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Research Article

A TWO-ARM PARALLEL DOUBLE-BLIND RANDOMISED CONTROLLED TRIAL OF THE EFFICACY OF *DASHMOOLA TAILA NASYA* & *MARMA CHIKITSA* IN *ARDHAVBHEDAKA* (MIGRAINE)

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ABSTRACT

Shirah is considered as *Uttamanga* i.e., supreme, important, and major part of the body. Thus, it is necessary to maintain the health of *Shirah*. Almost all our ancient *Acharyas* have mentioned the *Shirorogas* of which *Sirah-Shoola* (headache) is the leading symptom. *Ardhvbhedaka* is one of the *Shiro-Roga* which can be correlated with migraine. It indicates the pain or headache in half of the head i.e. in the right or left half of the head. Several *Aushadha* have been enumerated by the *Acharyas* for the management of *Ardhvbhedaka*. *Doshika* predominance in *Ardhvbhedaka* disease, *Dashmoola taila* was selected as *Nasya Yoga*. This *Yoga* pacifies *Tri-doshas*, and helps to counteract the symptoms of *Ardhvbhedaka*. A lot of research work has been conducted to evaluate the effect of *Nasya Karma* on migraine. But this research conducted on the treatment of migraine with *Dashmoola taila Nasya* and *Marma Chikitsa*, as adjuvant therapy. Hence, intending to identify and establish, an alternative, safer, effective and long-lasting treatment modality, the study entitled "Evaluation of *Dashmoola Taila Nasya* and *Marma Chikitsa* in *Ardhvbhedaka* (migraine)" was conducted in 40 patients. They were selected based on standard inclusion and exclusion criteria and randomly allocated to two different treatment groups; Group- A (*Dashmoola Taila Nasya* with *Marma Chikitsa*) and Group- B (*Dashmoola Taila Nasya*).

INTRODUCTION

Ayurveda is the science of life. The aim of Ayurveda is to maintain the health of a healthy person and cure the disease of the sufferer. Our ancient sages have described few vital organs and have given emphasis on prime importance to three vital organs, as the existence of the body depends upon the vital organs these are *Hridaya* (cardiac region), *Basti* (urinary bladder region) and *Shirah* (Head). *Shirah* is one of them where life along with

sense faculties resides. *Shirah* is considered as *Uttamanga* i.e., supreme, important and major part of the body^[1]. Thus, it is necessary to maintain the health of *Shirah*. Almost all our ancient *Acharyas* have mentioned the *Shirorogas* of which *Shirah-Shoola* (Headache) is the leading symptom. Even *Sirah-Shoola* has been taken as the synonym of *Shiroroga*. *Ardhvbhedaka* is one of the *Shiro-Roga* which can be correlated with migraine. The literal meaning of *Ardhvbhedaka* is severe pain in one half. *Sushruta* made it clear by using the word "*Ardhvbhedaka*" which means pain in one half of the head. As these words are used in the context of *Shiro-Roga*, it indicates the pain or headache in half of the head i.e., in the right or left half of the head^[2]. *Chakrapani* further clarifies by using *Ardhvbhedaka* means *Ardha Mastaka Vedana*^[3].

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Headaches are universal experiences, with a 1 year period prevalence of 90% and a lifetime prevalence of 99% worldwide, an estimated 600 million persons suffer from migraine yearly. It is generally categorized as a primary and secondary headache. A headache is considered primary if is not due to a disease or other medical condition. Primary headache account for more than 90% of all headaches complaints, and of these episodic tension-type headache is the most common^[4]. Migraine affects an estimated 12% of the population. Global estimates are higher. Chronic migraine (CM) affects 1% to 2% of the global population. Approximately 2.5% of persons with episodic migraine progress to chronic migraines. It is the second most disabling condition worldwide. Migraine is associated with cardiovascular disease, psychiatric disease, and sleep disorders. Chronic migraine is associated with higher headache-related disability impact, medical and psychiatric comorbidities, health care resource use, direct and indirect costs, lower socioeconomic status, and health-related quality of life^[5]. It is among the sixth rank among disability-causing diseases by the World Health Organization (WHO)^[6], 15-20% of women and 10-15% of men suffer from migraine. In India, 15-20% of people suffer from migraine, and in Adults the female: male ratio is 2:1^[7]. Migraine is characterized by recurrent attacks of headache widely variable in intensity, frequency, and duration. Attacks are commonly unilateral and are usually associated with anorexia, nausea and vomiting. The treatment compromise of non-pharmacological treatment such as identification of triggers, Meditation, relaxation training, psychotherapy, etc and pharmacotherapy as abortive and preventive therapy. NSAIDS etc are nonspecific abortive therapy, whereas Ergot, 5HT receptor agonists, and Triptans are specific abortive therapy, Similarly, beta-blockers, calcium channel blockers, anti-depressants, anti-convulsants, etc are preventive therapy.^[8]

