



The Effect of Vamana Karma on Biochemical Changes in Tamaka Shwasa W.S.R. to Allergic Asthma

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<p>Received on Nov 2023 Revised on 25 Dec 2023 Accepted on 29 Jan 2024</p> <p>CC License CC-BY-NC-SA 4.0</p>	<p style="text-align: center;">Abstract</p> <p>Allergies are the conditions caused by the hypersensitivity of the immune system to otherwise inert substances present in the environment. Allergic asthma is one such disease where hypersensitivity is involved. When the person breathes an allergen, he is sensitive to, there is localized oedema in the small bronchioles, resulting in bronchiolar spasm. Allergic asthma can be correlated with Tamaka shwasa, which is a vatakaphaja vyadhi and vamana karma is considered to be the best line of management for vikruta kapha, which can be employed in allergic asthma. Material and methods: An observational clinical study is done on 30 subjects, irrespective of sex, socio economic status and religion, between the age group of 20-60 years. All the patients were given Vamana karma with Madanaphala Avalehya. Assessment is done based on the symptoms of Tamaka shwasa and allergic asthma along with serum IgE and AEC levels before and after the treatment and after completion of the follow up period. Result: The study reveals the significant role of Vamana Karma in reducing the signs and symptoms of Tamaka shwasa like shwasa krichrata, kasa and gurguraka. There is also significant reduction in IgE and AEC. Conclusion: Panchakarma procedures are meant for the purification of the body, which mainly helps in treating the chronic and life style disorders. Tamaka shwasa being one such disease where, Vamana karma plays a key role in the management. Vamana karma helped in removing the vitiated dosha from the body, which when accompanied by Rasayana dravya after the completion of parihara kala can prevent the recurrence of the disease.</p> <p>Keywords: Allergic asthma, Tamaka shwasa, Panchakarma, Vamana Karma, Madanaphala Avalehya</p>
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Introduction

Allergies are the conditions caused by the hypersensitivity of the immune system to otherwise inert substances present in the environment. Allergy falls under the category of type 1 hypersensitivity or immediate hypersensitivity and is very distinctive as it involves immunoglobulin E(IgE) mediated release of antibodies against the soluble antigen and activation of certain white blood cells called mast cells and basophils. This reaction results in an inflammatory response maybe harmless or hazardous. In some people severe allergies may result in simple sneezing to life threatening reactions called anaphylaxis (Abbas et al., 2023).

Allergic asthma is one such disease where hypersensitivity is involved. when the person breaths an allergen he is sensitive to, there is localized oedema in the small bronchioles, secretion of thick mucus into bronchiolar lumens, spasm of bronchiolar smooth muscle and therefore airway resistance increases greatly. The global asthma report 2022, shows that about 35 million people suffer from this disease and affects a sizable number of children as well (GAR, 2022). As per the survey of WHO, Asthma is leading to approximately 1,80,000 annual deaths globally. Now a days, prevalence of this disease is increasing alarmingly due to excessive pollution, overcrowding, occupational conditions etc., (Subbarao et al., 2009).

Causes

Causative factors for allergic asthma can be categorized as (Munjal, 2008)

1. Host factors – include heredity, gender, race and age.
2. Environmental factors like,
 - Exposure to infectious diseases
 - Environmental pollution
 - Allergen levels
 - Dietary changes

Pathology

When the allergens enter the respiratory tract, B lymphocytes gets stimulated to produce IgE antibody. This stimulated IgE sticks to the receptors on the membrane of mast cells. Mast cells then move to the place of the allergen and captures it by fixing it to IgE. Following this, the cell membrane of the mast cell breaks open and releases certain chemicals like histamine, typtase etc. which are present in its cytoplasm. These chemicals produce a series of inflammatory response causing narrowing of air ways & an increased mucous production in the lungs.

