A Randomised Controlled Clinical study to evaluate the efficacy of Dashmooladi kwath Kavala and Toothpaste having a desensitizing agent in Dentine Hypersensitivity.

ABSTRACT

Background: Dantaharsha, an Ayurvedic DantagataRoga, closely correlates with dentinal hypersensitivity, characterized by sharp pain due to exposed dentin. Ayurvedic therapies like Kavala Karma offer a simple and economical alternative to modern desensitizing agents.

Aim: To evaluate and compare the efficacy of DashmooladiKwath Kavala and Toothpaste having Desensitizing agent in the management of dentinal hypersensitivity.**Materials and Methods:** A randomized controlled clinical study was conducted on 70 patients with Dantaharsha, divided into Group A (DashmooladiKwath Kavala) and Group B (Toothpaste having Desensitizing agent). Both treatments were administered twice daily for 10 days. Clinical assessment was done using pain and hypersensitivity parameters, and results were statistically analyzed.**Results:** Both groups showed significant improvement ($p < 0.05$). Group A showed superior improvement in cold and sour hypersensitivity and Gutta-percha test, while Group B showed better relief in pain and hot hypersensitivity. Overall, Group A demonstrated moderately better outcomes.**Conclusion:**

DashmooladiKwath Kavala is a safe, effective, and cost-effective therapy for managing dentinal hypersensitivity and showed better overall efficacy compared to Toothpaste having Desensitizing agent .

Keywords: Dantaharsha, Dentinal Hypersensitivity, DashmooladiKwath, Kavala Karma

INTRODUCTION

Shalakya Tantra, one of the eight major branches of Ayurveda, deals with diseases of the organs above the clavicle, including the head, eyes, ears, nose, throat, and oral cavity. Oral health is an essential component of overall well-being, and Ayurveda emphasizes its maintenance through daily regimens such as *Dantadhavana* (tooth cleaning) and *Gandusha/Kavala* (gargling).

Dantaharsha, described in classical texts, closely resembles dentine hypersensitivity, a condition characterized by sharp pain in response to thermal, tactile, or chemical stimuli due to exposed dentine[1].One Between 4 and 74% of people have dentine hypersensitivity, with 25% of cases occurring in India.[2,3] Although modern dentistry offers various treatments for this condition, they are often costly and inconvenient. Ayurvedic therapies, being simple, affordable, and based on readily available herbal formulations, offer a promising alternative. Chakradattain ChikitsasthanaDantaharshatodavyadhichikitsa explains DashmooladiKwath Kavala dharana.[4] Therefore, the present study aims to evaluate the efficacy of *DashmooladiKwath Kavala* in the management of dentine hypersensitivity and compare it with a standard desensitizing toothpaste.

AIMS AND OBJECTIVE:

To evaluate the efficacy of DashmooladiKwath Kavala and Toothpaste Having desensitizing agent for 10 days in Dentine Hypersensitivity.

MATERIALS AND METHODS

Source of Data: 70 patients diagnosed with Dantaharsha were selected from OPD and IPD of PDEAS College Of AyurvedAnd Research Centre nigadi, pune, Maharashtra, India

Diagnostic Criteria

Inclusion criteria

1. Incapability of teeth to tolerate breeze.
2. Intolerance to hot, cold, sore food substances.
3. Patients in the age group of 20 to 60 years irrespective of sex, religion and socio-economic status
4. Patients having Dentine Hypersensitivity due to exposure of dentine as a result of loss of enamel will be included in the present study.

Exclusion criteria

1. Traumatic conditions of the oral cavity.
2. Known case of Gingivitis, Gingival recession, tooth mobility and patient requiring surgical modalities such as root canal, pulpectomy.

Withdrawal of subject

1. If any serious condition or any serious complication occurs, which require urgent treatment.

2. If patient himself want to withdraw from study.
3. Aggravation of disease symptoms.
4. Patients who will not follow prescribed medicines properly.

RESEARCH DESIGN

It is controlled clinical study where the random selected 70 patients were systematically allotted into Group A and Group B with 35 patients each respectively. The subjective parameters of was analyzed statistically.

Group A- DashmooladiKwath Kawal

Group B- Toothpaste having Desensitizing agent

The study was carried out as per ICMR National Ethical Guidelines for Biomedical and Health Research Involving Human Participants.

