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Evaluation of *Shuddha Balataila Kavala* and *Nimba Kashta Dantadhavana* in *Dantaharsha*

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ABSTRACT

Dantaharsha (Dentin Hypersensitivity) is one among the *Dantagata Roga* in which there is vitiation of *Vata Dosha* resulting in pain, hypersensitivity towards cold, hot, sour substances. Clinically *Dantaharsha* shows similarity with dentine hypersensitivity. Lack of oral hygiene, Tooth grinding, diet that is habitual ingestion of acidic substances causes erosion of enamel, dentin; those who use smokeless tobacco; those who suffering from gastro esophageal reflux which increases intraoral acidity and causes erosion of enamel; periodontal disease, gum disease etc. Result in dentine hypersensitivity. Many remedies are prescribed in modern medicine for the treatment of dentine hypersensitivity. But these methods are quite costly and causing lot of inconvenience to the patients. Hence it is relevant to develop an easy and economic Ayurvedic medical measure. Considering these drawbacks in modern dentistry, the present study was taken up. *Kavala* and *Dantadhavana* mentioned in our classics for control and prevention of dental diseases. **Materials and Methods:** A total of 30 patients having the features of *Dantaharsha* were selected for the study and were divided randomly into 2 groups as Group A and Group B consisting of 15 patients each. Patients under Group A were treated twice a day with *Shuddha Bala Taila Kavala* and patients under Group B advised to follow *Dantadhavana* with *Nimba Kashta* for a period of 30 days. **Result:** It was observed in the present study that, there is highly significant difference between the response by the treatment Group A and Group B.

Key words: *Dantaharsha, Hypersensitivity, Pain, Shuddha Bala Taila, Nimba Kashta Dantadhavana.*

INTRODUCTION

The mouth is a window into the health of the body. Many nutritional deficiencies or general infections can be seen by observing changes in oral cavity.[1]

Dantaharsha is a *Dantagata Roga* in which teeth is not able to bear cold, heat or touch, this disease is produced by *Sameerana (Vata).*[2] *Dantaharsha* can be corelated to dentine hypersensitivity or tooth hypersensitivity.

Dentin hypersensitivity is characterized by short, sharp pain arising from exposed dentin in response to stimuli typically thermal, evaporative, tactile, osmoticor chemical and which cannot be ascribed to any other form of dental defect or pathology.[3] Dentin hypersensitivity perhaps a symptom complex rather than a true disease and results from stimulus transmission across exposed dentine. A number of dental conditions are associated with dentine exposure and therefore may produce same symptoms.[4] Several clinical studies have reported that dentin hypersensitivity is a fairly common condition with between 8 to 35% of population being affected.[3]

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Our ancient Ayurveda *Acaryas* in *Swasthavrutta* had given special instruction to '*Danta Swasthyam*' as it is the basic necessity for the overall hygiene of the human body. Ayurvedic scholars had keen knowledge about the origin, etiology and treatment of dental diseases.

Many remedies are prescribed in modern medicine for the treatment of dentine hypersensitivity. But these methods are quite costly and causing lot of inconvenience to the patients. Hence it is relevant to develop an easy and economic Ayurvedic medical measure.

Dinacharya (daily regiemen) helps a lot, who are the seekers of positive health. To be clean is out of righteous duty. But unfortunately the ancient habits of cleanliness may appear superfluous and cumbersome to many of the modern educated youths.

In this study patients of Group A were treated with *Shuddha Bala Taila Kavala* and Group B were treated with *Dantadhavana with Nimba Kashta.*

Shuddha Bala Taila Kavala selected for the study reference taken from *Sahasrayoga*[5] Basic idea of choosing *Shuddha Bala Taila* is because ingredients of this *Taila* are having *Vatahara*, *Balya, Dantya* properties. *Nimba Kashta Dhavana* reference is taken from Yogaratnakara.[6] *Nimba Kashta* is widely used in our country for brushing the teeth daily. To know the efficacy of *Dantadhavana* in *Dantaharsha, Nimba Kashta* is taken for the study.

