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Effect of gandoosha in comparison with kabala in kaphaja sirasoola

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Abstract

Kaphaja sirasoola described in classics with symptoms like *Mandaruk*, *Sirogurutwam*, *Soonanasa*, and *Karnakandu* has clinical resemblance with chronic rhinosinusitis (CRS). The study design was pre-post interventional type conducted to evaluate the effect of *gandoosha* in comparison with *kabala* in *kaphaja sirasoola* using *Sindhutrikatukadi yoga* (*Ardraka swarasa*, *Saindhava*, *Trikatu* and *Raji*).The study was conducted in outpatients registered in the Department of *Salakyatantra*, Govt. Ayurveda College, Thiruvananthapuram, aged 15- 45 of both gender, having *kaphaja sirasoola* for 12 weeks and not more than 6 months fulfilling the inclusion and exclusion criteria. Patients were divided into group A and group B alternatively with 15 patients in each group. Group A were given *Sindhutrikatukadi yoga* as *gandoosha* (mouthful quantity) and for group B as *kabala* (80% of oral capacity). These procedures were carried out in single sitting per day basis for a period of 14 days with each sitting comprising of 3 turns.The condition was

assessed on 0th day, 15th day, 30th day, 45th day and symptoms were graded accordingly. Statistical analysis was done using Wilcoxon signed rank test for within group comparison and Mann Whitney U test for between group comparisons. The study showed gandoosha was more effective in reduction of head ache, heaviness of head, nasal congestion and fatigue compared with kabala.

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Key words: *Kaphaja sirasoola; Gandoosha; Kabala; Chronic rhinosinusitis*

1. Introduction

Chronic rhinosinusitis (CRS) is a group of disorders characterized by inflammation of the mucosa of the nose and paranasal sinuses of at least 12 consecutive weeks duration.[1] It is characterised by head ache, facial pain, nasal obstruction, ear pain, halitosis and fatigue.

Ayurveda has its own unique approach towards head ache disorders which is based upon dosha involvement. Kaphaja sirasoola has symptoms like sirasoola, murdhaguruta, murdhasitata, tandra, aruchi and vami.[2] The incidence of kaphaja sirasoola is on the rise during present era due to modern lifestyle. The resultant drastic change in food habits, irregular sleep pattern, physical inactivity and living environment might have a significant contribution in causation of the pathology.

While analysing the pathogenesis of kaphaja sirasoola, kapha prakopa by its own nidana and subsequent vatavardha are the mechanism involved in the samprapti. So the basic principle of “Samprapti vighatana” is elimination of avrita kapha and vatanulomana. This can be attributed by Sindhutrikatukadi yoga mentioned in Sarngadhara Samhita Gandooshadi prakarana.[3] (10 pt) Here introduce the paper, and put a nomenclature if necessary, in a box with the same font size as the rest of the paper. The paragraphs continue from here and are only separated by headings, subheadings, images and formulae. The section headings are arranged by numbers, bold and 10 pt. Here follows further instructions for authors.

1. Methodology

2.1 Study design: Pre - post interventional study.

2.2 Study setting: OP Department of *Salakyatantra*, Govt. Ayurveda College, Thiruvananthapuram

2.3 Study population: Patients diagnosed as having *Kaphaja sirasoola* from OPD of *Salakyatantra*, Govt. Ayurveda College, Thiruvananthapuram, fulfilling the inclusion and exclusion criteria.

2.4 Inclusion criteria: Patients aged 15- 45 of both sex, having *Kaphaja sirasoola* for 12 weeks and not more than 6 months.

2.5 Exclusion criteria:

- Diagnosed cases of anatomical abnormalities of osteomeatal complex.
- Diagnosed cases of nasal and sinus cavity tumours.
- Patients with local lesions in mouth.
- Conditions with facial muscle paresis where patients become unable to withhold the drug.
- Diagnosed cases of stroke, coronary artery disease, uncontrolled hypertension and diabetes.

2.6 Sample size: Total 30 patients, 15 in each group.

2.7 Sampling technique:

Consecutive cases satisfying the inclusion and exclusion criteria were subjected to *Gandoosha* and *Kabala* procedure alternatively till attaining the sample size.

2.8 Data collection:

Data were collected by personal interview method with the help of semi structured questionnaire and clinical examination.

2.9 Study tools:

- Clinical case proforma
- Visual analogue scale for pain
- Visual analogue scale for itching
- Visual analogue scale for fatigue
- Visual analogue scale for nasal congestion
- Grading of vomiting
- Grading of heaviness of head

2. Selection and grouping of the cases:

The patients diagnosed as having *Kaphaja sirasoola* within the age group of 15-45 years, were selected as per inclusion and exclusion criteria. The personal data, symptomatology, history of diseases, detailed findings in general examination and ENT examination were recorded in clinical case proforma. The written consent from each patient was obtained. Patients were divided into group A and group B alternatively with 15 patients in each group. Group A was given *Sindhutrikatukadi yoga* as *Gandoosha* and for group B *Sindhutrikatukadi yoga* as *Kabala*.