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DRUGS

Ingredients of DashmooladiKwath(Group A)

SN	Name	Latin name	Family	Rasa	Virya	Vipak	Prayojyanga
1	Bilva[5]	*Aegle Marmelos*	Rutaceae	Kashay, Tikta	Ushna	Katu	Root, Leave, Fruits
2	Agnimanth[6]	*Premna Mucronata*	Verbenaceae	Tikta, Katu, Kashay	Ushna	Katu	Root, Leaves
3	Shyonaka[7]	*Oroxylum Indicum*	Bignoniaceae	Madhur, Tikta, Kashay	Ushna	Katu	Root
4	Patol[8]	*Stereospermum suaveolens*	Bignoniaceae	Tikta, Kashay	Ushna	Katu	Root, Seeds, Flowers, Kshar

5	Gambhari[9]	*Gmelina arborea*	Verbenaceae	Tikta, Kashay, Madhur	Ushna	Katu	Root, Fruits
6	Shalparni[10]	*Desmodiumg angeticum,*	Leguminosae	Madhur, Tikta	Ushna	Madhur	Root
7	Prishniparni[11]	*Uraria picta*	Leguminosae	Madhur, Tikta	Ushna	Madhur	Root
8	Brihati[12]	*Solanum Indicum*	Solanaceae	Katu, Tikta	Ushna	Katu	Root, Fruits
9	Kantakari[13]	*Solanum Surattense*	Solanaceae	Tikta, Katu	Ushna	Katu	Root, Whole plant
10	Gokshur[14]	*Tribulus Terrestris*	Zygophyllaceae	Madhur	Sheet	Madhur	Fruit

Ingredients of SesodyneToothpaste(Group B)

Pentasodium Triphosphate, Glycerin, PEG-8, Hydrated Silica, Aroma, Carbomer, Cocamidopropyl Betaine, Sodium Saccharin, And Limonene.

Method of preparation of DashmooladiKwath

द्रव्यस्य षोडशगुणे जले पादेन परिशेषयेत् ।

ततः पादशेषं क्वाथं परमं श्रेष्ठमुच्यते ॥शाङ्र्गधरसंहिता मध्यमखण्ड २/१–४

DashmooladiKwath- (For 100 ml)

- Kwathadravya - DashmooldiBharad 1 Part (50gm)
- Water–16 Parts (800 ml)

Preparation Method:

- Clean and shade-dry all Dashmoola, crush them to obtain coarse powder. (50 gm)

- Mix the powders thoroughly and add 16 times of potable water. (800ml)
- Boil on mild flame, stirring intermittently. Continue until reduced to one-eighth of initial volume. (100 ml)
- Filter through clean muslin cloth while still warm to obtain clear brownish decoction.
- Collect filtrate in a sterilized glass container. (100ml)
- Fresh kwath was used daily for Kavala.

Fig No. 1- Preparation of kwath

Procedure of Kavala[15,16]

Purva Karma (Preparation):

The patient was seated comfortably in the morning after routine oral hygiene. Freshly prepared, lukewarm *DashmooladiKwath* was taken in a quantity of approximately half of the oral cavity.

Pradhana Karma (Procedure):

The medicated liquid was held and gently swished in the mouth without swallowing until mild facial fatigue or lacrimation occurred, then expelled. This was repeated 2–3 times, lasting about 2–5 minutes per session.

Paschat Karma (Post-procedure): The mouth was rinsed with lukewarm water. Patients were advised light, warm भोजनand to avoid cold, sour, and spicy foods for a few hours.

Treatment Plan

Group A- 35 Patients were administered with Dashamooladikwathkawala

Group B- 35 Patients were administered with Toothpaste having Desensitizing agent

Therapy	Group A	Group B
Number of patients	35	35
Kala	Twice Daily	Twice Daily
Route of administration	Oral	Oral
Drug for therapy	DashmooladiKwath	Toothpaste having Desensitizing agent
Duration	10 days	10 days
Follow up	5th, 10th Day	5th, 10th Day

Fig No. 2- Examination of Patient

Assessment Criteria

Following parameters has been taken for assessment for this clinical study.