Symptoms

- Bronchoconstriction
- Increased production of mucous in the lungs
- Shortness of breath
- Cough
- Wheezing

Ayurvedic understanding of allergic asthma

The disease allergic asthma can be correlated with *Tamaka shwasa* as there is close resemblance. According to *Acharya charaka*, it is a *kapha vataja vyadhi*, originating in *pitta sthana* (Acharya, 2022). While explaining the etiological factors for the disease *tamaka shwasa*, *charaka* mentions *dhuma*, *rajas*, *sheeta sthana* and *sheeta ambu sevana* (Acharya, 2022), which can be understood as the allergens here. When the person exposes to these *nidana*, there will be *kapha Prakopa*, which obstructs the *pranavaha srotas*, due to which vata dosha gets vitiated and therefore function of *pranavayu* is hampered and this results in *shwasa roga* (Acharya, 2022). IgE, mast cells, B lymphocytes, eosinophils etc. are the main components responsible for allergy. All these components are the part of blood serum and serum being considered as *rasa dhatu* is the *ashraya* for *kaphadosha*, these components come under *kaphadosha*. When these components are sensitive to allergen it is *prakruta* and is *bala* to the *shareera*. When these cells become hypersensitive it is *vikruta* and is considered to be the *mala*. According to *Ayurvedic* classics, *vamana karma* is considered to be the best line of management

for *vikruta kapha*, which can be employed in allergic asthma too. According to the contemporary science, anti-inflammatory, bronchodilatory treatments concurrent with inhaled & systemic corticosteroids & Presently Omalizumab, a humanized monoclonal anti IgE antibody is being used as effective therapies which comes with adverse effects as well. Hence this study is taken up for assessing the effect of *Vamana karma* in *tamaka shwasa* with special reference to allergic asthma along with changes in the levels of IgE and AEC, pre and post treatment.

Aims and objectives of the study

- To study the efficacy of *Vamana karma* in *Tamaka shwasa*.
- To study the efficacy of *Madanaphala avalehya* for inducing *Vamana karma*.
- To study the effect of *Vamana karma* on IgE and AEC.

Materials and Methods

The present clinical study was carried out by utilizing following drugs and materials shown in table 1.

Table 1: Showing the drugs utilized for the clinical study.

Poorva karma			
Use	Drugs	Dose	Anupana
<i>Deepana pachana</i>	<i>Chitrakadi vati</i>	500mg TID	<i>Ushnajala snana</i>
<i>Snehapana</i>	<i>Moorchita ghrita</i>	<i>Arohana Krama</i>	<i>Ushnajala snana</i>
<i>Sarvanga Abhyanga</i>	<i>Moorchita tila taila</i>	Quantity Sufficient	
<i>Bashpa sweda</i>	-	-	-
Pradhana karma			
<i>Akantapana</i>	<i>Milk</i>	1-2 ltrs	
<i>Vamana</i>	<i>Madanaphala Avalehya</i>		
<i>Vamanopaga</i>	<i>Yashtimadhu kashaya</i>	1-2 ltrs	-
Paschath karma			
<i>Kavala</i>	<i>Ushnajala</i>	Quantity Sufficient	-
<i>Samsarjana krama</i>	<i>Peyadi Samsarjana krama</i>	-	-

Method of Preparation of *Madanaphala Avalehya*

- *Guduchi kanda* will be powdered into coarse form to prepare *kwatha churna*.
- *Guduchi kwatha* will be prepared by boiling 400 grams of *Guduchi kwatha churna* in 16 liters of water and reducing it to 4 liters and filtered.
- 200 grams of *guda* will be added to 4 liters of *Guduchi kwatha*, dissolved and filtered to remove the physical impurities
- Filtered solution will be boiled till the *tantupaka* (when pressed between two fingers, *paka* appears thready and *paka* sinks in water without getting easily dissolved)
- After *paka lakshana*, 100 grams of fine powder of *Madanaphala pippali* will be added by continuous and vigorous stirring to form a homogenous mixture.
- After cooling, 200 grams of madhu will be added and stirred well.
- After complete cooling, it will be stored in the air tight container and used when required along with *saindava lavana*.

