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ADD ON EFFECT OF KULATTHA YŪŞA IN MILD AND MODERATE BRONCHIAL ASTHMA

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ABSTRACT :

Asthma prevalence has increased dramatically in many countries over recent decades, demonstrating that environmental exposures play a dominant role in the aetiology of this disease. Dietary change is one of several causal factors implicated in this trend, and in the past two decades the evidence base on the relation between diet and asthma has increased substantially. Based on the results, intake of *Kulattha Yūşa* for 1(one) month in a dose of 120 ml morning and evening empty stomach is effective in improving the subjective and objective parameters. By the comparison with the control group finally it concluded that there is significant change in the subjective and objective parameters by administering *Kulattha Yūşa* in mild and moderate bronchial asthma.

Key words: *Kulattha Yūşa*, mild and moderate Bronchial Asthma, *Tamak Śvāsa*

INTRODUCTION: Asthma as a common chronic disorder of the airways characterized by variable and recurring symptoms, airflow obstruction, bronchial hyper responsiveness (bronchospasm) and an underlying inflammation[1].The prevalence of asthma worldwide is around 200 million with a mortality of around 0.2 million per year. The estimated burden of asthma in India is more than 15 million.[2, 3]Modern medical science manage bronchial asthma by bronchodilator and corticosteroids with long acting beta agonist, which are having adverse effects on long term use, such as skin rashes, throat irritation, tremors, irregular heartbeat, insomnia and so on. Hence there is need to find out a safer, effective non toxic and cheaper remedies. Such remedies could be explored from the huge wealth of *Āyurveda*.

Tamaka Śvāsa is one of the five types of disease *Śvāsa. Tamaka Śvāsa* is a disease mainly of *Prāṇavaha Srotasa*[4]. The signs, symptoms, and etiopathogenesis of bronchial asthma explained in modern diagnosis have lot of similarities with the disease entity *Tamaka Śvās*. Both *Āyurveda* and modern medical science agree regarding the *Nidāna* of the disease as host factors (*Nija Hetu– Doşa Duşţi* and *Āma)* and environmental factors (*Āgantuja Hetu– Raja, Dhūma,Prāgvāta*, etc). It can be easily correlated with the allergic condition. *Nidāna Parivarjanam* hence plays a key role in the management strategy in both sciences[5].

Varieties of *Āhāra* preparations are mentioned in classics which are prepared with rice, wheat, green gram etc. *Anna Kalpanā* comes under the *Kṛatānna Varg* which include *Yūşa,Yavāgū, Ōdana* and *Vilepī* etc. *Kulattha Yūşa* is also one among them which is having *Agnikṛat, Sara, Kapha* and *Vāta Śamaka* properties. It pacifies *Gulma, Arśa, Aśmarī, Tūnī, Pratitūnī, Prameha, Medo Roga* and *Śvāsa Roga.*

AIM AND OBJECTIVES:

- Provide a supplementary therapeutic dietary preparation for the bronchial asthma.
- Evaluate add on effect of *Kulattha Yūşa* in subjective, objective parameters and quality of life in bronchial asthma.

MATERIAL AND METHODS: The present study was planned as Non randomized controlled trial and approved by institutional ethics committee (IEC) prior to the starting of the work (IEC/CL/19/13 Dated 22/04/2013). In this study 40 patients were screened and 31 were found to be satisfying inclusion and exclusion criteria. From that 10 pairs of participants matched for age group, sex, duration of asthma and usual drug (inhaler) by purposive sampling method. One from each pair was randomly selected by lottery method for study group and the other served as a control group. Details about the intervention and duration of study were explained to the patients thereby written informed consent was obtained from the eligible patients.

INCLUSION CRITERIA: Mild and Moderate type of bronchial asthma (NHLBI report-3) patients having history of episode of previous attack since 6 months to 5 years was taking modern medicine (inhaler or inhaler with steroids) and age group between 20 to 50 years were selected irrespective of religion, socio economic status, addiction and nature of work.

ASSESSMENT CRITERIA: The outcome measures were subjective and objective parameters. In subjective parameters – Asthma control questionnaire (CCRAS ACQ), Mini Asthma quality of life questionnaire, Biological assessment by *Āyurvedic* questionnaire and Objective parameters – Spirometery(FEV_1), Eosinophil count, ESR, Absolute Eosinophilic count.

Intervention given:

Study group: For study group, *Kulattha Yūşa* prepared as per the classical reference was given for a period of 30 days morning at 7 am and evening 7 pm before food empty stomach.

