A COMPARATIVE CLINICAL STUDY TO EVALUATE DIFFERENT SCHEDULES OF MARSHA NASYA WITH PRASARINI TAILA IN CERVICAL SPONDYLOSIS

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ABSTRACT

Cervical spondylosis is one of the degenerative conditions of the cervical spine. It is commonly seen in old age, but nowadays it is nearly ubiquitous in young and middle-aged people. The symptoms consist of paraesthesia and pain in the distribution of fifth to eighth cervical dermatomes, pain being felt most frequently over the shoulder, arm, scapular region, forearm and hands. In young subjects, bony outgrowth may not be evident, but loss of the cervical curvature caused by spasm of neck muscles can be taken as a suggestive sign. The presentations of signs and symptoms of both diseases have close resemblance, so Vishvachi can be correlated with Cervical Spondylosis. Improper sitting postures and continuous work create pressure and stress that cause injury to spine, which may play an important role in producing this condition. NasyaKarma is considered as prime line of treatment in Urdhwa Jathrugata Vikaras and could be effective, economical as well as affordable treatment modality. Prasarini Taila is indicated in all Vata Vikaras especially in Vishvachi. Keeping these points in mind, a comparative clinical study of different schedules of Marsha Nasya with Prasarini Taila in the management of Cervical Spondylosis is taken.

Keywords: Cervical Spondylosis, Vishvachi, Marsha Nasya, Nasyakarma, PrasariniTaila.
INTRODUCTION

Cervical spondylosis occurs due to the degenerative condition of vertebral column with advancing age. It is characterized by pain and stiffness in the nape of neck may also be associated with radiating pain to either hand. Vishvachi is one among the Vatavyadhi characterized by pain extending from Talapratyanguli to Bahuprishta and produce symptoms such as Shoola and Karmakshaya of Bahu. Along with these symptoms it will also produces Ruk, Thoda and Stambha. The signs and symptoms of cervical spondylosis resembles to Vishvachi. By foregoing cervical spondylosis may be considered in the management of Vishvachi too. Vishvachi helps in developing strength of Urdhwajathra, Greeva and Bahu. PrasaraniTaila consist of Prasaranikkatha, Mastu, Amlakanjika, Ksheera, Citraka, Pippalimula, Yasti, Saindhavalavana, Vaca, Satapushpa, Devadaru, Rasna, Gajapippali, Jatamansi, Raktachandana, Eranda, Bala, and Sunthi. The ingredients of Taila have Vatathara property. Moreover, this has indicated in Vishvachi. Various schedules are practiced in administration of Nasya but routinely Nasya is performed for consecutive seven days. In Vata dominant diseases it can be performed in alternative days also. So, this study is intended to find the effect of Prasaran Taila Nasyakarma in alternative seven days in comparison with Prasaran Taila Nasyakarma in consecutive seven days in the management of Vishvachi.

Materials and Methods

I. Source of Data:-
   i. Drug Source: - From the source of procurement.
   ii. Drug Preparation: - Dept of Rasashastra and Bhaishajya Kalpana, Alva’s Ayurveda Medical College, Moodbidri.
   iii. Sample Source: - OPD and IPD of PG studies of Pancakarma, Alva’s Ayurveda Medical College Hospital, Moodbidri.

II. Method of Data Collection: -
   a) Sample Size:- 40 patients suffering from Cervical Spondylosis and Vishvachi fulfilling the diagnostic and inclusion criteria belonging to either sex were selected for the clinical study. They were assigned into two equal groups comprising 20 each.
   Study Design: - Comparative clinical study.
   Selection Criteria: - The cases are selected as per Signs and Symptoms of Cervical Spondylosis.
   b) Diagnostic Criteria: - The patients were diagnosed based on the following clinical signs and symptoms:-
      - Neck pain
      - Sensory loss in upper limbs
      - Tenderness in cervical region
      - Restricted movement of neck
      - Pratyatma lakshana of Vishvachi
   c) Inclusion Criteria: -
      - Patients fulfilling the diagnostic criteria.
      - Patients of the age group 20-60 years of either sex.
      - Patients who are fit for Nasyakarma.
   d) Exclusion Criteria: -
      - Congenital conditions of cervical spine.
      - Traumatic injury of the cervical spine.
      - Patients with other medications are excluded.