The ingredients of drugs are easily available, cheap, easy to prepare, easy to administer. *Kavala, Pratisarana, Dantadhavana* help a lot for maintaining healthy condition of the oral cavity especially teeth. Thus the purpose of the slogan "*Swasthasya Swasthya Rakshanam*"[7] of Ayurveda is to make ones future better forever.

Keeping all these in mind, the present study is an effort made to evaluate the efficacy of local therapeutic procedures in combating this clinical condition.

OBJECTIVE OF THE STUDY

1. To evaluate the efficacy of *Kavala* with *Shuddha Bala Taila* in the management of *Dantaharsha*
2. To evaluate the efficacy of *Nimba Kashta Dantadhavana* in the management of *Dantaharsha.*

MATERIALS AND METHODS

Materials required for the study

- *Shuddha Bala Taila*
- *Nimba Kashta*

Methodology

Total 30 patients suffering from *Dantaharsha* were selected for the study irrespective of sex, occupation, religion and social status from Shalakya Tantra OPD and IPD of Sri Jayachamarajendra Institute of Indian Medicine, Bangalore.

The selection of patients was done on the basis of clinical examination. After establishing the diagnosis of *Dantaharsha*. The selected patients were divided randomly into 2 groups as Group A and Group B consisting of 15 patients each.

Inclusion criteria

1. Clinical features namely pain, hypersensitivity towards cold, hot, sour substances.
2. Patients in the age group of 25 to 60 years.
3. Tooth wear with attrition, abrasion, erosion in moderate and severe form.

Exclusion criteria

1. Patients in the age group below 25 and above 60.
2. Traumatic conditions of the oral cavity.
3. Any acute infective condition of the oral cavity.
4. Any tumors of the oral cavity.
5. Dentin hypersensitivity associated with systemic diseases.

Subjective parameters

1. Pain
2. Hypersensitivity of teeth towards cold substances

ISSN: 2456-3110 ORIGINAL ARTICLE Nov-Dec 2018

3. Hypersensitivity of teeth towards hot substances
4. Hypersensitivity of teeth towards sour substances

The symptoms which are subjective have been objectively assessed by VAS (Visual Analogue Scale) which is device for converting subjective response to appropriate number by giving scorings that is quantification data.

Objective parameters

1. Cold air blast test
2. Tactile test
3. Guttapercha test

Study design

30 patients selected were randomly divided into 2 groups with 15 patients each.

a) **Treatment adopted in Group A -** Group 'A' was treated by *Kavala Dharana* with *Shuddha Bala Taila* for a period of 30 days.

Procedure - The patient was made to sit comfortably in a room devoid of heavy breeze and dust. Mild massage and fomentation was given to the shoulder, neck, throat and forehead, protecting the eyes by cold swabs. The patient was asked to keep his face slightly lifted up and advised to hold half full mouth of *Shuddha Bala Taila* allowing the movements of *Taila* inside the mouth till the secretions occur in the mouth, nose and eyes. After spitting out the contents, mouth was cleaned with lukewarm water; again *Mrudu Swedana* (Mild fomentation) was given to shoulder, neck, throat, forehead and cheeks. This procedure was advised to be done twice daily, morning and night.

b) **Treatment adopted in Group B -** Group 'B' was treated by *Nimba Kashta Dantadhavana* for a period of 30 days.

Procedure - 12 *Angula Nimba Kashta* is taken which is having width of little finger. Tip of the *Kashta* is crushed to make it look like brush. This is then used to brush the lower and upper teeth respectively. Care should be taken not to damage or injure the gums. This procedure is done for 5min. Patient is asked to clean his mouth with *Sukhoshna Jala* (lukewarm water).

Table 1: Showing treatment schedule

Group	*Aushadhi*	*Matra*	Days	*Nireekshana*
Group A	*Shuddha Bala Taila Kavala*	4-5tsp (20ml) twice a day.	30	3 months
Group B	*Nimba Kashta Dantadhavan*	Twice a day in the morning and Night for 5 minutes each.	30	3 months

OBSERVATIONS AND RESULTS

Table 2: Observations of highest incidences in Group A

Observation	No. of cases	Percentage
Age group (21-30)	6	40
Sex (Male)	8	53.34
Religion (Hindu)	15	100
Occupation (House wives)	7	46.67
Socio economic status (Low)	6	40
Diet (Mixed)	9	60
Habits (intake of junk foods)	6	40
Site (Incisor Teeth)	4	26.66

