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A COMPARATIVE STUDY TO EVALUATE EFFECTIVENESS OF PURANA GUDA-KATUTAIL IN MANAGEMENT OF TAMAKA SHWAS (BRONCHIAL ASTHMA)

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ABSTRACT

Shwasa is *kapha-vata pradhan vyadhi* which mainly arises due to *Pranavaha sroto dushti*. *Pratiloma gati* of *vata* plays an important role along with *srotorodha* formed by *kapha*. *Aushadha* is one of the indispensable components and it should be suitable to be patient, disease as well as dosha and measured as *karan* for creating *Dhatusamyata*. Drugs having *kapha-vatahara* and *vatanulomana* assets are used for the management of *shwasa roga*. As per *Bhaishajya Ratnavali purana Guda- Katutail* (*sarshap tail)*, *dravyas* recommended together twice a day may cure Shwas in 21 days entirely. *Purana Guda-Katutail* both are describing *aaharvarg* by various *Aacharyas*. Properties of *Guda* are *ksharyukt* (alkali), *madhur* (sweet teats), *naatisheet* (not cold), *snigdha* (unctuous), *mutra raktsodhak* (urine -blood purifier), *naatipittghn* (not irritate pitta). *Katu tail* properties are *krimighn* (vermicides*), laghu* (light), *kaphamedavatahar* (anti *kapha, meda, vata*), *lekhan* (scrapping), *katu* (pungent).

Keywords: *Shwas roga, tamaka shwas, pranvaha srotas, purana guda, katu tail*.

INTRODUCTION

At present, many chronic repeated airway disorders are progressively seen all over the global population. *Ayurveda* has described one of such disorders as *Shwas roga* (*tamaka shwasa*). *Shwasa-* is derived from *shws jeevane dhatu, its* mean is *jeevan-vyapar or vayu vyapar. Shwasa is kaphavatatmk, pittsthansamudhbhav* disease entity. As per pathology described in *Ayurveda, vata* reaches *siras* (head), *kantha* (throat) and cause obstruction in association with *vitiated kapha* to ultimately produce chronic rhinitis/sinusitis (*pinasa),* stridor (*kanthghurghu-rukm),* disorientation (*prmohm),* severe cough (*kasa),* inability to sleep on lying dowm *(nidram-labhteshyanh),* the symptoms are relieved in sitting position *(aaseenolabhtesaukhyam)* and on exposure to hot food, drink and climate *(ushanmchaivaabhi-nandti*). Out of two specific treatment modalities, *sodhan* (bio purification) and *shamana* (~pacification) are outdoor therapy. *Shamana* therapy is a widely practised cost-effective treatment modality.

Guda after one year of its preparation and storage is known as *purana guda* and it is considered to possess better properties than *guda* and is also more wholesome.

Sarshap (Brassica campestris) tail main component is *sarshapbeej* (seed). it *is katu, tikta rasa* (taste*), uashnveerya* (efficacy), *kapha-vaatnashak. It* is used for *pana* and *abhyang*a in *Shwas roga.*

Material & Methods- The present clinical study entitled A comparative study to evaluate the effectiveness of *purana guda -katutail* in management of *tamaka shwasa* with special reference to bronchial asthma.

Hypothesis-

Null hypothesis (H0) -*Puaranaguda -Katutail* doesn't make any significant difference in the management of *Tamaka Shwasa* as adjuvant therapy.

The alternate hypothesis (H1)- *Purana Guda - Katutail*make any significant difference in the management of *Tamaka shwasa* as adjuvant therapy.

Aim and Objectives-

- To see comparative effectiveness of *purana guda-katutail* in management of *tamaka shwas* (bronchial asthma).
- To assess the correlation of absolute eosinophil count in *tamaka shawasa.*

Data collection-Subjects recruited for the study will be assessed on days 0,7th,14th,28th,35th,42^{ths} days to evaluate the effectiveness of *Purana guda-katutail* in the disease and findings would be noted in specified Performa.

Number of the group- Two parallel groups

Sample size in each group-30 patients in each group.

Registered patients will be randomly divided into two groups (30 in each group).

Group A- *Shwaskuthara rasa.*

Group B- *purana Guda and katutail*, in avleha form, empty stomach.