Procedure

1) Poorvakarma – Abhyanga for face and neck with Moorchita Tila Taila. Pata Sveda did for face and neck.
2) Pradhanakarma - Patient is made to lie in supine position and the head maintained pralambitha position. Patient’s eyes were covered with cotton pad. Nostril of the patient widened with left hand of physician. Then, 4ml of lukewarm Prasarini Taila is taken in Nasya Pranadi and 8 bindu instilled into each nostril.
3) Paschatkarma - After administration of Nasya, patient is advised to lie on supine position for about 2 minutes. Then the region of the ears, forehead, skin of scalp, cheeks, nape of neck, shoulder, palms and soles were massaged. Patient is instructed to spit out sputum
into spit bowl placed on the convenient side of the patient. Prayogika Dhoomapana followed by Ushnajala Kavala is done.

**Research design**

- **Group CD**
  - Administration Schedule - 7 Consecutive days.
  - Formulation - Prasarini Taila
  - Dose - 4ml in each nostril.

- **Group AD**
  - Administration Schedule - 13 Alternative days
  - Formulation - Prasarini Taila
  - Dose - 4ml in each nostril.
  - Follow up – Once in 15 days for 2 months.
  - Study Duration – 7 days

**Assessment Criteria**: Assessment of the condition was done based on the detailed proforma adopting standard method of scoring of subjective and objective parameters which was analyzed statistically.

**Subjective Parameters**
- Stiffness
- Neck pain
- Radiating pain
- Neck disability index

**Objective Parameters**
- Tenderness
- Range of movement of neck

**Statistical Test**

Obtained data were analyzed statistically with Paired and Unpaired t-test.

**Laboratory Investigations**

X-ray of cervical spine AP-lateral view.

**Observation & Result**

**Observation**

A total of 40 patients suffering from Cervical Spondylosis fulfilling the inclusion criteria were taken for the study.

Observations were made before, during and after the treatment.

Number of patients registered for the study -40
Number of patients completed the study – 40
Number of dropout – 0

**Incidence Observation**: As per the prepared proforma, observations were made regarding the incidence of age, sex, occupation etc.

- **Age** - 57.5% of patients were belonging to 20-30 years of age group; 22.5% patients were from 41-50 years of age group; 15% from 31-40 years of age group; 7.5% were of 50-60 years of age group.
- **Sex** - 67.5% were females and 32.5% were males.
- **Occupation** - Maximum number of patients were students 20% and 12.5% were office workers and others.
- **Bowel** - 100% patients were regular.
- **Exercise** - 100% were not doing any of the exercises.
- **Sleep** - 75% had sound sleep and 25% had disturbed sleep.
- **Habits** - 100% were not having any of the habits.

- **Prakruthi** - Majority of the patients belonged to Kaphavata prakruthi, 40%, 32.5% belonged to Vatakapha prakruthi, 15% belonged to Kaphapitta prakruthi and 10% belonged to Vatapitta prakruthi

- **Samhanana** - 100% patient was of Madhyama Samhanana.
- **Satva** - 100% patient was of Madhyama Satva.
- **Agni** - Majority patients were 65% Mandagni and 35% Teekshnagni.

**Chronicity** - Majority of the patients taken up for the study had the complaints which were ranging from 2 – 5 years, 35%. 27.5% had 6 months – 1 year, 22.5% had 1 – 6 months, 10% had 1 – 30 days and 5% had 6 – 10 years.

**Results**

- **Effect on stiffness**: Statistical analysis shows that the mean score which was 1.700 before the treatment is reduced to 0.500 after the treatment and after follow up it became 0.000 with 100% improvement and there is statistically highly significant (P<0.001).

- **Effect on neck pain**: Statistical analysis shows that the mean score which was 1.300 before the treatment is reduced to 0.000 after the treatment and after follow up it became 0.000 with 100% improvement and there is statistically highly significant (P<0.001).