Many medications have been tried and a lot are still in continuation research work also, but these drugs are having their drawbacks. Also, they cause drug dependence and drug withdrawal syndrome. The relapse of headaches within hours and chances of getting chronic headaches. In Ayurveda, a variety of systemic medicines, as well as local therapies, are available for the management of *Ardhavabhedaka*, like *Nasya*, *Shiro-Lepa*, *Shiro-Virechana*, *Kaya-Virechana*, and *Shiro-Basti* etc. In all of themselves, *Nasya* is a complete treatment for *Shirogata Vyadhi*.

Ayurveda is not only a medical science but a way of life, it truly is one of the noblest ways of treatment, like *Panchkarma*, *Marma Chikitsa* parasurgical and surgical procedure. *Marma* is

discussed in *Sushruta Samhita* chapter 6, these vital points (*Marmas*) are the source of vital energy. According to *Sushruta*, there are 107 *Marmas Bindu* (vital point) in the human body^[9]. *Marma* points induces the flow of vital energy (*Prana*) along a complex system of subtle channels called *Nadis*. As per the National Health Portal Government of India, Migraine is one of the diseases which are curable and manageable by *Marma Chikitsa*^[10].

A migraine is an episodic extremely painful headache disorder. This can be treated by non-pharmacological methods in the Ayurvedic approach by *Marma Chikitsa*. *Marma Chikitsa* contributes to increasing or recharging physical, mental, and spiritual energies^[11]. "The stimulation of these inner pathways or neuroendocrine signals the body to produce exactly what it needs that heal the body, and mind consciousness", says Dr. Vasant Lad^[12]. In relation to the *Ardhavbhedaka* some studies have been carried out on the effect of the acupoint on the basis of which is also a vital energy channelization to prove their beneficial effect in it. Taking into account all these references, certain *Marma* points are selected for the present study.

On the basis of *Doshika* predominance in *Ardhavbhedaka* disease, *Dashmoola Taila* was selected as *Nasya Yoga*. This formulation is described in *Bhesajya Ratnavali*^[13] which is used to pacify *Tri-doshas*, and helps to counteract the symptoms of *Ardhavbhedaka*. Keeping in mind the agony of the patient suffering from the disease *Ardhavbhedaka* (migraine), the present study has been planned to find out the efficacy of *Dashmoola Taila* as *Nasya*, and *Marma Chikitsa* for the treatment of *Ardhavabhedaka*, which is entitled as: "Evaluation of *Dashmoola Taila Nasya* and *Marma Chikitsa* in *Ardhavabhedaka* w.s.r. to Migraine." with the following "Aim and Objectives":

AIMS AND OBJECTIVES

Whether the efficacy of *Dashmool Taila Nasya* in *Ardhavbhedaka* (migraine) is better or the synergistic effect of *Nasya* of *Dashmool Taila* and *Marma Chikitsa* in *Ardhavbhedaka* (migraine).

MATERIALS AND METHODS

Selection of the Patients

Patients having signs and symptoms of *Ardhavbhedaka* (migraine) were selected from OPD/IPD of PG department Shalakyia Tantra, Rishikul Campus, Uttarakhand Ayurved University, Haridwar, India. The study was conducted on a total of 40 patients randomly divided into 2 groups of 20 patients in each group, on the basis of inclusion and exclusion criteria depending on the detailed clinical history, signs and symptoms, physical examination,

and other necessary investigations irrespective of their caste, creed and gender.