Drug review-

The reason behind the selection of drug: -It's a herbal compound drug-containing all the ingredients easily available, described in the *Bhaishajy Ratnawali* in the disease *tamaka shwasa*. To check its efficacy, a framework was designed based on *Bhaishajya Ratnawali* as *shamana chikitsa*, the used drugs should be *vatakaphaghna*, *ushna* and *vatanulomana*. *Katu-tail (Sarshapa tail)*: *doshakarma- kaphavata shamaka*

Therapeutic uses- *aagnimandhya, pleehavriddhi, kushtha, mootraghata.* Action- *lekhan, varnya, shonitotkleshka, hritotejaka, mootrajanana, garbhashotejaka.*

***Guda* (Jaggery):**

Guda (Jaggery) is one of the chief plant products which are easily accessible in the markets. It is mainly prepared from sugarcane. Jaggery is a popular food material and an important raw drug used in *Ayurveda* for therapeutic and pharmaceutical purposes such as *avaleha, vataka, guda, arishta, asava, gudika* etc. Jaggery is a pure, wholesome, unrefined sugar that contains the natural goodness of minerals and vitamins. Uttar Pradesh accounts for 45% of the total production of *guda*. The states like Maharashtra, Andra Pradesh, Karnataka and Tamil Nadu, together account for 30% of the total production of our country. Jaggery is nutritionally comparable with honey. It

has been used as a sweetener in *Ayurvedic* Medicine for 3000 years. The mineral content of jaggery includes calcium, phosphorus, magnesium, potassium, iron, traces of zinc and copper. The vitamin content includes folic acid and B complex vitamins. Jaggery has also been prescribed for various diseases like anemia, jaundice, breathlessness and kidney problems.

Purana guda –

guda which are preserved for long time are called *purana guda*. It is superior in qualities and said to be very suitable for health and with *rasayana* properties. *Kaiyadeva Nighantu* considered, one year old *guda* as *purana guda, ruchikaram, agnideepanam, mutralam* and *malasudhikaram, hrudayahitham swadhishtam, pushtikaram, rasayanam, laghu, snigdham, vrushyam, pramehaharam, vrushyam, tridoshaharam, pandu*, and *vatapittaharam* etc.

rasa – madhura, guna – laghu, veerya – anusnasheeta, vipaka - madhur.

Assessment criteria-

1. Asthma control Test.
2. Number of exacerbations.
3. Need emergency medication.

Primary outcome measure

1. Reduction in rate of severe asthma.
2. Reduced eosinophil in blood
3. Reduced serum Ig E
4. Reduced total eosinophil count.
5. Day and nighttime symptoms of asthma.

Statistical Analysis-

sixty patients having *tamaka shwas* (bronchial asthma) of varying degrees were volunteers for treatment. The information gathered based on the observation made about various parameters were subjected to statistical analysis in terms of Mean, Standard Deviation and Standard Error are calculated with the help of an excel sheet. the t-test is applied on AEC, ACT or ESR score for, intergroup comparison, z-test is applied on cough and sputum for intragroup comparison. The Chi-square test is applied to the distribution of age and gender for intragroup comparison. The probability (p) value is calculated with the help of these tests in this study.

Observation and Result:

A total of 80 patients were registered and 60 patients completed the trial. Details of observation and results of the study that initial screening was carried out in the outpatient department of *Kayachikitsa* based on inclusion criteria on *tamaka shwas* in this study,30 patients belong to Group A and 30 patients belong to Group B. Whole trial was completed in 42 days. The duration of intervention for each patient is 21 days.

Comparison of improvement of symptoms of the patients of the two groups-

Test of proportion showed that the proportion of patients with improvements of dyspnea, wheezing, ESR, AEC, ACT good improvement in dyspnea, cough, wheezing, AEC, ESR, ACT were significantly higher among the patients treated with *purana guda* and *katutaila* compared to the patients treated with *shwaskuthar rasa*.