- **Effect on radiating pain**: Statistical analysis shows that the mean score which was 2.900 before the treatment is reduced to 0.500 after the treatment and after
follow up it became 0.000 with 100% improvement and there is statistically highly significant (P<0.001).

Effect on tenderness: Statistical analysis shows that the mean score which was 3.050 before the treatment is reduced to 0.000 after the treatment and after follow up it became 0.000 with 100% improvement and there is statistically highly significant (P<0.001).

Effect on flexion: Statistical analysis shows that the mean score which was 1.800 before the treatment is reduced to 0.500 after the treatment and after follow up it became 0.000 with 100% improvement and there is statistically highly significant (P<0.001).

Effect on extension: Statistical analysis shows that the mean score which was 2.100 before the treatment is reduced to 0.000 after the treatment and after follow up it became 0.000 with 100% improvement and there is statistically highly significant (P<0.001).

Effect on right lateral flexion: Statistical analysis shows that the mean score which was 1.250 before the treatment is reduced to 0.450 after the treatment and after follow up it became 0.000 with 100% improvement and there is statistically highly significant (P<0.001).

Effect on left lateral flexion: Statistical analysis shows that the mean score which was 1.350 before the treatment is reduced to 0.000 after the treatment and after follow up it became 0.000 with 100% improvement and there is statistically highly significant (P<0.001).

Effect on right rotation: Statistical analysis shows that the mean score which was 42.500 before the treatment is improved to 68.750 after the treatment and after follow up it became 75.500 with 77.6% improvement and there is statistically highly significant (P<0.001).

Effect on left rotation: Statistical analysis shows that the mean score which was 52.000 before the treatment is improved to 66.500 after the treatment and after follow up it became 77.000 with 48% improvement and there is statistically highly significant (P<0.001).

Result of Group CD: The percentage of improvement in Group CD on Stiffness is 100%. Neck pain is 100%, Radiating pain is 100%, Tenderness is 100%, Flexion is 33%, Extension is 23%, Right lateral flexion is 21.6%, Left lateral flexion is 15.3%, Right rotation is 25.8% and Left rotation is 31.3%.

Result of Group AD: The percentage of improvement in Group AD on Stiffness is 100%. Neck pain is 100%, Radiating pain is 100%, Tenderness is 100%, Flexion is 48%, Extension is 34%, Right lateral flexion is 16.8%, Left lateral flexion is 13.9%, Right rotation is 13.2% and Left rotation is 17.6%.

Comparative result of Group CD and Group AD: Comparative analysis of the overall effect of the treatments in both the groups was done statistically with unpaired t test. The test shows that the treatment is statistically significant in Group AD when compared to Group CD.

DISCUSSION

Discussion on clinical study: In the present study, a total of 40 patients suffering from cervical spondylosis were randomly selected from OPD & IPD of Alva’s Ayurveda Medical College, irrespective of sex, occupation etc and the patients were categorized into two groups. Group CD and Group AD received Nasya-karma with Prasarini Taila for a duration of 7 days and follow up was done on 15th day, 30th day, 45th day and 60th day.

Total of 40 patients were registered for the study and 40 patients completed the study (20 in each group). The details are as follows.

a) Total patients registered in the study - 40
b) Patients who received Nasya with Prasarini Taila (Group CD) - 20
c) Patients who received Nasya with Prasarini Taila (Group AD) - 20
d) Completed – 40

Discussion on observations: The discussion on observations related to the various aspects of 40 patients of Cervical Spondylosis are as follows:-

Age: Among 40 patients included for the study, maximum number of patients belonged to the age group of 20-30 and 41-50 years. As majority of the subjects enrolled were professionals and the age advances vitiation of Vata will be more, which is one of the main causes for Dhatukshaya.
Sex: Majority of the patients enrolled for the study were (67.5%) females. This may be due to over exertion of work as well as prolonged sitting posture.

Occupation: Maximum number of patients were students (45%) and (12.5%) were office workers and other workers. Improper posture and long-time study hours predisposed the students to strain of the neck. Continuous sitting in offices and neck exertions create undue pressure over cervical spine that may result in cervical spondylosis.