Table 3: Observations of highest incidences in Group B

Observations	No. of cases	Percentage
Age group (21-30)	5	33.33
Sex (Female)	8	53.34

ISSN: 2456-3110 ORIGINAL ARTICLE Nov-Dec 2018

Religion (Hindu)	14	93.33
Occupation (House wives)	6	40
Socioeconomic status (Middle class)	7	46.66
Diet (Mixed)	9	60
Habits (intake of junk foods)	7	46.67
Site (Molar Teeth)	6	40

RESULTS

Table 4: Showing individual parameters in Group A

Parameter	Mean		Mean difference	SD	t	p	Remarks
	BT	AT					
Pain	2.13	0.73	1.4	0.74	7.3	p<0.001	HS
Hypersensitivity to cold	1.33	0.8	0.53	0.49	4.41	p<0.001	HS
Hypersensitivity to hot	1.4	0.53	0.87	0.33	10.11	p<0.001	HS
Hypersensitivity to sour	1.86	0.53	1.33	0.66	7.82	p<0.001	HS
Cold air blast test	1.93	0.53	1.4	0.75	7.36	p<0.001	HS
Gutta percha test	1.7	0.6	0.1	0.3	1.42	p>0.05	NS
Tactile test	2.06	0.53	1.53	0.90	6.65	p<0.001	HS

Chart 1: Showing individual parameters in Group A

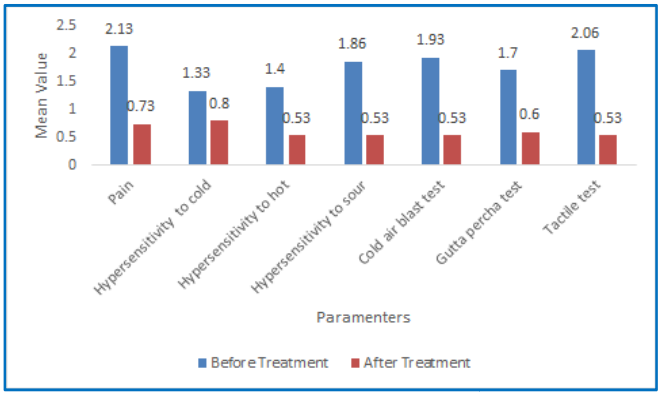


Table 5: Showing individual parameters in Group B

Parameter	Mean		Mean difference	SD	t	p	Remarks
	BT	AT					
Pain	1.93	2.06	0.13	0.33	1.6	p<0.05	S
Hypersensitivity to cold	1.6	1.4	0.2	0.4	2	p<0.05	S
Hypersensitivity to hot	1.86	1.4	0.46	0.48	3.8	p>0.001	HS
Hypersensitivity. to sour	1.4	0.93	0.47	0.48	3.9	p>0.001	HS
Cold air blast test	1.4	1.53	0.13	0.33	1.6	P<0.05	S
Gutta percha test	1.46	1.56	0.1	0.3	1.4	p>0.05	NS
Tactile test	1.86	2.06	0.2	0.4	2	p<0.05	S

Chart 2: Showing individual parameters in Group B

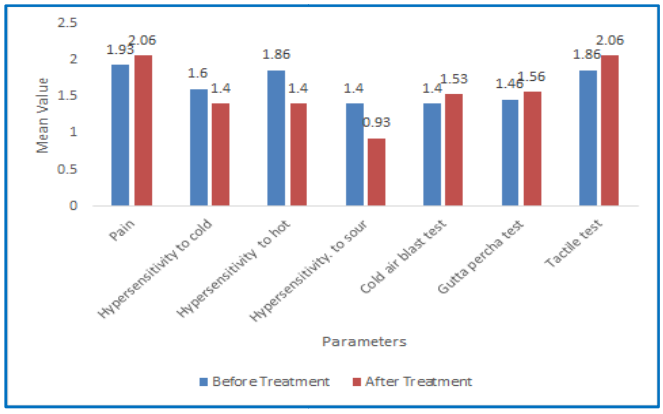


Table 6: Comparison of effect of treatment on parameters in Group A and Group B

SN	Parameters	Group A Mean		% of relief	Group B Mean		% of relief	t	p
		BT	AT		BT	AT			
1	Pain	2.13	0.73	65.6	1.93	2.06	6.9	2.47	<0.01
2	H.S to cold	1.33	0.8	40	1.6	1.4	15	1.55	<0.05