Inclusion Criteria

- (i) Age: 18-60 years
- (ii) Patients with classical pictures of *Ardhavbhedaka*, migraine were selected irrespective of sex, religion, and profession.

Exclusion Criteria

- (i) Age group <18 years and >60 years.
- (ii) The patient has any systemic illness, like diabetes mellitus, hypertension, tuberculosis, etc.
- (iii) Patients suffering from sinusitis, cluster headaches, tension headaches and ophthalmoplegic headaches.
- (iv) Patients contraindicated for *Nasya Karma*
- (v) Secondary headache caused by meningitis, and cervical spondylosis.

- (vi) Pregnant and lactating mothers.
- (vii) Individuals suffering from immune-compromised disease or on immunosuppressive drugs.
- (viii) Patients with alcohol, opioids other drug addictions.

Diagnostic Criteria: Adapted from Headache Classification Committee of the International Headache Society, 2013)^[1]

- (i) Repeated attacks of headache lasting 4-72 hour in patients with a normal physical examination, no other reasonable cause for the headache, and

At least 2 of the following features: (i) Unilateral pain, (ii) Throbbing pain, (iii) Aggravation by movement, & (iv) Moderate or severe intensity.

At least 1 of the following features:

- (i) Nausea/Vomiting, (ii) Photophobia / phonophobia

Table 1: Study Methodology

| Group | Group A | Group B |
|-----------------|---|--|
| No. of Patients | 20 | 20 |
| Treatment | <i>Dashmoola Taila Nasya</i> with <i>Marma Chikitsa</i> | <i>Dashmoola Taila Nasya</i> |
| Dose | <i>Marsha Nasya Matra</i> 5-5 drops in each nostril with <i>Marma Chikitsa</i> | 5-5 drops in each nostril |
| Duration | 3 sittings of 9 days therapy with 5 days gap b/w each sitting, with <i>Marma Chikitsa</i> , twice a day on alternate days for 42 days | 3 sitting of 9 days therapy with 5 days gap b/w each sitting for 42 days |

Group A: In 20 patients, *Nasya Karma* with *Dashmoola Taila* with *Marma Chikitsa* was done.

Purva Karma (Pre-treatment procedure): Before starting *Nasya*, *Deepana-Pachana* with *Hingwashtak Churna*- 3 gms twice a day after meals and *Koshtha-Shudhhi* with *Triphala Churna* 3gm at bed time was done according to *Koshtha*.

(i) **Mridu Abhyanga** was done on the scalp, forehead, face and neck for 10-15 minutes with medicated oil or ghee.

(ii) **Mridu Swedana** was given for liquefaction of *Dosha*, *Tapa Swedana* or cloth dipped in hot water may be useful for *Mridu Swedana*.

Pradhana Karma (Main procedure): Nasya Karma

- (i) *Nasya* with *Dashmoola taila (Marsha Nasya)*.
- (ii) 3 sitting, 9 days of therapy with 5 days gap (42 days)
- (iii) **Dose:** *Marsha Nasya Matra* 10 drops (5-5 in each nostril)
- (iv) **Marma Chikitsa:** Twice a day on alternate days, with the total duration of 42 days.

(v) **Marma Points:** *Apanga*, *Sthapani*, *Adhipati*, *Vidhura*, *Krikatika*, *Amsa*, *Kshipra* (feet).

Paschata Karma (Post treatment procedure): Medicated *Dhuma* and *Gandusha* are advocated to expel the remnant *Kapha* lodged in *Kantha* and *Shringataka*.

Technique of Marma Chikitsa: The patient was made to sit in a relaxed position and said to exhale while pressing the *Marma* points and inhale while the pressure was released in a rhythmic manner. Selected points were pressed with the pulp of the finger or thumb creating adequate pressure 20 times twice a day.

Group B: In 20 patients, *Dashmoola Taila Nasya - Nasya Karma* procedure as in group A was done.

Period of treatment: 18 months.

Follow-up period: A follow-up study was conducted for 2 months (1-month interval) after completion of treatment.