Assessment Parameters

Subjective:

Sr. No.	Sign & symptoms	Criteria	grade
1.	Pain	No pain	0
		Mild pain	1
		Moderate pain	2
		Severe pain	3
2.	Cold hypersensitivity	No discomfort	0

		Mild sensation	1
		Moderate sensation	2
		Severe sensation	3
3.	Hot hypersensitivity	No discomfort	0
		Mild sensation	1
		Moderate sensation	2
		Severe sensation	3
4.	Sour hypersensitivity	No discomfort	0
		Mild sensation	1
		Moderate sensation	2
		Severe sensation	3
5	Tactile test[17]	No pain	0
		Mild pain	1
		Moderate pain	2
		Severe pain felt during tapping dental explorer and persists after removal	3
6	Cold air blast test[18]	No discomfort to air stimulation	0
		Some discomfort but no severe pain	1
		Moderate pain Discomfort and Severe pain	2
		Severe pain felt during application of stimulus and persists after the stimulus	3
7	Gutta Percha test[19]	No pain	0
		Mild pain	1
		Moderate pain	2
		Severe pain felt during application of stick and persists after removal of stick	3

Overall Assessment of the Therapy

Sr. No.	**Relief of symptoms**	**Score**

1	Good Improvement	75-100 % Relief
2	Moderate Improvement	51-75 % Relief
3	Mild Improvement	25-50 % Relief
4	No Improvement	Less than 25% Relief

OBSERVATIONS

Demographic Data

1. **Age:** Most patients belonged to the 20–30 (50%) years age group, followed by 31–40 years (22.86%), 51–60 years (15.71%), and 41–50 years (11.43%).
2. **Gender:** Females predominated in both Group A (64.29%) and Group B. (60.00%
3. **Occupation:**

   Group A: Majority were students (42.86%), followed by employed individuals (31.43%) and housewives (25.71%).

   Group B: Majority were employed (48.57%), followed by housewives (31.43%) and students (20.00%).
4. **Agni:**Most patients in both groups exhibited Manda Agni (42.86%), followed by Tikshna Agni (28.57%) and Vishama Agni (28.57%).
5. **Koshtha:**Predominantly KruraKoshtha (37.14%) and Madhyama Koshtha (32.86%) were observed, followed by Mrudu Koshtha (30.00%).
6. **Prakruti:**Majority of patients had Vata-dominant Prakruti, mainly Vata–Pitta (42.86%) and Vata–Kapha (28.57%).
7. **Oral Hygiene:**Most patients had good (41.43%) to fair (27.14%) oral hygiene, while a considerable number showed poor hygiene (31.43%).
8. **Brushing Method:**Horizontal brushing was the most commonly practiced method (42.86%), followed by vertical (28.57%) and circular (28.57%) methods.
9. **Type of Toothbrush:**Use of hard brushes (41.43%) and medium brushes (27.14%) was more common than soft brushes (31.43%).

Statistical Analysis

Statistical Analysis of Group A

Parameters	Mean Value	SD	SE	% Effect	P value

	BT	AT	BT	AT	BT	AT		
Pain	1.88	0.4	0.75	0.55	0.128	0.094	77.27	<0.05
Cold hypersensitivity	1.88	0.22	0.9	0.42	0.15	0.07	87.88	<0.05
Hot hypersensitivity	1.48	0.42	1.01	0.60	0.17	0.102	71.15	<0.05
Sour hypersensitivity	1.91	0.68	0.718	0.18	0.18	0.12	64.18	<0.05
Tactile test	1.914	0.71	0.81	0.45	0.13	0.07	62.69	<0.05
Cold air blast test	1.37	0.34	0.91	0.59	0.15	0.09	75	<0.05
Gutta Percha test	1.97	0.828	0.82	0.38	0.13	0.064	57.97	<0.05