3. Study drug

Sindhutrikatukadi yoga: *Saindhava*(Rock salt), *Sunti*(*Zingiber officinale*), *Maricha* (*Piper nigrum*), *Pippali*(*Piper longum*), *Raji*(*Brassica juncea*), *Ardra*(*Zingiber officinale*)

4.1 Method of preparation of *Gandoosha dravya* and *Kabala dravya*

Gandoosha dravya: Genuine sample of *Sunti*, *Maricha*, *Pippali* and *Raji* were obtained. These were properly washed, cleaned and dried in sunlight. After proper drying and removing the moisture content, these ingredients were crushed and finely powdered (3.6 gram each) and mixed with 300 ml of juice of *Ardra* and 3.6 gram of genuine market sample of finely powdered *saindhava lavana*. Then the mixture was filtered through cloth and used for *Gandoosha*.^[4]

Kabala dravya: Genuine sample of *Sunti*, *Maricha*, *Pippali* and *Raji* were obtained. These were properly washed and cleaned. 7.2 gram of each drugs were made into *kalka* form, mixed with 300 ml juice of *Ardra* and 7.2 gram of genuine market sample of finely powdered *saindhava lavana*.^[4]

4.2 Mode administration

Poorvakarma: Patient was allowed to sit in a place with sufficient sunlight, devoid of wind and subjected to fomentation for 5 minutes. Gentle massage was done on shoulder, neck, cheeks and forehead for 5 minutes.

Pradhana karma (Gandoosha): The patient selected for *Gandoosha* was advised to hold mouthful of *Sindhutrikatukadi yoga* (60-120 ml) without swallowing and active movement. The procedure was done for 6 minutes as 3 turns, with head in slightly elevated position. ^[5]

Pradhana karma (Kabalagraha): The dose was fixed based on the oral capacity of the individual as it varies depending on the sex, age and body stature (70 to 120 ml). The patient was asked to fill water in mouth to full capacity and they were asked to spit it in a measuring glass and volume of water was measured. 80% of the amount measured was taken as the dose for *Kabalagraha* (35 to 60 ml). The patients were instructed to hold the medicine with active movements (ensuring the movement of drug between the buccal cavity and oropharynx alternately). The procedure was done for 6 minutes as 3 turns without swallowing with head in slightly elevated position.

Gandoosha and *Kabalagraha* were done in single sitting per day for a period of 14 days. After the procedure the patients were instructed to avoid food, drinks and rinsing the mouth for 1 hour.

4.3 Duration and follow up:

These procedures were given for 14 days. Clinical evaluation and consecutive assessments were done on 0thday, 15thday, 30thday and 45th day. Symptoms of *Kaphaja sirasoola* was graded accordingly

4. Outcome variable

5.1 Change in Pain (head ache) by 4-point visual analogue scale

- 0- No pain
- 1- Mild pain
- 2- Moderate pain
- 3- Severe pain

5.2 Change in ear itching by 4-point visual analogue scale

- 0- No itching
- 1- Mild itching
- 2- Moderate itching
- 3- Severe itching

5.3 Change in fatigue by 10-point visual analogue scale

- 0 - No fatigue
- 1 to 3 - Mild fatigue
- 4 to 6 - Moderate fatigue
- 7 to 9 - Severe fatigue
- 10 - Very severe fatigue

5.4 Change in heaviness of head

- 0- No heaviness
- 1- Mild heaviness, not increasing on bending head forward
- 2- Moderate heaviness, increases when bending forward
- 3- Severe heaviness, can't bend forward

5.5 Change in vomiting

- 0- No vomiting
- 1- One episode in 24 hours
- 2- Two to five episode in 24 hours
- 3- Six episodes or more in 24 hours or need for IV fluid
- 4- Hospitalization required

5.6 Change in nasal congestion by 4-point visual analogue scale

- 0- No congestion
- 1- Mild congestion
- 2- Moderate congestion
- 3- Severe congestion

5. Statistical methods:

Between group comparison and within group comparison was carried out using Mann Whitney U test and Wilcoxon signed rank test respectively.

6.1 Change in Head ache

Table 1. Analysis of headache within group A & group B (Wilcoxon signed rank test)

Head ache	Group A	Group B	Z	P
	Z	P		
BT-AT	3.52	<0.001	3.494	<0.001
AT-AF1	2.00	0.046	3.464	0.001
AT-AF2	3.276	0.001	3.357	0.001

(BT-before commencement of treatment, AT- after treatment, AF1- after first follow up, AF2- after second follow up)The change in head ache in group A and group B was found to be highly significant with $p < 0.001$ while comparing BT and AT. While comparing AT-AF1 and AT-AF2, it was significant with ($p < 0.05$).

Table 2. Analysis of treatment on head ache between groups

Mann-Whitney test	
Z	1.927
P	0.027

On comparing group A and group B, BT and AF2 there was significant difference in two groups ($p < 0.05$).