Type of Study: Present study was an open randomized, double arm clinical trial.

Methods of Data Collection: Pre-treatment and clinical observational data were collected from

registered patients. The assessment of duration and pattern of pain was done before the initiation of the trial, at regular intervals during the trial, and after the completion of the trial. Follow-up for both groups was done after the completion of the study for one month to assess the effect of treatment and the recurrence of disease symptoms.

Assessment of Result: The effect of the treatment was compared before and after the treatment on the basis of self-formulated scoring scales based on subjective parameters associated with the disease.

Subjective Parameters: (i) The severity of pain (ii) Vertigo (iii) Duration of pain (iv) Phonophobia (v) Frequency of Attack (vi) Photophobia Score (vii) Nausea (viii) Midas Score (ix) Vomiting.

Overall assessment: (i) Complete remission: 100% relief, (ii) Marked improvement: 76-99%, (iii) Moderate improvement: 51-75%, (iv) Mild improvement: 26-50%, (v) No improvement: up to 25%.

OBSERVATIONS AND RESULTS

Table 2: Status of the Registered Patients

| Group | Registered | Completed | Total |
|---------|------------|-----------|-------|
| Group A | 20 | 20 | 40 |
| Group B | 20 | 20 | 40 |

Table 3: Distribution of study sample by demographical data

| Variables | Highest percentage |
|---------------------------------------|--|
| Age | The maximum no. of patients belongs to the age group of 21-30 years i.e., 42% respectively |
| Gender | The maximum no. of patients were Females i.e., 71% |
| Occupation | The maximum no. of patients i.e., 55% were housewives |
| Marital Status | The maximum no. of patients i.e., 80% were married |
| Habitat | The maximum no. of patients i.e., 70% belonged to the urban family |
| Economic status | The maximum no. of patients i.e., 42% belonged to the middle class |
| Education | The maximum no. of patients i.e., 45% up to Graduate level |
| Site of / Location Headache | The maximum no. of patients 67% were having unilateral and 30% were having the temporal type of headache |
| Quality of pain | The maximum no. of patients 57.5% were having throbbing type of pain |
| Duration of headache/ Chronicity | The maximum numbers of patients were having Chronicity of headache for more than 5 years, and suffered from headaches 4-12 hours a day |
| Shareerik Prakriti & Mansika Prakriti | The maximum number of patients 47.5% were having Vata-Kaphaja Prakriti, and Rajas Manasika Prakriti 55% |
| Bowel Habit | The maximum no. of patients i.e., 45% were having irregular bowel habits |
| Agni | The maximum no. of patients i.e., 40% were having Vishmagni |
| Sleeping habit | The maximum no. of patients i.e., 55% were having disturbed sleep |
| Chief complaints | The maximum no. of patients i.e., 100% complained of Sirahshoola followed by nausea and vomiting |
| Associated Complaints | The maximum no. of patients i.e., 70% complained of photophobia followed by phonophobia |

Table 4: Effect of therapy on subjective parameters of Group A

| Symptoms | N value | Median | | Mean | | SD | | Wilcoxon signed Rank W | P - value | % Effect | Result |
|---------------------|---------|--------|-----|------|------|------|------|------------------------|-----------|----------|--------|
| | | BT | AT | BT | AT | BT | AT | | | | |
| Severity of Pain | 20 | 3 | 0.5 | 2.4 | 0.6 | 1.18 | 0.68 | - 190 | <0.001 | 72.91 | HS |
| Duration of Pain | 20 | 2 | 0.5 | 1.7 | 0.5 | 0.65 | 0.51 | - 171 | <0.001 | 70.58 | HS |
| Frequency of attack | 20 | 2 | 0.5 | 2.1 | 0.55 | 0.91 | 0.60 | - 153 | <0.001 | 73.80 | HS |
| Vomiting | 14 | 1 | 0 | 1 | 0.2 | 0.85 | 0.41 | - 91 | <0.001 | 70 | HS |
| Nausea | 15 | 1 | 0 | 0.85 | 0.2 | 0.58 | 0.41 | - 91 | <0.001 | 76.47 | HS |
| Vertigo | 5 | 0 | 0 | 0.4 | 0.1 | 0.59 | 0.30 | - 21 | = 0.031 | 75 | S |
| Phonophobia | 10 | 0 | 0 | 0.5 | 0.15 | 0.60 | 0.36 | - 28 | =0.016 | 70 | S |
| Photophobia Score | 14 | 7 | 2 | 7.45 | 3.95 | 6.58 | 5.78 | - 91 | <0.001 | 46.97 | HS |
| Midas score | 20 | 2 | 1 | 2.3 | 0.9 | 1 | 0.7 | -153 | <0.001 | 60 | HS |