Source for Collection of Data

Patients suffering from *Tamaka shwasa* will be selected irrespective of gender, religion, race, socio-economic status from the OPD, IPD and campus conducted at Sri Jayachamarajendra Govt Ayurvedic and Unani Hospital, Bengaluru – 560009, Karnataka, India.

Inclusion criteria

- Patients who are fulfilling diagnostic criteria, having symptoms of *Shwasa kruchruta*, *Ghurghuraka* and *Kasa*.
- Chronicity of the above condition if it is more than 1year and less than 5 years.

- Patients of both the gender between the age group of 20-50 years will be selected.
- Patient who are fit for *Vamana karma* are selected.

Exclusion criteria

- Patient aged less than 20 years and greater than 50 years.
- Patient unfit for *Vamana*.
- Patients suffering from *asadhya lakshanas* of *Tamaka shwasa*
- Patient with systemic desirous illnesses like Hydro-pneumo-pyo-haemo-thorax, pneumonia, Malignancy, pulmonary tuberculosis, IHD, IDV, RHD etc.
- Pregnant and lactating women

Diagnostic criteria

- Patient with classical signs and symptoms of *Tamaka shwasa roga*
- Cardinal features of asthma like breathlessness, recurrent cough, wheeze and chest tightness

Investigation

Total IgE, and AEC, is done before and after the treatment.

Sample size and Grouping

30 patients who fulfilled inclusion criteria were selected & studied under single group.

Study design: 'A clinical study'

Duration of the study: 31 days

Assessment Criteria

Patients were assessed before treatment, after treatment, and after follow up. The following parameters were considered. They were graded, and scores were given as follows:

Subjective parameters were shown in table 2.

Table 2: Showing the subjective parameters

Parameter		Observation	Grade
<i>Shwasa krichrata</i>	Normal	No breathing difficulty	0
	Mild	breathlessness only on exposure to allergens	1
	Moderate	breathlessness at night, irrespective of allergen exposure	2
	Severe	breathlessness day & night, irrespective of allergen exposure, disturbs daily activities	3
<i>Kasa</i>	Normal	No cough	0
	Mild	Continuous cough only on exposure to allergens	1
	Moderate	Continuous cough at night irrespective of allergen exposure, disturbs sleep	2
	Severe	Continuous cough day & night irrespective of allergen exposure, disturbs daily activities	3
<i>Ghurguraka</i>	Normal	No wheeze	0
	Mild	Wheezing only on exposure to allergens	1
	Moderate	Wheeze at night irrespective of allergen exposure	2
	Severe	Wheeze day & night irrespective of allergen exposure throughout the week	3

Objective Parameters

1. Total IgE
2. AEC

Overall assessment was shown in table 3.

Table 3: Showing the overall assessment

Sl. No	Percentage of improvement	Type of response
1	100-75%	Good response
2	74-50%	Moderate response
3	49-25%	Mild response
4	<25%	No response

Results

Effect of *Vamana karma* on Objective Parameters

Effect of *Vamana karma* on Total IgE

Statistical analysis showed that the mean score which was 1047 before the treatment was reduced to 769 after the treatment with 27% improvement. After the follow up it became 0.612 with 42% improvement, and there is a statistically insignificant change. ($P>0.05$).

Effect of *Vamana karma* on AEC

Statistical analysis showed that the mean score which was 495 before the treatment was reduced to 354 after the treatment with 29% improvement. After the follow up it became 261 with 47% improvement, and there is a statistically significant change. ($P<0.001$).