Prakruti: KaphaVata Prakruti was observed in maximum patients (40%) followed by VataKapha Prakruti (32.5%), KaphaPitta (15%) and VataPitta (10%). It suggests that KaphaVata and VataKapha Prakruti, due to predominance of Vata are more susceptible to degenerative diseases like Cervical Spondylosis.

Samhanana, Satva: The distribution of the patients shows that all the patients were having Madhyama Samhanana (100%) and Madhyama Satva (100%).

Nidra: The study shows that majority of patients had sound sleep.

Clinical features: Neck pain is a chief complaint of Cervical Spondylosis, associated with radiating pain, tenderness and stiffness which was observed in majority of the patients enrolled for the study. Range of movement is reduced in all 40 patients.

Chronicity: Majority of the patients taken up for the study had the complaints which were ranging from 2-5 yrs 35%. 27.5% of the patient of this study had the chronicity of 6 months-1year. 22.5% were 1-6 months. 10% were 1-30 days and 5% were 6-10 yrs.

Discussion on result:

Effect on stiffness

After treatment: In this study the mean score of stiffness on 7th day was reduced from 1.700 to 0.500 and 1.300 to 0.000 in Group CD and Group AD respectively. The percentage of relief was 100% and 100% which was statistically significant at ‘P’ value <0.001.

Comparison between the groups: When the values between the groups are compared, the mean difference score of stiffness in Group CD is 0.500 and in Group AD is 0.000. The variation seen in these two groups are statistically significant.

Effect on neck pain:

After treatment: The mean score of neck pain on 7th day was reduced from 2.900 to 0.500 and 3.050 to 0.000 in Group CD and Group AD respectively. The percentage of relief was 82.7% and 100% in both groups, which was highly significant at ‘P’ value <0.001.

Follow up: On 15th day, 30th day, 45th day and 60th day mean score of neck pain was reduced from 2.900 to 0.000 and 3.050 to 0.000 in Group CD and Group AD respectively. The percentage of relief was 100% and 100% which was statistically significant at ‘P’ value <0.001.

Comparison between the groups: When the values between the groups were compared, the mean difference score of neck pain in Group CD is 0.500 and in Group AD is 0.000. The variation seen in these two groups are statistically significant.

Effect on radiating pain:

After treatment: The mean score of radiating pain on 7th day was reduced from 1.800 to 0.500and 2.100 to 0.000 in Group CD and Group AD respectively. The percentage of relief was 72%in Group CD and 100% in Group AD which was highly significant at ‘P’ value <0.001.

Follow up: On 15th day, 30th day, 45th day and 60th day mean score of radiating pain was reduced from 1.800 to 0.000 and 2.100 to 0.000 in Group CD and Group AD respectively. The percentage of relief was 100% and 100% which was statistically significant at ‘P’ value <0.001.

Comparison between the groups: When the values between the groups were compared, the mean difference score of radiating pain in Group CD is 0.500 and in Group AD is S 0.000. The variation seen in these two groups are statistically significant.
Effect on tenderness:
After treatment: The mean score of tenderness on 7th day was reduced from 1.250 to 0.450 and 1.350 to 0.000 in Group CD and Group AD respectively. The percentage of relief was 64% in Group CD and 100% in Group AD which was highly significant at ‘P’ value <0.001.

Follow up: On 15th day, 30th day, 45th day and 60th day mean score of tenderness was reduced from 1.250 to 0.000 and 1.350 to 0.000 in Group CD and Group AD respectively. The percentage of relief was 100% and 100% which was statistically significant at ‘P’ value <0.001.

Comparison between the groups: When the values between the groups were compared, the mean difference score of tenderness in Group CD is 0.450 and in Group AD is 0.000. The variation seen in these two groups are statistically significant.

Effect on flexion:
After treatment: The mean score of flexion on 7th day was improved from 42.500 to 60.500 and 52.000 to 66.500 in Group CD and Group AD respectively. The percentage of relief was 42.3% in Group CD and 27% in Group AD which was highly significant at ‘P’ value <0.001.

