and *Nasya* of 5 patients of hemorrhagic stroke specifically on Barthel Index, Grip power and NIH stroke scale

Objectives:

Primary objective: To evaluate the effect of *Basti* and *Nasya* on Barthel Index, Grip power and NIH stroke scale in 5 patients of hemorrhagic stroke.

Secondary objective: To evaluate the effect of *Basti* and *Nasya* on sign and symptoms of 5 patients of hemorrhagic stroke.

Inclusion Criteria:

- 1) Patients of hemorrhagic stroke condition not more than 1 year.
- 2) Male and Female both were selected for study.
- 3) Age between 30-70 years.
- 4) Patients having sign and symptoms of hemorrhagic stroke.
- 5) Patients with controlled hypertension and diabetes mellitus were selected.
- 6) Patients who does not take part in any other research project.
- 7) Patient having muscle power grade 0- 3.

8) Patients having non-progressive stroke.

Exclusion Criteria

- 1) Patients of infarction, thrombosis, carotid occlusion, cerebellar stroke and progressive hemorrhagic stroke were excluded.
- 2) Patient who have lost bowel and bladder control.
- 3) Comatose and unconscious patients.
- 4) Patients having intracranial infection, encephalitis and meningitis etc.
- 5) Patients with congenital heart diseases like POA, ASD, VSD and FOD.

Selection of Drug

- 1) *Rakta-Asthi-Majja Pachak Kvatha* (*Patol*, *Sariva*, *Musta*, *Patha*, *Kutaki*, *Guduchi*, *Amlaki*)¹³
- 2) *Vasa Svaras* 10ml¹⁴
- 3) *Chandrakala Rasa*¹⁵
- 4) *Aargvadha*, *Manuka Kvatha*¹⁶
- 5) *Nasya* with *Yashtimadhusiddha Ghrita*¹⁷
- 6) *Raktapitta Shamak Basti* (*Vidarigandhadi Gana Dravya*)^{18,19}

Investigational Parameters

- 1) CBC with ESR
- 2) BSL <Fasting and post meal
- 3) Urine routine and microscopic
- 4) Lipid profile
- 5) C.T scan /MRI brain

Criteria of Assessment

- 1) Muscle power grade
- 2) Muscle power tone
- 3) Symptom gradation
- 4) Barthel Index
- 5) NIH Stroke scale
- 6) Grip power

Study Procedure

5 patients of hemorrhagic stroke were selected for this pilot study. According to clinical and investigational parameters patients were included for this trial. All investigations were done at zero day i.e. before starting treatment. After that *Rakta-Asthi-Majja Pachak Kvath* 40ml B.D. was given to eliminate *Dhatvagnimandya* for 4-5 days. After that patients *Snehan*, *Svedana*, *Nasya* with *Yashtimadhusiddha Ghrita*, *Kala Basti Kram*²⁰ was applied, alternate *Rakta-Pitta-Shamak Aasthapana* and *Yashtimadhusiddha Ghrita Anuvasana Basti* were administered along with *Shaman* drugs *Vasa Svarasa* 10ml BD, *Chandrakala Rasa* 250 mg BD, *Aargvadha-Manuka Kvath* 40ml HS for 15 days. After completion of 15 days clinical assessment was done and these values were termed as after treatment value.

RESULT

In this pilot study significant results were observed in symptoms like *Hatekpaksha* and *Ruja*. Significant results were also observed in functional parameters like Barthel Index and Grip power by Wilcoxon Ranked Sign Test. After treatment improvement in gait and daily activity was also noted in all the patients of this study. This line of management was positively worked on stabilising vitiated *Pitta* and *Vayu*, along with *Rasa*, *Rakta* and *Majja Dhatu*.

Table-1: Effect of Therapy on Percentage of Relief of Symptom Score in 5 Patients of Hemorrhagic Stroke

S. N	Symptoms	Score			
		BT	AT	Diff	% of Relief
1	<i>Hatekpaksha</i>	3.4	1.2	1.4	62
2	<i>Mukhavakrata</i>	1	0	0.4	60
3	<i>Ruja</i>	3	1	2	62

Table-2: Effect of Therapy on Percentage of Relief of Functional Parameters in 5 Patients of Hemorrhagic Stroke

S. N	Parameter	Score			
		BT	AT	Diff	% of Relief
1	<i>Barthel Index</i>	55	73	18	46.05
2	<i>NIH stroke Scale</i>	10	07	4.6	61.08
3.	Grip Power	46	146	100	170

Table-3: Effect of Therapy on Percentage of Relief of Muscle Power Grade in 5 Patients of Hemorrhagic Stroke

S. N	Parameter	Score			
		BT	AT	Diff	% of Relief
1	Right Upper Limb	2.2	2.8	0.6	18.83
2	Left Upper Limb	0.6	0.8	0.2	6.66
3	Right Lower Limb	2.4	3	0.6	6.66
4.	Left Lower Limb	0.4	2	0.2	5