Table 5: Effect of therapy on subjective parameters of Group B

| Symptoms | N value | Median | | Mean | | SD | | Wilcoxon signed Rank W | P - value | % Effect | Result |
|---------------------|---------|--------|-----|------|------|------|------|------------------------|-----------|----------|--------|
| | | BT | AT | BT | AT | BT | AT | | | | |
| Severity of Pain | 20 | 2 | 1 | 2.1 | 0.55 | 0.78 | 0.51 | - 153 | <0.001 | 59.52% | HS |
| Duration of Pain | 20 | 2 | 1 | 1.85 | 0.6 | 0.81 | 0.59 | - 78 | <0.001 | 51.35% | HS |
| Frequency of attack | 20 | 2 | 1 | 1.95 | 0.45 | 1.05 | 0.51 | - 105 | <0.001 | 61.53% | HS. |
| Vomiting | 9 | 0 | 0 | 1.05 | 0.2 | 1.57 | 0.41 | - 36 | =0.008 | 57.14% | S |
| Nausea | 13 | 1 | 0.5 | 1 | 0.4 | 0.91 | 0.50 | - 45 | =0.004 | 45% | S |
| Vertigo | 6 | 0 | 0 | 0.6 | 0.15 | 1.14 | 0.36 | - 15 | = 0.063 | 50% | NS |
| Phonophobia | 3 | 0 | 0 | 0.15 | 0.05 | 0.36 | 0.22 | - 1.00 | =1.00 | 33.33% | NS |
| Photophobia Score | 14 | 6.5 | 4.5 | 6.55 | 5.1 | 5.64 | 5.07 | - 66 | <0.001 | 22.13% | HS |
| Midas score | 20 | 2 | 1 | 2.1 | 1.1 | 0.7 | 1.1 | - 120 | <0.001 | 48.78% | HS |

Table 6: Comparison of Effect of Therapy between Group A and Group B

| Variable | Group | N | Mean Rank | Sum of Ranks | Mann-Whitney U | P-Value | Result |
|---------------------|---------|----|-----------|--------------|----------------|---------|-------------|
| Severity of Pain | Group A | 20 | 23.60 | 472.00 | 138.000 | 0.007 | Significant |
| | Group B | 20 | 17.40 | 348.00 | | | |
| | Total | 40 | | | | | |
| Duration of Pain | Group A | 20 | 22.03 | 440.50 | 169.500 | 0.038 | Significant |
| | Group B | 20 | 18.98 | 379.50 | | | |
| | Total | 40 | | | | | |
| Frequency of Attack | Group A | 20 | 22.60 | 452.00 | 158.000 | 0.023 | Significant |
| | Group B | 20 | 18.40 | 368.00 | | | |
| | Total | 40 | | | | | |
| Vomiting | Group A | 14 | 22.50 | 450.00 | 160.000 | 0.023 | Significant |
| | Group B | 9 | 18.50 | 370.00 | | | |
| | Total | 23 | | | | | |
| Nausea | Group A | 15 | 22.50 | 450.00 | 160.000 | 0.021 | Significant |
| | Group B | 13 | 18.50 | 370.00 | | | |
| | Total | 28 | | | | | |
| Vertigo | Group A | 5 | 20.85 | 417.00 | 193.000 | 0.081 | NS |
| | Group B | 6 | 20.15 | 403.00 | | | |

| | | | | | | | |
|-------------------|---------|----|-------|--------|---------|-------|-------------|
| | Total | 11 | | | | | |
| Phonophobia | Group A | 10 | 23.50 | 470.00 | 140.000 | 0.002 | Significant |
| | Group B | 3 | 17.50 | 350.00 | | | |
| | Total | 13 | | | | | |
| MIDAS Score | Group A | 20 | 22.88 | 457.50 | 152.500 | 0.017 | Significant |
| | Group B | 20 | 18.13 | 362.50 | | | |
| | Total | 40 | | | | | |
| Photophobia Score | Group A | 14 | 22.98 | 459.50 | 150.000 | 0.013 | Significant |
| | Group B | 14 | 18.03 | 360.50 | | | |
| | Total | 28 | | | | | |