ISSN: 2456-3110 ORIGINAL ARTICLE Nov-Dec 2018

3	H.S. to hot	1.4	0.53	62	1.86	1.4	25	2.04	<0.05
4	H.S. to sour	1.86	0.53	71.4	1.4	0.93	33.33	2.09	<0.05
5	Cold air blast test	1.93	0.53	72.4	1.4	1.53	9.5	3.49	<0.001
6	Guttapercha test	1.7	0.6	62.5	1.46	1.56	0	3.69	<0.001
7	Tactile test	2.06	0.53	74.2	1.86	2.06	7.07	3.74	<0.001

Chart 3: Comparison of effect of treatment on parameters in Group A and Group B

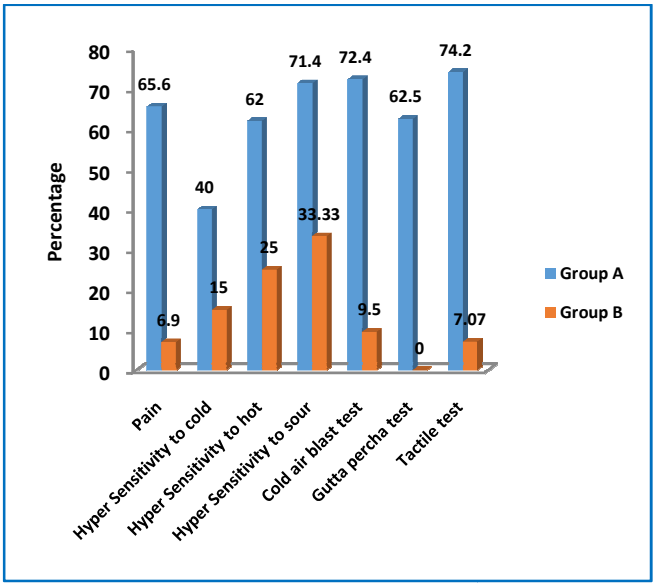
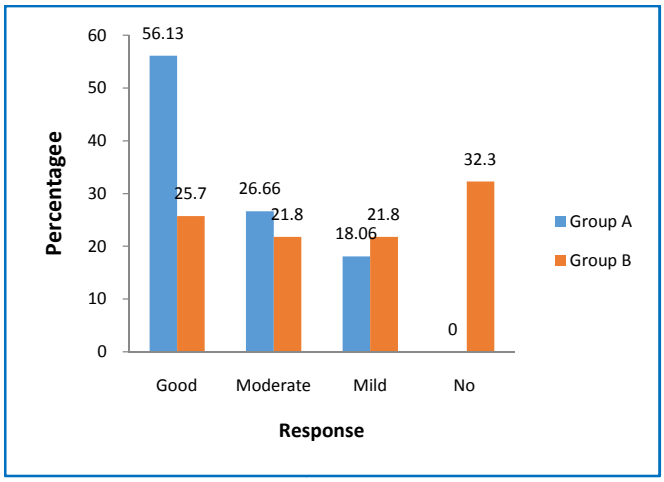


Table 7: Overall Response

Response	Group A		Group B	
	No. of patients	Percentage	No. of patients	Percentage
Good	8	56.13	4	25.7
Moderate	4	26.66	3	21.8
Mild	3	18.06	3	21.8
No	0	0	5	32.3

Chart 4: Overall Response



DISCUSSION

Probable mode of action *Kavala*

Gargling creates pressure in the oral cavity and bringing out toxins and other debris from the interdental, gingival, and gingival margins. The pressure exerted by gargling also helps in penetration of the drug into the oral mucosa (gingiva).

The lukewarm liquid or oil used for *Kavala* helps in dilation of the blood vessels in the oral mucosa (gingiva) and thus helps in absorption of the active ingredients present in medicine, which in turn gives strength to the roots of the teeth.