Statistical Analysis of Group B

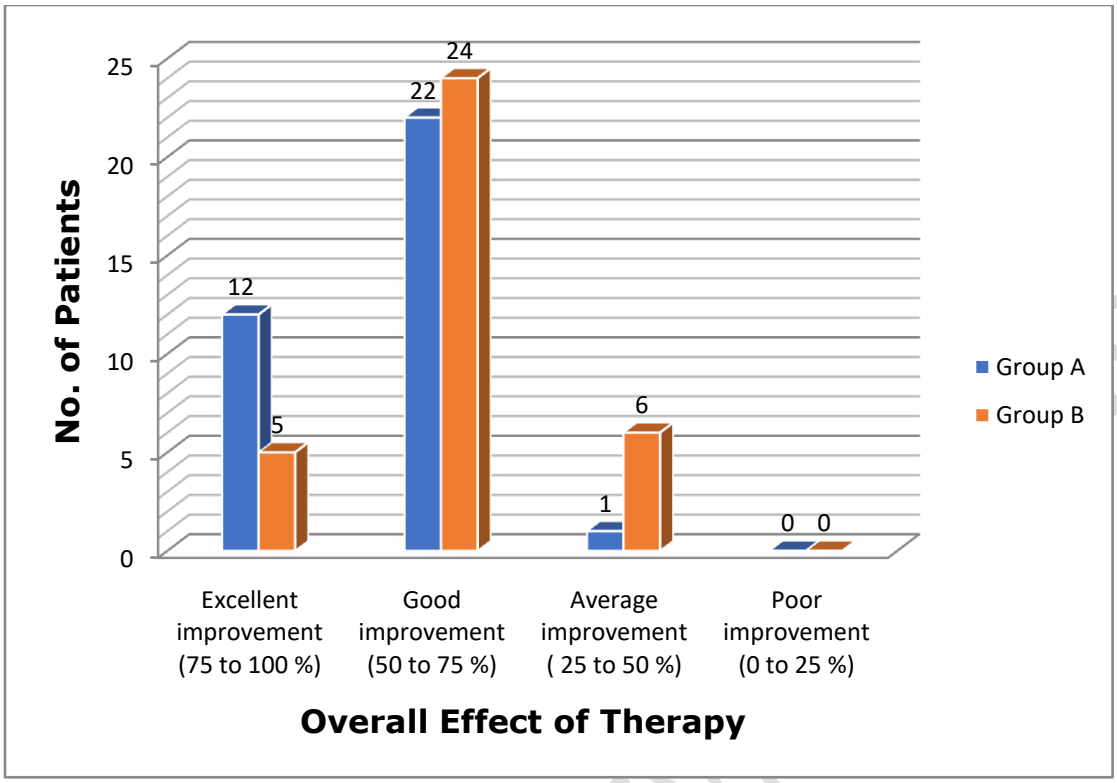
Parameters	**Mean Value**		**SD**		**SE**		**% Effect**	**P value**
	BT	**AT**	**BT**	**AT**	**BT**	**AT**		
Pain	2.68	0.80	0.47	0.47	0.079	0.07	70.21	<0.05
Cold hypersensitivity	1.60	0.68	1.06	0.63	0.179	0.106	57.14	<0.05
Hot hypersensitivity	1.229	0.457	0.942	0.61	0.159	0.103	62.79	<0.05
Sour hypersensitivity	1.341	0.628	0.937	0.58	0.158	0.101	53.19	<0.05
Tactile test	1.771	0.74	0.84	0.85	0.14	0.14	58.06	<0.05
Cold air blast test	1.457	0.60	0.95	0.55	0.16	0.09	58.82	<0.05

Gutta Percha test	1.34	0.60	1.027	0.774	0.173	0.13	55.32	<0.05

Statistical Analysis of Comparative Values of Group A and B

VARIABLE	GROUP	N	MEAN DIFFERENCE	SD	SE	MANN WHITNEY U TEST	P value	% RELIEF
Pain	**Group A**	35	1.457	0.741	0.125	776.5	0.001	77.27
	Group B	35	1.886	0.718	0.121		0.016	70.21
Cold hypersensitivity	**Group A**	35	1.657	0.905	0.153	889.5	0.001	87.88
	Group B	35	0.914	0.685	0.111		0.026	57.14
Hot hypersensitivity	**Group A**	35	1.057	0.629	0.108	748.5	0.001	71.15
	Group B	35	0.771	0.77	0.13		0.025	62.79
Sour hypersensitivity	**Group A**	35	1.229	0.77	0.13	836.5	0.001	64.18
	Group B	35	0.714	0.667	0.112		0.027	53.19
Cold air blast test	**Group A**	35	1.029	0.785	0.132	688	0.001	75.00
	Group B	35	0.857	0.601	0.101		0.025	58.82
Tactile test	**Group A**	35	1.20	0.759	0.128	717.5	0.001	62.69
	Group B	35	1.029	0.296	0.049		0.025	58.06
Gutta Percha test	**Group A**	35	1.143	0.691	0.117	805.5	0.001	57.97
	Group B	35	0.742	0.505	0.085		0.025	55.32

Overall effect of therapy



DISCUSSION

The present study aimed to evaluate the efficacy of Dashmoolaghrutaparisheka and Amruta Guggulu in managing Vatarakta.. The discussion covers several essential aspects of the clinical study, including an overview of Vatarakta, the properties and roles of the drugs used, the clinical observations, and a detailed examination of the results.