Table 7: Assessment of overall response to treatment

| Overall Effect | Group A (20) | | Group B (20) | |
|----------------------|--------------|------------|--------------|------------|
| | Frequency | Percentage | Frequency | Percentage |
| Marked Improvement | 8 | 40% | 1 | 5% |
| Moderate Improvement | 4 | 20% | 5 | 25% |
| Mild Improvement | 8 | 40% | 11 | 55% |
| No Improvement | 0 | 0% | 3 | 15% |

DISCUSSION

Probable mode of action of Dashmoola Taila^[14] Ushna Virya (89%), Katu Rasa (19%), and Tikta Rasa (39%) have Deepana – Pachana Karma, which causes Amapachana and thus provides proper metabolism and ultimately balances the Agni. Kashaya Rasa (19%) and Ruksha Guna (32%) support the function of these Rasas (Katu -Tikta) due to Shoshana Karma i.e., it helps better absorption at the cellular level by enhancing the function of digestion and metabolism. Ushna Virya (89%) has Deepana–Pachana, Virechana, and Vilayana property, which softens and liquefies the morbid Doshas which are ultimately expelled due to Virechaka Karma. Snigdha Guna (12%), Madhura Vipaka (25%), and Madhura Rasa (23%) have the property Srushtavinamutra, which enhances the process of softening and liquefaction. Snigdha Guna (12%) has Kledana Karma which acts as a binding agent. Laghu Guna (36%) and Tikshna Guna (8%) have Sroto-Shodhaka properties, which help in expelling the morbid Doshas. These Guna also have the property of Urdhavabhaga-doshaharatva, which breaks the Samprapti at Prasaravastha, where Vata alone or Kapha along with Vata causes Urdhavaga Pravriti of vitiated Doshas. Guru Guna (12%) is Balya and Truptikara. It strengthens the efficacy of Dhatu by providing proper nourishment. It prevents/restricts or counteracts the excess Shodhana Karma. Due to Sara Guna and Sukshma Guna the Nasya Dravya can reach each and every Dhatus.

Action at Doshic level: The Ushna Virya (89%), Madhura Vipaka (25%), Snigdha Guna (12%), Gur Guna (12%) and Madhura Rasa (23%) present in

Dashamoola Taila pacify the Vata dosha. Tikta Rasa (39%), Kashaya Rasa (19%), Madhura Rasa (23%) and Ruksha Guna (32%), Madhura Vipaka (25%) and Sheeta Virya (11%) pacify the Pitta Dosha. Laghu Guna (36%), Ruksha Guna (32%), Tikshna Guna (8%), Katu Rasa (19%), Tikta Rasa (39%), Kashaya Rasa (19%), Katu Vipaka (75%) and Ushna Virya (89%) pacify the Kapha Dosha.

Pharmacological action of Dashmoola Taila

Pharmacological and Clinical Studies on Dashamoola: The extract of Dashamoola Kwatha shows aspirin-like analgesic effect. It was further supported by the significant antipyretic effect and mild anti-inflammatory effect in rats against carrageenan-induced oedema^[15]. Gupta *et al* reported its temperature-lowering tranquilizing sedative effects. Improvement in nerve conduction velocity was observed in the patients with nutritional neuropathy and primary neurological disorders.^[16]

Probable mode of action of Marmachikitsa: The mode of action of Marma therapy can be explained in term of modern medical science in the following ways:

The biochemical mechanism of the stimulation by applying pressure on these vital energy points leads to complex neuro hormonal responses.^[17]