Follow up: On 15th to 45th day, mean score of flexion was improved from 42.500 to 68.750 and 60th day to 73.000, 30th day to 73.000, 30th day to 77.000 in Group CD respectively. On 15th day mean score of flexion was improved from 52.000 to 73.000, 30th day mean score was improved from 52.000 to 76.000 and 45th to 60th day, mean score was improved from 52.000 to 77.000 in Group AD. The percentage of relief was 42.3%, 61.7% and 77.6% in Group CD and 40%, 46% and 48% in Group AD which was statistically significant at ‘P’ value <0.001.

Comparison between the groups: When the values between the groups were compared, the mean difference score of flexion in Group CD is 0.450 and in Group AD is 0.000. The variation seen in these two groups are statistically significant.

Effect on right lateral flexion:
After treatment: The mean score of right lateral flexion on 7th day was improved from 37.000 to 43.500 and 38.500 to 45.000 in Group CD and Group AD respectively. The percentage of relief was 17.5% and 16.8% which was statistically highly significant at ‘P’ value <0.001.

Follow up: On 15th day, 30th day, 45th day and 60th day mean score of right lateral flexion was improved from 37.000 to 45.000 and 38.500 to 45.000 in Group CD and Group AD respectively. The percentage of relief was 21.6% and 16.8% which was highly significant at ‘P’ value <0.001.

Comparison between the groups: When the values between the groups are compared, the mean difference score of right lateral flexion in Group CD is 43.500 and in Group AD is 45.000. The variation seen in these two groups are statistically significant.

Effect on left lateral flexion:
After treatment: The mean score of left lateral flexion on 7th day was improved from 39.000 to 43.250 and 39.500 to 45.000 in Group CD and Group AD respectively. The percentage of relief was 10.8% and 13.9% which was statistically highly significant at ‘P’ value <0.001.

Follow up: On 15th day, 30th day, 45th day and 60th day mean score of left lateral flexion was improved from
39.000 to 45.000 and 39.500 to 45.000 in Group CD and Group AD respectively. The percentage of relief was 15.3% and 13.9% which was highly significant at 'P' value <0.001.

**Comparison between the groups:** When the values between the groups are compared, the mean difference score of left lateral flexion in Group CD is 43.250 and in Group AD is 45.000. The variation seen in these two groups are statistically significant.

**Effect on right rotation:**

**After treatment:** The mean score of right rotation on 7th day was improved from 71.500 to 82.000 and 79.500 to 89.000 in Group CD and Group AD respectively. The percentage of relief was 14.6% and 11.9% which was statistically highly significant at 'P' value <0.001.

**Follow up:** On 15th day, 30th day, 45th day and 60th day mean score of right rotation was improved from 71.500 to 90.000 and 79.500 to 90.000 in Group CD and Group AD respectively. The percentage of relief was 14.6% and 11.9% which was highly significant at 'P' value <0.001.

**Comparison between the groups:** When the values between the groups are compared, the mean difference score of right rotation in Group CD is 43.250 and in Group AD is 45.000. The variation seen in these two groups are statistically significant.

**Effect on left rotation:**

**After treatment:** The mean score of left rotation on 7th day was improved from 68.500 to 81.500 and 76.500 to 88.000 in Group CD and Group AD respectively. The percentage of relief was 18.9% and 15% which was statistically highly significant at 'P' value <0.001.

**Follow up:** On 15th day, 30th day, 45th day and 60th day mean score of left rotation was improved from 68.500 to 90.000 and 76.500 to 90.000 in Group CD and Group AD respectively. The percentage of relief was 31.3% and 17.6% which was highly significant at 'P' value <0.001.

**Comparison between the groups:** When the values between the groups are compared, the mean difference score of left rotation in Group CD is 81.500 and in Group AD is 88.000. The variation seen in these two groups are statistically significant.

**Discussion on mode of action of drug**

Selected drug for the study ie, Prasarini Taila were prepared by the TailaPaka Vidhi. The ingredients of Prasarini Taila are Prasarini, Chitraka, Pippalimula, Madhuka, Vaca, Satapuspa, Devadaru, Rasna, Jatamansi, Raktacandanda, Bala, Gajapippali, Eranda, Sunthi, Tilataila, Kanjika, Ksheera and Mastu. These drugs possess properties such as Katu, Madhura rasa, Laghu, Snigdhaguna, Ushnavirya and Katuvipaka. Katu rasa improves circulations and clears the channels. Madhura rasa has Brimhana and Tarpana properties which acts on degeneration of bone. Laghu guna has Kaphahara property. Snigdha guna helps to alleviate aggravated Vata. Ushna Virya helps to alleviate Vata and Kapha Dosha. Katuvipaka subsides Kapha.