Dataharsha

Classical Ayurvedic texts describe Dantaharsha as a *DantagataRoga*, with symptoms closely resembling dentinal hypersensitivity, Dentinal hypersensitivity is characterized by transient, sharp pain arising from exposed dentin in response to thermal, tactile, chemical, osmotic, or evaporative stimuli, without any other dental pathology. Both conditions share similar etiological factors, particularly those aggravating Vata Dosha and causes related to *Mukha Roga*.Trigger factors include exposure to cold air, intake of hot, dry, sour, or acidic foods, and cold liquids.Clinical features such as sharp pain, sensitivity to touch, and intolerance to hot and cold are common to both conditions.Based on these similarities, Visual Analogue Scale (VAS) and Air Blast Stimulation were used as assessment criteria in the present study.

kavala inDataharsha

Kavala Karma is an Ayurvedic oral therapy described in classical texts for maintaining oral health. It involves swishing medicated liquids in the mouth and expelling them. In *Dantaharsha*, a Vata-Kapha–predominant disorder, Kavala helps reduce dryness, strengthen teeth and gums, and relieve hypersensitivity. *Sneha Dravyas*nourish oral tissues, while decoctions such as *DashmoolaKwatha* provide analgesic and anti-inflammatory effects. The mechanical action also improves salivation and circulation, making Kavala a simple and effective therapy for dentinal hypersensitivity.

Dashmooladikwathkavala

DashmooladiKwath possesses Vata–Kapha balancing, anti-inflammatory, analgesic, and tissue-strengthening properties. During Kavala Karma, swishing enhances local circulation and absorption of the decoction over the oral mucosa. Its Snigdha and Ushna गुण pacify aggravated Vata, thereby reducing pain and hypersensitivity. The presence of bioactive compounds provides Shothahara and Vedanasthapaka effects, while continuous contact forms a protective layer over exposed dentinal tubules. Additionally, stimulation of salivary flow helps maintain oral hydration and pH balance. Thus, DashmoolaKwath Kavala offers effective relief in Dantaharsha through dosha pacification, anti-inflammatory action, and tissue rejuvenation.

Toothpaste having Desensitizing agent

Sensodyne relieves dentinal hypersensitivity by desensitizing nerves and sealing dentinal tubules. Potassium nitrate reduces nerve excitability, while strontium salts or fluoride block tubules and prevent fluid movement. This combined action provides effective and sustained pain relief.

Clinical Study and Observations

The present clinical study was conducted on 70 patients of Dantaharsha, randomly divided into two groups of 35 each. Group A was treated with *DashmooladiKwath Kavala*, while Group B received Toothpaste having Desensitizing agent . Most patients were aged 20–30 years, with a higher prevalence in females. The majority exhibited Manda Agni, Krura or Madhyama Koshtha, and Vata-dominant Prakruti. Common etiological factors included improper oral hygiene, use of hard toothbrushes, and horizontal brushing technique.

Both groups showed significant improvement in clinical parameters such as pain, thermal sensitivity, tactile response, air blast test, sour sensitivity, and Gutta-percha test. The observations

indicate that dentinal hypersensitivity was closely associated with Vata aggravation and oral hygiene practices.

Overall result

Both treatments significantly reduced symptoms of *Dantaharsha* ($p < 0.05$). However, Group A (DashmooladiKwath Kavala) showed moderately better overall improvement than Group B (Sensodyne), particularly in cold and sour sensitivity and the Gutta-percha test, while Group B showed greater relief in pain and hot sensitivity. Thus, *DashmooladiKwath Kavala* was found to be a safe, cost-effective, and more effective therapy for dentinal hypersensitivity.

CONCLUSION

Dantaharsha is a Vata-predominant disorder presenting as sharp dental pain to cold, sour, or touch stimuli, comparable to dentinal hypersensitivity in modern dentistry. Ayurvedic management focuses on Vata-shamana and Sneha therapies such as Kavala. In this study, Group A received DashmooladiKwath Kavala and Group B used Toothpaste having Desensitizing agent .

Both groups showed significant symptomatic improvement. However, Group A demonstrated better results in cold and sour hypersensitivity and the Gutta-percha test, while Group B showed greater relief in pain, hot sensitivity, air blast, and tactile tests. Overall, Group A showed moderately superior outcomes. Thus, the null hypothesis was rejected and the alternative accepted ($p < 0.05$), confirming DashmooladiKwath Kavala as a safe and more effective therapy for Dantaharsha.

Limitations

a. The study was conducted on a limited sample size and over a short duration, which may affect the generalizability of the results.
b. Long-term follow-up was not performed to assess the sustained effects of the treatments.
c. Objective measures, such as microscopic evaluation of dentinal tubule occlusion, were not included.
d. Patient compliance and variations in oral hygiene practices could not be fully controlled.

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