Oil pulling generates antioxidants which damage the cell wall of microorganisms and kill them. During oil pulling, the oil gets emulsified and surface area of the oil gets increased. The process of emulsification of oil begins up to 5min of oil pulling. This oil will coat the teeth and gingiva and inhibits bacterial coaggregation and plaque formation. Thus plaque building bacteria responsible for dental caries, gingivitis, periodontitis and bad breath are removed from the oral cavity.[8]

Kavala with oil forms a smear layer over the dentin thus probably helps in curing hypersensitivity.

Danta Dhavana with *Kashta*

Traditionally in Ayurveda twigs are used for brushing daily to prevent many conditions such as tooth decay, gum disease etc.

ISSN: 2456-3110 ORIGINAL ARTICLE Nov-Dec 2018

The twig is chewed and made into a brush like structure and this is used for brushing .The crushed twig helps in removing the stain and other debris from the teeth and gingival. The active extracts of the drug used helps in freshens up the breath, protects the gum from other infections. *Dantadhavana* also gives strength to gingiva and tooth.

Probable mode of action of *Shuddha Bala Taila*

In *Shuddhabala Taila* ingredients are *Bala, Tila Taila*, *Goksheera.*

- *Bala, Tila, Goksheera* has *Madhura Rasa*, *Madhura Vipaka* and *Snigdha Guna* which helps in relieving *Dantaharsha* by alleviating *Vata* which is the main *Dosha* involved.
- Moreover the drug *Bala* is known *Balya, Tila* is *Dantya* and *Goksheera* also *Balya*.[9] Combination of these gives strength to the teeth, gums and accessory structures of oral cavity.
- Exposure of dentine leads to hypersensitivity. *Shuddha Bala Taila* gives a layer of coating on the surface of the tooth and gingival thus protecting the dentine from exposure.
- Potassium nitrate is one of the chemical compositions of *Bala*.[9] Potassium nitrate is used to occlude the dentine tubule, which easily pass through dentine to the pulp. They depolarize the sensory nerve endings present close to the odontoblasts, preventing the transmission of impulses to the brain, thereby reducing or relieving pain and hypersensitivity.
- Another chemical composition of *Bala* - Phytosterol is anti-inflammatory action.[9] It may help in reducing gingival infections, there by controlling hypersensitivity of teeth.

Nimba Kashta

Nimba contain Tanin, Nimbinin, Azadirachtin, Nimbidin, Margosin alkaloid, Fluroide.[9]

- Tannin exert an astringent effect and form a coat over the enamel and protectsthe enamel from attrition, abrasion etc. which leads to dentine hypersensitivity.
- Presence of Nimidin, Azadirachtin and Nimbinin help to remove many oral aerobic and anaerobic pathogens existing in the oral cavity. Neem bark has anti- bacterial property, most effectively used in preventing cavities, gum diseses.[10] Hypersensitivity of teeth also seen indental cavity, gum recession. Thus it *Nimba Kashta Dantadhavana* prevents the cause of dentin hypersensitivity.
- Nimbidin has a most potent anti-inflammatory and analgesic effect there by helps in maintaining oral hygiene and reducing pain.
- Margosine exert an analgesic action thus it may help in reduction of pain in tooth hypersensitivity.
- Fluoride may act by forming Fluor apatite within the tubules of dentin which blocks fluid movement in dentin and bring down hypersensitivity.

CONCLUSION

The study was aimed to evaluate the efficacy of *Kavala* with *Shuddha Bala Taila*, *Dantadhavana* with *Nimba Kashta*. Group A showed better result than Group B, may be because of ingredients in *Shuddha Bala Taila* which are *Dantya, Balya, Vatahara. Dantadhavana* with *Nimba Kashta* may further damage the exposed dentine, may damage the gums due to hard brisle if *Dantadhavana* done improperly. Regularly following of oral hygiene methods, following *Pathya Ahara, Viharas,* the drugs which enhance the smear layer, which has property to occlude exposed dentinal tubules will definitely retard the progression of the disease.

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ISSN: 2456-3110 **ORIGINAL ARTICLE** Nov-Dec 2018

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