Neuro-Endocrine Theory: On pressing these Marma points maybe there is stimulation of the hypothalamic-pituitary-adrenocortical axis that leads to the production of an anti-stress hormone that is cortisol causing a relaxation response and calmness.^[18] It can be assumed due to pressure over

Marma points leads to increased production of Endorphins, enkephalin, and dynorphin which pass nerve. The impulses to the brain bring about the desired effect. Endorphin is a protein molecule with very powerful pain inhibition capability and also anti-inflammatory activity.^[19] As energy point mediates nitric oxide signals known to improve blood circulation via cyclic guanosine monophosphate (cGMP)^[20] and enhance physical activity by suppressing the fatigue, giddiness, and Vertigo (*Bhrama*) induced molecules in blood^[21]. In the same way *Marma* points also acts. Energy point Stimulation is an effective treatment for fear because it terminates the Sympathetic Nervous system (SNS) alarm, or FFF response, and replaces it with the Parasympathetic Nervous System (PNS) relaxation response^[22]. So as a whole, we can say that pressure on *Marma* points may cause relaxation and calmness, reduce the transmission of pain signals, inhibit the inflammatory response, and shut off the fight-flight response.

An Ayurvedic perspective, the Probable mode of action of Marma Chikitsa can be explained as:

Marma Stimulation directly acts to remove the blockage at channels or *Sira* which carry *Rasa* and *Rakta*. As per the Ayurvedic principle *Srotosanga* (blockage/obstruction) is the cause of *Ardhavbhedaka*, and it can be treated with *Marma* therapy. Pain occurs due to obstruction of *Gati* of *Vata dosha* and *Marma* stimulation relieves obstruction, which leads to *Anulomana* of *Vata Dosha*. The blockage of the nourishing channels is removed by stimulating the *Marma*. It also helps to control the *Vata dosha* which is responsible for the proper harmony of the other two *Doshas* of the body, so it causes alleviation of *Tridosha* with the predominance of *Vata* also. Hippocrates had once stated that "Natural forces within us are the true healers of a disease"^[23].

According to *Acharyas* "*Vatadritenaastiruja*" means every pain occurs with the involvement of *Vata*. *Marma* points are the seat of *Prana*/source of energy. *Prana* in turn is connected with *Vata Dosha*. By pressing these vital points, it channelize *Vata* especially *Vyan-Vata* which is concerned with autonomic activity^[24] and results in suppression of the symptoms like pain (*Vedana*, *Bheda*, *Toda*). According to *Sushruta Samhita* cause of pain is *Vata* and seat of pain is *Mana* (psyche) and *Sharir* (body). *Marma* points serve as channels or windows connecting the physical body to the inner conscious and mind^[25]. By stimulation of *Marma*, positive changes can be generated. It enriches the aura or

energy field of the body and keeps the person energetic and healthy.

Manovaha Shrotas are the pathway called channels of consciousness and that flow by the mind (*Manasa*), *Manasa* includes the brain, *Indriya* (sense organs)^[26], *Twak* (skin) *Indriya* is directly related to *Manasa* (mind), which is mentioned in *Charaka Samhita Sharira Sthana*. He mentioned that vitiated *Doshas* get lodged in the sensory receptor of skin and contaminate the seats of sense organs and also the channels carrying the mind. By stimulation of *Marma*, positive changes can be generated, and regulate the nervous system and relieving symptoms like depression, vertigo (*Bhrama*, stress, Giddiness, and other psychiatric disorders).

स्पर्शनेन्द्रियसंस्पर्शः स्पर्शो मानस एव च सुखदुःखं द्विविधः ।
॥ च प्रवर्तकः वेदानाम्^[27]

CONCLUSION

Overall clinical study showed much better results in Group A than in Group B. So statistically *Dashmoola Taila Nasya* along with *Marma Chikitsa* yield better results than only *Nasya Karma*. It can be concluded that the research trial drugs on *Dashmoola Taila Yoga* and *Marma Yoga* have the potential to treat *Ardhavabhedaka*. No, untoward effects of the study drug and *Marma* modalities were observed during the study. An elaborate multi-centric study with a larger sample size is needed to authenticate the results.

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