Result-

This clinical study was carried out with the following objectives: -

Primary Objective-To assess the clinical efficacy of *Purana Guda* and *Kattu Tail* in the management of Bronchial Asthma *(Tamaka shwasa).*

Secondary Objectives-To assesses the co-relation of absolute eosinophil count in *Tamaka shawasa.*

The conceptual aspect of drug properties is described with the effect of individual contents of *samprapti ghatakas* like *dosha, dushya, agni, srotas, rupa* etc. A clinical analysis of trial drug *purana guda* and *katutail* is described in this section. The trial drugs are the combination of drugs having *deepana, pachana, srotoshodhana, aamnashana, dhaturupi kaphasthapana, vatanulomana, vVatakapha shamana* and *rasayana* properties. Therefore, the ingredients of the study drug might have acted at different levels during breaking the pathogenesis of *tamaka shwasa* (bronchial asthma).

Table 1: Distribution of Patients

Type of treatment	Number of patients	%
Shwas Kuthara Rasa	30	50.00%
Purana Gund and *Kattu Tail*	30	50.00%
Total	60	100.00%

Table 2: Distribution of patients according to socioeconomic status

Socio-economic status	Group A	Group B	Total	Percentage
Upper	1	0	1	01.63%
Middle	13	19	32	53.37%
Lower	16	11	27	45.00%

Table 3: Onset wise patients' distribution

Onset	Group A	Group B	Total	Percentage
Gradual	22	23	45	75.00%
Acute	5	6	11	18.33%
Insidious	3	1	04	06.66%

Table 4: Chronicity wise distribution of patients

Chronicity	Group A	Group B	Total	Percentage
Up to 1 year	17	15	32	53.33%
1-3 years	10	13	23	38.33%
3-5 years	3	2	05	08.33%

Table 5: *Aahara pariksha* of *tamaka shwas*

Aahara	Group A	Group B	Total	Percentage
Veg	22	26	48	80.00%
Mixed	08	04	12	20.00%

Table 6: Bowel habit wise distribution of patients

Bowel habit	Group A	Group B	Total	Percentage
Regular	13	14	27	45.00%
Irregular	17	16	33	55.00%

Table 7: Distribution of age and type of treatment

Age(year)	*Shwas Kuthar Rasa*	*Purana guda-kattu tail*	t- test	p- value
MEAN $\pm$ S. D	38.166667 $\pm$ 11.665	36.2 $\pm$ 12.258	0.5873	0.268 NS
MEDIAN	35	36.5		
RANGE	18-60	18-60		

NS-Not Significant.

Table 8: Comparison of improvement of cough and sputum

Improvement of cough and sputum	*Shwas Kuthar Rasa*	*Purana Guda and Kattu Tail*	z-test	p-value
Cough	86.67%	73.33%	1.96	0.0039
Sputum	90%	80%	1.96	0.0001

Table 9: ESR-

BEFORE TREATMENT (%)				
ESR	*Shwaskuthar rasa*	*purana guda-katutail*	t-test	p-value
Mean ± SD	20.333 ± 21.48	23.294 ± 34.201		
Median	12	13		
Range	2-85	2-85	2.0452	0.04701 S
AFTER TREATMENT (%)				
ESR	*Shwaskuthar rasa*	*purana guda-kattutail*	t-test	p-value
Mean ± SD	14.6 ± 19.864	18.265 ± 28.492		
Median	6.5	9		
Range	2-87	2-87	2.0452	0.29063 NS
DIFFERENCE BETWEEN BEFORE AND AFTER TREATMENT (%)				
ESR	*Shwaskuthar rasa*	*purana guda-katutail*	t-test	p-value
Mean + SD	6.333 ± 11.659	7.1831 ± 14.949		
Median	4.5	4.75		
Range	-20 – 55	-20 – 55	2.04523	0.75708 NS

Table 10: ACT-

Before treatment-ACT				
	Shwarkuthar rasa	*Puran guda-katutail*	t-test	p-value
Mean ± SD	282.2 ± 12.647	322.667 ± 75.5678		
Median	248	314		
Range	112-615	112-615	2.045229611	0.955426 NS

After treatment				
	shwarkuthar rasa	*purana guda-katutail*	t-test	p-value
Mean ± SD	212± 83	269 ± 72		
Median	190	288		
Range	107-397	112-400	2.045229611	0.556585 NS