Table-4: Effect of therapy on Functional Parameter by Wilcoxon Ranked Sign Test in 5 Patients of Hemorrhagic Stroke

S.N.	Symptoms	Mean $\pm$ SD			Median		W	T+	T-	SD	Z	P
		BT $\pm$ SD	AT $\pm$ SD	Mean of Diff $\pm$ SD	BT	AT						
1	Barthel Index	55	73	18	70	90	15	0	15	3.7	7.5	0.03
2	NIH Stroke Scale	9.6	6.6	3	9	3	9	12	3	3.7	4.5	0.156
3	Grip Power	46	146	100	50	90	15	0	15	3.7	7.5	0.03

Table-5: Effect of therapy on Symptom Score by Wilcoxon Ranked Sign Test in 5 Patients of Hemorrhagic Stroke

S.N.	Symptoms	Mean $\pm$ SD			Median		W	T+	T-	SD	Z	P
		BT $\pm$ SD	AT $\pm$ SD	Mean of Diff $\pm$ SD	BT	AT						
1	<i>Hatekpaksha</i>	3.4	1.2	2.2	3	1	15	15	0	3.7	7.5	0.03
2	<i>Ruja</i>	3.2	0.8	2.4	3	0	15	15	0	3.7	7.5	0.03
3	<i>Mukhavakrata</i>	0.6	0.4	0.2	1	0	1	1	0	3.7	6.5	0.50

Table-6: Effect of Therapy on Muscle Power Grade by Wilcoxon Ranked Sign Test in 5 Patients of Hemorrhagic Stroke

S.N.	Symptoms	Mean $\pm$ SD			Median		W	T+	T-	SD	Z	P
		BT $\pm$ SD	AT $\pm$ SD	Mean of Diff $\pm$ SD	BT	AT						
1	Right Upper Limb	2.2	2.8	0.6	3	4	3	0	3	3.7	7.5	0.25
2	Left Upper Limb	2.4	3	0.6	4	4	1	0	1	3.7	7.5	0.5
3	Right Lower Limb	0.6	0.8	0.2	0	0	1	0	1	3.7	7.5	0.5
4.	Left Lower Limb	0.8	1	0.2	0	0	1	0	1	3.7	7.5	0.5

DISCUSSION

Hemorrhagic stroke causes rupture of blood vessels of brain that correlate in Ayurved as *Urdhva Raktapitta* so considering this fact *Shita* and *Madhur Gunatmak Chikitsa* was given in 5 patients of this pilot study. *Yakrit* and *Pliha* are *Adhishthana* of *Raktapitta* and all causative factors responsible for haemorrhage were observed. Sushrut labelled *Rakta-Pitta Shamak Aasthapan Basti*

and *Yashtimadhusiddha Anuvasana Basti* for the management of *Raktapitta*²¹. Charak said that *Basti* is *Ardh Chikitsa* in *Vata Vyadhi*²². According to Charak *Vayu* is the dominant causative factor to manifest the diseases of *Shakha*, *Koshtha*, *Marma* and *Urdhva Pradesh* of Sharir, and he also explained *Basti* containing *Madhu*, *Ghrta* and *Dugdha* as best for management of *Raktapitta Vyadhi*²³. In hemorrhagic stroke patient was difficulty in walking and daily activity hence in this condition *Basti* is best treatment

for primary management to stabilised the *Doshas* because *Basti* has ability to remove *Mala* or *Dosha* quickly and it rapidly acts as *Tarpana* and *Apatarpana*, without any *Upadrava* so this *Rakta-Pitta Shamak Aasthapan Basti* was selected for this study²⁴. As Charak explained *Dvaram Hi Sharaso Nasa* patients of this study were also administered *Nasya* of *Yashtimadhusiddha Ghrit*²⁵⁻²⁶. While explaining *Avaran Chikitsa Sidhant* Charak mentioned the symptoms of *Pranavritta Vyana* and *Pittavritta Vayu* which resembles the symptoms of *Urdhva Raktapitta* so in this pilot study *Urdhva Jatrugat Chikitsa* was taken into consideration²⁷. *Shaman* drugs like *Chandrakala Rasa* and *Vasa Svaras* was given along with *Anuloman* with *Aargvadha* and *Draksha Kvatha* for *Pitta Shamana*. As Charak advised *Tarpan* for *Urdhava Raktapitta Chikitsa* considering this appropriate *Pathya- Apathya* was advocated to all the patients of this study.

CONCLUSION

Combination of this Ayurvedic treatment can be helpful in treating the cases of hemorrhagic stroke, however study on the bigger sample will form to validate its effect on *Urdhva Raktapitta*.

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