**Discussion on mode of action of Nasya**

Prasarini Taila administered through nostrils reaches the Shringataka Marma which is supplied to Nasa, Karnaa, Netra and Jihwa. After reaching Shringataka Marma spreads in the Murihu reaches the Netra, Srottra, Kanta, Siramukhas and it removes the morbid dosha present in Urdwajatru and expels out from Uthamanga. The action of drugs reaches greeva pra -desha and reduces the symptoms of Cervical Spondylosis. Importance of the Purva Karma in Nasyakarma is to facilitate for drug absorption through nasal neurons and paranasal sinuses. Taila administered through nose enters into Shiras and morbid doshas draws out as the Ishika is taken out after removing the fibrous coating of Munja adhered to it.

**Effect on drug absorption and transportation**

Keeping the head in lowered position and retention of medicine in nasopharynx helps in providing enough time for local drug absorption. Any lipid soluble substance has greater possibility for passive absorption directly through the cells of lining membrane. Sthanika Abhyanga and Swedana also enhances the drug absorption.

**Neurological pathway of drug action**

The stimulation of olfactory nerves causes stimulation in the cells of hypothalamus and amygdaloidal com-
plex. So, the drugs administered through nasal route, stimulates the higher centers of brain which shows action on regulation of endocrine and nervous system functions.

**Vascular pathway**
Vascular path transportation is possible through the pooling of nasal venous blood to the facial vein, which naturally occurs. Inferior ophthalmic veins also pool into the facial vein. Both facial and ophthalmic veins have no venous valves in between. So, the blood may drain on either side. Such pooling of blood from nasal veins to venous sinuses of the brain, is more likely in the head lowered position due to gravity. Pooling of blood from paranasal sinuses also possible.

**Lymphatic pathway**
Drug transportation by lymphatic path can reach directly into the CSF. When provocation of *dosha* takes place in head due to irritating effect of administered drug resulting in increase of the blood circulation of brain. So accumulated morbid *dosha* are expelled out from small blood vessels and ultimately these morbid *dosha* are thrown out as nasal discharge, tear and salivation.

**Impact of Nasya on neuro vascular modulation**
The medicine given in *Nasyakarma* is getting pooled in cavernous sinus, which in turn reaches the vascular circulation of cervical region. The contents of the medicine are able to reach the CSF due to its lipid form and reaches the spinal cord and acts on the cervical nerves. Thus, the medicine acts in cervical region to cure cervical spondylosis. Hypothalamus, subthalamus and substantia *Nigra* are also influenced by *Nasyakarma*, in turn regulates the movements of the body and nervous system. Thus, motor functions and sensory functions might get better relief. Either the *Veerya of Nasya* or *Nasya dravya* is reaching the brain and acting on important centers controlling different neurological, endocrine and circulatory functions and thus showing systemic effect.

**CONCLUSION**
Cervical spondylosis as a whole cannot be as such compared to any single disease pathology in *Ayurvedic* parlance. But seems to have more resemblance to *Vishvachi*. *Nasya karma* performed with *Prasarini Taila*, helps to pacify the *Vataprapkopa* due to its *Snehana* and *Brimhana* properties and increases functional ability. The study showed significant results on 7th day and even after follow-up study in the signs and symptoms of cervical spondylosis. On comparison between the groups, statistically significant result was observed in majority of criterias, which highlight the efficacy of the *Prasarini Taila NasyaKarma* in Cervical Spondylosis. Clinically, Group AD showed more effective results in all attributes, when compared to Group CD. The alternative hypothesis H1- There is significant effect of alternative days of *Nasyakarma* with *Prasarini Taila* in *Vishvachi* when compared to Consecutive days administration is accepted.

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