Difference between before and after treatment				
	Shwaskuthar Rasa	*Purana Guda* and *Kattu Tail*	t-test	p-value
Mean + SD	70.932 ± 78.993	4.2 ± 2.091		
Median	32.5	24.5	2.045229611	0.657369 NS
Range	2-264	0-233		

Table 11: AEC

Before treatment				
	Shwasa Kuthar Rasa	*purana guda-katutail*	t-test	p- value
Mean ± SD	14.33 ± 4.889	13.767 ± 4.739		
Median	15	13		
Range	6-23	6-23	2.04522	0.0705

After treatment

Mean ± SD	17.767 ± 5.4697	18 ± 3.5623		
Median	18	19		
Range	9-24	11-23	2.04523	0.1618

Difference between before and after treatment-

	Shwas Kuthar Rasa	*purana guda-katutail*	t-test	p-value
Mean + SD	3.333 ± 1.5388	4.2 ± 2.091		
Median	3	3.5		
Range	1-7	0-8	2.04523	0.3961

DISCUSSION

Discussion on the conceptual study:

Charaka Samhita appears to be the first text in which *Acharya Charaka* has described the detailed description of *Shwasaroga* in the 17th Chapter of *Chikitsasthana*. It is the first time that a very clear and most scientific process of the physiology of respiration was described in *Sharangadhara Samhita*. It explains the role of respiration in the maintenance of *Agni* as well as life, which can be interpreted & understood with available modern literature regarding the process of respiration. *Sadhya* is in the initial stage and *yapya is* in chronic condition. In *Tamak Shwasa* unavoidable factors like stress and environmental pollution play an important role. Because of this reality, *Tamaka Shwasa* is still today incurable.

Discussion on drug review:

According to *Acharya Charaka*, drugs having *kapha-vatahara* and *vatanuloman* properties are used for the management of *Tamakashwasa*. *Mandagni* leads to the formation of *Ama*, which results in the formation of *Sama Kapha* producing the obstruction in the normal path of *Vata*. Here, the drug *Shwas Kuthar Ras* and *Purana Guda* and *Kattu Tail* are *Vatakapha hara* and *Ushna Virya*. So, both Yoga is fulfilled above all the properties for the management of *Tamaka Shwasa*.

Discussion on Clinical study:

A total of 80 patients were registered and 60 patients completed the trial, among them 10 were excluded as they didn't meet the criteria of inclusion.7 patients out of 10 were excluded because they were also suffering from diabetes and hypertension or COPD;3 patients didn't belong to trial age group. Eventually, a total of 70 patients were registered for the study over 42 days. With the help of chit method of randomization, patients were allocated to Group A and Group B. During the trial, four patients of Group A and six patients of Group B didn't come for follow up. They were replaced with patients of similar profiles.

Statistical Analysis-

Descriptive statistical analysis was performed to calculate the means with corresponding Standard deviation (S.D.). Test of proportion was used to find the Standard Normal Deviation (Z)to compare the difference proportion and a Chi-square test was performed to find the associations. In the cases where one of the cell frequencies were less than 5 corrected Chi-square was used to find the association between variables. A t-test was used to compare means, $p<0.05$ was taken to be statistically significant.

Effect of Therapies -

Comparison of improvement of symptoms of the patients of the two groups-Test of proportion showed that the proportion of patients with improvements of dyspnoea, wheezing, ESR, AEC, ACT good improvement in dyspnoea, cough, wheezing, AEC, ESR, ACT were significantly higher among the patients treated with *Purana guda -kattutaila* compared to the patients treated with *Shwas Kuthar Rasa*.

CONCLUSION

Shamana chikitsa in the form of *purana guda* and *kattu tail* can play an important role in the treatment of

tamaka shwasa. The drug showed a highly significant

decrease in Eosinophil% (24.675%), Total Eosinophil Count (29.722%), Sr. IgE (20.587%). In most of the comparisons between follow-ups significantly decrease in Asthma Control Questionnaire Score was seen, all these findings prove that the drug *purana guda* and *katu tail* showed positive response on various parameters which indicates that it helped in reducing the symptoms of *Tamaka Shwasa* (Bronchial Asthma). Therapy was well tolerated by all the patients and no unwanted effects were seen in any patient.

So null hypothesis (H0) is rejected. Alternative hypothesis.

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