6.2 Change in heaviness of head

Table 3. Analysis of heaviness of head within group A & group B(Wilcoxon signed rank test)

Heaviness of head	Group A	Group B
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	Z	P	Z	P
BT-AT	3.689	<0.001	3.771	<0.001
AT-AF1	1.732	0.083	2.449	0.014
AT-AF2	3.419	0.001	3.317	0.001

Change in heaviness of head BT,AT, AF1 and AF2 are detailed in table no 3

Table No: 4 Analysis of treatment on heaviness of head between groups

Mann-Whitney test	
Z	3.976
P	<0.001

On comparing group A and group B, BT and AF2 there was significant difference in two groups ($p < 0.001$).

6.3 Change in ear itching

Table No: 5 Analysis of treatment on ear itching between groups

Ear itching	Group A	Group B		
	Z	P	Z	P
BT-AT	2.236	0.025	2	0.046
AT-AF1	1	0.317	1	0.317
AT-AF2	1	0.317	1	0.317

The change in ear itching in two groups was found to be significant with $P < 0.05$ while comparing BT&AT.

While comparing AT-AF1 & AT-AF2, it was not significant

On comparing BT and AF2 of two groups, there was no significant difference.

6.4 Change in nasal congestion

Table No: 6 Analysis of nasal congestion within group A & B

Nasal congestion	Group A	Group B		
	Z	P	Z	P
BT-AT	3.508	<0.001	3.626	<0.001

AT-AF1	1	0.317	3	0.003
AT-AF2	3.162	0.002	3.464	0.001

The change in nasal congestion within two groups was found to be highly significant at $P < 0.001$ while comparing BT and AT. While comparing AT-AF1, it was found to be not significant in group A, but significant in group B at p value 0.003.

Table No: 7 Analysis of treatment on nasal congestion between groups

Mann-Whitney U test	
Z	1.540
P	0.05

On comparing group A and group B, BT and AF2 there was significant difference in two groups.

6.5 Change in fatigue

Table No: 8 Analysis of fatigue within group A & B

Fatigue	Group A		Group B	
	Z	P	Z	P
BT-AT	3.162	0.002	2.236	0.025
AT-AF1	1	0.317	1	0.317
AT-AF2	1	0.317	1	0.317

The change in fatigue in group A and group B was found to be statistically significant with $P < 0.05$ while comparing before treatment and after treatment. While comparing after treatment and successive follow up, [AT-AF1, AT-AF2] it was found to be not significant in both groups.

Table No: 9 Analysis of treatment on fatigue between groups

Mann-Whitney U test	
Z	1.787
P	0.03

On comparing BT and AF2 of group A and group B, there was significant difference.

6.6 Change in vomiting

In this study only one patient reported with vomiting in both group and no change was observed after treatment. So both treatments were found to be ineffective in curing vomiting.

6. Discussion

The incidence of *kaphaja sirasoola* is on the rise due to adoption of modern lifestyle and practice related with food habits, irregular sleep pattern and physical inactivity for last two decades. The basic principle of “*Samprapti vighatana*” in *kaphaja sirasoola* is elimination of *avrita kapha* and *vatanulomana*. According to *samanaya-visesha siddhantha*, *kaphaja* disorder in *siras* can be pacified by *vayu* and *agni* predominant *dravyas*. This can be attributed by ‘*katu rasa*’ which is *agni- vayu* predominant. In *kapha avarana avastha*, *guru*, *manda*, *sthira* and *sita guna* of *kapha* are dominant. It can be alleviated by drugs possessing *laghu*, *tikshna guna* and *ushna veerya*. This can be attributed by *Sindhutrikatukadi yoga* which contains *saindhava*, *trikatu*, *raji* and *ardraka swarasa*. All these drugs are *katu rasa* predominant, *ushna veerya* except *saindhava* and *pippali* which are *anushnasita*. All are *kapha-vatahara* in *karma*. *Saindhava lavana* owing to its *sookshma* property helps in the deeper action of the drugs added to it. It is also capable of producing *dosha utklesa* which helps in removal of *kapha* easily. By the action of *katu rasa* the blocked *srothas* open up and facilitate the drainage of stagnated *kapha*. *Vatanuloma* property of *sunti* also helps in mucosal clearance. While observing the *prakriti* wise distribution, the disease was more prevalent in *kapha-pitta prakriti* (53.3% in group A and 60% in group B). and most of the patients had *vishamagni*.

While comparing before treatment and after second follow up, all the patients reported improvement in heaviness of head and nasal congestion in *Gandoosha* group compared to *Kabala* group. In case of head ache, 93.3 % reported improvement in *gandoosha* group but in *kabala* group only 60% reported improvement. While comparing before treatment and after second follow up, in group A 80% patients reported with improvement in fatigue, in group B only 46.7% patients reported improvement.

7. Conclusion

- *Gandoosha* and *kabala* were found to be effective in *kaphaja sirasoola*.
- *Gandoosha* had sustained action compared to *kabala*.
- By these treatment procedures outcome variables like head ache, heaviness of head, nasal congestion and fatigue showed significant results.

- These procedures were not effective in curing vomiting and ear itching.
- There were no adverse effects reported during the study.

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