Effect of *Vamana karma* on Subjective Parameters

Effect of *Vamanakarma* on *shwasakricchrata*

Statistical analysis showed that the mean score which was 2.27 before the treatment was reduced to 0.30 after the treatment with 87% improvement. After the follow up it became 0.30 with 87% improvement, and there is a statistically significant change. ($P<0.001$)

Effect of *Vamana karma* on *kasa*

Statistical analysis showed that the mean score which was 1.87 before the treatment was reduced to 0.23 after the treatment with 88% improvement. After the follow up it became 0.17 with 91% improvement, and there is a statistically significant change. ($P<0.001$)

Effect of *Vamana karma* on *ghurghuraka*

Statistical analysis showed that the mean score which was 2.17 before the treatment was reduced to 0.30 after the treatment and follow up with 91% improvement, and there is a statistically significant change. ($P<0.001$). Overall effect of the treatment was shown in table 4.

Table 4: Showing the overall effect of the treatment

Grading	Relief in Percentage	Relief in Patients
No Improvement	0-25%	0
Mild Improvement	26-50 %	2
Moderate Improvement	51 – 75%	3
Marked Improvement	76 – 100 %	25

Discussion

According to *Acharya Charaka*, *Tamaka Shwasa* is a condition where there will be attack of *shwasa* when the *vikruta kapha obstructs the pranavaha srotas and vata dosha* attains *pratiloma gati* (Acharya, 2022). In general, *Tamaka shwasa* is a *yapya vyadhi* but in individual with recent onset, it is said to be *Sadhya* (Acharya, 2022).

The above study reveals the significant role of *Vamana karma* in reducing the signs and symptoms of *Tamaka shwasa* like *shwasa krichrata*, *kasa* and *gurghuraka*. There is also significant reduction in IgE and AEC. In few cases, though AEC & IgE were within normal limits, but presented with symptoms of allergic asthma, subjects were taken up for the study. It was observed in the study that values which were in normal limits remained unchanged or negligible variations after treatment. But in cases of values being abnormally high showed remarkable reduction after treatment. Thus, we can infer that, the procedure maintains the *samyavastha* of these components, if they are in the *prakruta avastha*. Those which are in the *vikruta avastha* are brought back to the *prakruta avastha* through the *vamana karma*.

Probable Mode of Action

Deepana Pachana: helps to correct the agni at both *jataragni* and *Dhatvagni* level. Through proper *Deepana pachana*, *ama utpatti* is checked and thereby corrects the metabolism.

Snehapana: brings about mobility to the *dosha*. *Doshas* which are adhered to the *srotas*, gets separated and are facilitated to come to the *koshta*. This can be inferred as, IgE which is attached to the membrane of granulocytes gets separated during *snehapana* and does not allow its fixation again. Thus, IgE is freely present in serum

Abhyanga and sweda during vishrama kala: Eases the *doshas* which are separated from the *dushyas* to move to the *koshta*. This can be understood as migration of IgE, eosinophils & other granulocytes towards respiratory mucosa.

Vamana karma: Permeability of mucous cells in respiratory tract increases due to *ushna teekshna vyavayi* and *Vikasi guna* of the *vamana dravya*. Thus, Eosinophils & IgE are expelled out with the mucous secreted, obstruction in respiratory tract is cleared enabling easy flow of breath and thus allergic reactions gets reduced. All the patients who were regularly on inhalers before treatment withdrew inhalers during & even after *vamana karma*. They were prescribed with *shamanoushadhis* and later *Rasayana dravya* after the completion of follow-up period. Presently all the patients have withdrawn inhalers.

Conclusion

Panchakarma procedures are meant for the purification of the body, which mainly helps in treating the chronic and life style disorders. *Tamaka shwasa* being one such disease where, *Vamana karma* plays a key role in the management. IgE, mast cells and Eosinophils being the part of blood serum and considered under *Kapha dosha*, through *vamana* these cells are brought to their *prakruta avastha* and thus, *Vamana karma* not only provides symptomatic relief but aids at removing the disease from its root. *Vamana karma* helped in removing the vitiated *dosha* from the body, which when accompanied by *Rasayana dravya* after the completion of *parihara kala* can prevent the recurrence of the disease.

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