Control group: Wait list control group (control group was given the same *Kulattha Yūşa* after the completion of study).

Preparation of *Kulattha Yūşa*: *Kalka Dravya* (*Kulattha)* – 48 *gram* add water – 768 ml and *Prakshepa Dravya* (*Śunţhī* 1.5 gram +*Pippalī* 1.5 gram) – 3 *grām*. Daily fresh *Yūşa* is prepared by boiling above said content and reduced to 240 ml. 120 ml of *Yūşa* is given twice daily.[6]

Properties:[7] *Rasa – Kaşāya, Madhur*
Guṇa – Gurū, Sarah
Vīrya – Ūşṇa

Data analysis: One participant from control group was lost during follow-up due to some personal reason. Statistical analysis was done by using Microsoft Office 2007 Excel and Graphpad InStat version 3.05. Data was checked, analysed and presented with the help of tables and graphs. Unpaired t test was used to check difference between groups after treatment. Paired t test was used to assess effect of intervention within group. Repeated measures ANOVA was done to assess difference between observations at pre-treatment, post-treatment and after follow up. Post hoc analysis was done with Tukey-Kramer Multiple Comparisons test for paired comparisons in three assessments done before, after treatment and after follow up. $p<0.05$ was considered to be significant.

OBSERVATIONS AND RESULTS

Table 1: Analysis of data on 31st day – Subjective parameters

Parameter	Mean ± SD		p - value
	BT	AT	
CCRAS Asthma Control Questionnaire			
1. On average, during the past week, how often were you woken by your asthma during the night?(woken by asthma during night)	2.40 ± 1.42	0.70 ± 0.48	p<0.01
2. On average, during the past week, how bad were your asthma symptoms when you woke up in the morning?(bad symptoms of asthma at morning time)	2.00 ± 0.81	0.40 ± 0.51	p<0.001
3. In general, during the past week, how limited were you in your activities because of your asthma?(restricted activities)	2.20 ± 0.91	0.70 ± 0.67	p<0.001
4. In general, during the past week, how much shortness of breath did experience because of your asthma?(shortness of breath)	1.70 ± 0.48	0.70 ± 0.48	p<0.01
5. In general, during the past week, how much of the time did you wheeze?(wheeze)	1.80 ± 0.63	0.80 ± 0.42	p<0.01
6. In general, during the past week, how many puffs of short-acting bronchodilator have you used each day?(puffs of short-acting bronchodilator)	1.0 ± 0	0.40 ± 0.51	p<0.01
7. FEV 1 Prebronchodilator	2.60 ± 11.88	1.90 ± 10.98	p>0.05
Biological Assessment			
8. Assessment of *Agni*	2.30 ± 0.83	2.20 ± 0.42	p>0.05
9. Assessment of *Bala*	1.90 ± 0.31	1.20 ± 0.42	p<0.01
Mini Asthma Quality of life Questionnaire	3.99 ± 0.63	5.83 ± 0.66	p<0.001

Table 2: Analysis of data on 31st day – Objective parameters

Parameter	Mean ± SD		p – value
	BT	AT	
Spirometry(FEV_1)	78.29 ± 11.88	84.65 ± 10.98	p>0.05
ESR	31.90 ± 26.10	21.90 ± 21.45	p<0.05
Eosinophil count	5.90 ± 1.96	5.40 ± 1.71	p>0.05
Absolute Eosinophil count	520.10 ± 227.74	476.70 ± 214.02	p>0.05

Spirometry: **Table 3: Effect of intervention on Spirometry – Paired t- test**

After intervention	Mean diff ±SD	p – value
Study	6.36 ± 9.17	P<0.05
Control	-7.70 ± 16.06	

ESR:**Table 4: Effect of intervention on ESR – Paired t- test**

Group	Mean diff ± SD	p- value
Study	-10.00 ± 11.00	P<0.05
Control	-1.30 ± 7.83	p>0.05

DISCUSSION:

On Samprāpti: The disease *Tamaka Śvāsa* is predominantly caused by *Prāṇavaha Sroto Duşti* and in its pathogenesis; *Pratiloma Gati* of *Vāta* plays an important role along with *Srotorodha* produced by *Kapha*. In one of the pathogenesis of *Tamaka Śvāsa*, *Vāta* is in normal state and *Kapha* is vitiated with its own etiological factors and this vitiated *Kapha* in the *Uraha Pradeśa* causes the obstruction in the normal path of *Vāta (Prāṇa).* This further leads to *Āvaraṇajanya Vāta Prakopa* and *Pratiloma Gati* of *Vāta* which can be stated as *Kaphapradhāna Samprāpti* of *Tamaka Śvāsa*. On other hand, in certain cases, in the beginning *Vāta* is vitiated through its own etiological factors and this vitiated *Vāta* causes contraction of *Prāṇavaha Srotas*, which further produces *Pīnasa* by excitation of *Kapha Doşa*. The above description is supported by endo-bronchial obstruction, hyper reactivity & inflammation which are three important mechanisms in the pathogenesis of bronchial asthma.

For the *Samprāpti Vighaţana* a preparation which has the qualities like *Agnikŗata*, *Ūşņa Vīrya, Sara, Kapha* and *Vāta Śāmaka* is required.[8]

Control group: In the present study, the control group was kept as waitlist control and hence no intervention was given during the study period. After the completion of study same *Kulattha Yūşa* was given for control group and one participant was lost during follow-up due to some personal reason.

Probable mode of action: *Tamaka Śvāsa* is having *Kapha* and *Vāta* predominance. *Caraka* while mentioning the management explained that those diet and drugs having *Kaphavātaghna, Ūşņa* and *Vātānulomana* properties are useful in management of disease.[9]

Certain points supportive to the combination of *Kulattha Yūşa* are given below:

Kulattha: Ūşņa Vīrya, kapha Vāta Śāmaka, Sara and *Vātānulomaka* properties[10]. It suppresses cough due to *Kapha Śāmaka* action. It reduces the bronchial secretion which are increased due to vitiated *Kapha*, it also pacify *Vāta Doşa* due to *Ūşņa Vīrya* so *Kāsa* (cough) due to broncho spasm is relieved.

Śuņţhī: It is having *Kaţu Rasa, Ūşņa Vīrya* and *Tīkşņa Guņa* so it pacifies *Vāta* & *Kapha Doşa.* It pacify the vitiated *Vāta,* and hence relieves the obstruction, caused by cough which manifest as broncho constriction and over secretion of tracheo bronchial tree so it pacifies the vitiated *Kapha (Kledaka)* and regulates the digestive process, it aids in *Āmapācana* which is the causative factor of *Tamaka Śvāsa. Śuņţhī* also inhibited prostaglandins secretion which triggers the inflammatory response[11].Thus, relieving the bronchial muscles and subsides the inflammatory response.

Pippali: It has been considered under *Kāsahara Mahākaşāya* in *Caraka Samhitā*[12]. It pacifies *Kapha* due to *Kaţu Rasa*, pacify *Vāta* due to *Snigdha Guņa*. It suppresses cough and aids in bronchodilation due to *Kaphavāta Śāmaka* effects. It's fruit decoction is anti inflam-

matory, immunomodulatory and anti oxidant[13,14] and also usefull in chronic bronchitis, cough and cold[15] and bronchial asthma in children[16]. Another study by Johri R K and Zutshi U. states that the Pipppali will increase the bioavailability of many drugs administered with it[17].

Kulattha is prebiotic in nature according to a study conducted by Samanta A.K. et al. As we know, prebiotic biomolecules are not digested by our own enzyme system; they serve as nutrients to a selective group of gut microflora. The native microfloras are stimulated for enhanced growth and multiplication, which imparts beneficial effects on the individual. As a result of increased metabolic products (like acetic acid, lactic acid, etc.), there is lowering of gut pH and blood cholesterol, immune stimulation, pathogen exclusion, increased mineral absorption,etc[18]. June-Ho Kim et al. concluded that diet could modulate epigenetics, intestinal microbiota, physiological development, airway remodelling and immune maturation–factor highly relevant to the aetiology of asthma[19].

Further *Kulattha* though classically mentioned to be *Amlapittajanak*, did not precipitate any such symptoms of *Amlapitta* in the concerned participants and the compliance level of preparation regarding palatability was good.

CONCLUSION: The present study entitled "Add on effect of *Kulattha Yūşa* in mild and moderate Bronchial Asthma" was an attempt to find out the efficacy of cost effective dietary preparation in bronchial asthma. In study group symptoms like restricted activities, wheeze, bad symptoms of asthma at morning time and puffs of short- acting bronchodilator have you used each day?(CCRAS ACQ), Assessment of *Bala* , Mini Asthma Quality of life Questionnaire shown significant change with $p<0.001$ and another symptoms like woken by asthma during night, shortness of breath (CCRAS ACQ) were improved with the significant level $p<0.01$ after 30 days of intervention.

After 30 days of intervention, the participants were followed up for next 15 days and on 46th day there was significant changes with $p<0.001$ in symptoms wheeze, bad symptoms of asthma at morning time(CCRAS ACQ) and Mini Asthma Quality of life Questionnaire. Assessment of *Bala* and restricted activities shown changes with $p<0.01$ and another symptom like woken by asthma during night (CCRAS ACQ) reduced with significant level $p<0.05$ in study group.

When the changes between after 31st day and after 46th day were compared in study group, there was significant change in Mini Asthma Quality of life Questionnaire at the level of $p<0.05$.

REFERENCES:

1. Guidelines for the Diagnosis and Management of Asthma (EPR-3) [Internet]. 2007 Aug [cited on 2014 Jul 12]. Available from: www.nhlbi.nih.gov/guidelines/asthma

2. The International study of asthma and allergies in childhood (ISAAC) steering committee. World wide variations in the prevalence of asthma symptoms. Eur Respir J 1998; 12: 315- 35

3. Jindal SK, Vijayan VK, Chhabra SK. Multi centric study on prevalence of asthma in adults. Final Report. Indian Council of Medical Research, New Delhi, 2004 (Unpublished Data).

4. Goyal HR. A clinical study of tamaka shwasa (Bronchial Asthma) New Delhi: Central Council for Research in Ayurveda and Siddha; 1997.

5. Hemlatha N. A clinical and experimental study on the efficacy of shunthi Pushkaramooladi yoga in the management of tamaka shwasa w.s.r. to childhood asthma. Jamnagar: Gujarat Ayurved University; 2006.
6. Tripathi Brahmanand, editor. Sarngadhara samhita with Deepika commentary (Hindi). Varanasi: Chaukhambha Subharti Prakashan; 1998. p.154
7. Sharma PV, editor. Kaideva Nighant. Varanasi: Chaukhambha Orientaliya; 1979. p.315
8. Acharya JT, editor. Caraka samhita with Ayurveda Deepika commentary (Sanskrit). Varanasi: Chaukhambha Subharti Prakashan; 2009. p.533
9. Acharya JT, editor. Caraka samhita with Ayurveda Deepika commentary (Sanskrit). Varanasi: Chaukhambha Subharti Prakashan; 2009. p.539
10. Lavekar GS et al. editor Database on Medicinal plants used in Ayurveda and Siddha.Vol.5. New Delhi: CCRAS; 2008. p.123.
11. Mishra Neha. Clinical evaluaton of vyaghri haritaki in the management of bronchial asthma (Tamaka Shwasa). Shimla: HPU; 2012.
12. Acharya JT, editor. Caraka samhita with Ayurveda Deepika commentary (Sanskrit). Varanasi: Chaukhambha Subharti Prakashan; 2009. p.34
13. Dinesha R, Chikkanna D. Antioxidant activities of pippali (piper longum) proteins. IJPDA [Internet]. 2014 Nov [cited on 2015 Jan 10];2(11):811-814 Available from:www.ijpda.com/admin/uploads/XP7vCZ.pdf
14. Sunila E.S. & Kuttan G. (2004) Immunomodulatory and antitumor activity of Piper longum Linn. And piperine.J Ethnopharmacol., 90(2-3): 339-346
15. Dahanukar SA, Karandikar SM and Desai M, Efficacy of *Piper longum* in childhood asthma, Indian Drugs, 1984, 21(9), 384-388.
16. Sumy Oommen, Ved DK and Krishnan R, Tropical Indian Medicinal Plants, propagation methods, 2000, 268-269
17. Johri RK, Zutshi U. An Ayurvedic formulation 'Trikatu' and its constituents. J Ethnopharmacol. 1992;37:85–91.
18. Samantha A K et al. Prebiotics in ancient Indian diets. Current Science. [Internet] 2011 Jul 10[cited on 2014 Jul 20]; 101:43-46 Available from: www.currentscience.ac.in/Volumes/101/01/0043.pdf
19. June-Ho Kim, Philippa E Ellwood and M Innes Asher. Diet and asthma: looking back, moving forward. BioMed Centrel. [Internet] 2009 Jun 12 [cited on 2014 Aug 10] doi:10.1186/1465-9921-10-49

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