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CLINICAL EVALUATION OF MUHURMUHUR PRAYOGA OF PUSHKARAMULASAVA DURING THE ATTACKS OF TAMAKA SHWASA (BRONCHIAL ASTHMA)

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ABSTRACT

A clinical study based on the conceptual review of the disease Tamaka shwasa (Bronchial asthma) and its treatment, in particular, to the use of atyayika chikitsa during the episodes and also an evaluation of the immediate role of Pushkaramulasava in the disease tamaka shwasa. Tamaka Shwasa, a disease of the pranavaha srotas is one among agonizing disorders. The management of agony created to the patient during the attacks is a field of concern in this disease. Among the many treatment measures mentioned for shwasa, Shamana using Pushkaramulasava has been selected in this study in a repeated dosage pattern and the effect was evaluated. This study has a single group pretest and post test design where the patients were evaluated before, during and after the treatment. Therapeutic effect was observed using the subjective and the objective criteria's which were graded and analyzed statistically using the paired 't' test. The patients were observed hourly during the first four days of treatment and weekly for four weeks. Marked remission of the symptoms of tamaka shwasa was noticed in almost all patients in this study. Thus response by the treatment was statistically significant with P value < 0.001 in terms of all the symptoms of the disease. Thus the muhurmuhur usage of Pushkaramulasava is proved to be useful in the condition tamaka shwasa as an immediate line of treatment.

Keywords: Tamaka shwasa, Pushkaramulasava, Bronchial asthma.

INTRODUCTION

Since time immemorial, the field of medicine is in a constant endeavor to find solutions to the life threatening and agonizing disorders. Tamaka shwasa (Bronchial Asthma) is one such condition wherein acute episodes are seen, leaving the patient in a pathetic situation. Hence managing this acute respiratory condition is always a serious issue for the medical fraternity. The indulgence in the etiological factors leads to the morbidity of vata and kapha dosha which originates from the pittasthana and afflicts the rasa dhatu¹. The disease afflicts the pranavaha srotas along with udaka and anna and produces blockage to the movement of prana vata². The cardinal features of the disease like dyspnoea, cough and expectoration are manifested with the very typical exacerbations and remission pattern which is diagnostic³. Bronchial Asthma is a disorder of the airways causing respiratory hypersensitivity, inflammation and constriction of the smooth muscles in the airway, which includes many cells and cellular elements like mast cells, eosinophils, T lymphocytes, macrophages, neutrophils and epithelial cells leading to the symptoms particularly at night or in the early morning⁴. Asthma is a heterogeneous disease which has an interplay between endogenous and environmental factors. The incidence and disease severity is also genetically determined. A general survey has shown that over 300 million around the world suffer from bronchial asthma, and 3.5 % to 20 % prevalence of the disease is observed in any country. Over 40 million of the Indian population is afflicted from this malady⁵.

Tamaka shwasa chikitsa

Principles of treatment adapted in Tamaka shwasa include shodhana, shamana, brumhana and rasayana chikitsa⁶.

According to the circumstance any shodhana except sneha basti is mentioned in the disease. Abhyanga sweda, dhumapana, langhana, vata vipareetartha chikitsa like trasana, harshana and also oral medications are referred⁷. As the disease progresses after the shthanasamshrayavastha both dosha and vyadhi pratyaneeka chikitsa are needed. As the disease presents with emergency symptoms like shwasa, kasa, ghurghuraka which can also be life threatening, the management should be in such a way that it should give immediate relief to the patients⁸. This type of treatment should later be continued with the shamana or the shodhana line according to the fitness of patient. The wide range of medicaments explained can be classified on the basis of their usage during vegavastha and avegavastha. Among the many shamana procedures oral medication Pushkaramulasava⁹ is identified to be very helpful in relieving the symptoms of the disease.

MATERIALS AND METHODS

The episodic disease Tamaka Shwasa is best managed by the different atyayika measures mentioned in the chikitsa of the disease. Among the different measures mentioned, Pushkaramulasava in a repeated dosage pattern¹⁰ was selected as an immediate management therapy in this study. Thus a clinical study was undertaken on 30 patients to evaluate the immediate effect of the treatment on the symptoms and signs of the disease in tamaka shwasa. Ethical clearance was taken from the ethical committee with respect to the study. Institutional ethical clearance number: SDMCAU/ACA15/EC27/09-10.

Aims and Objectives

To evaluate the immediate effect of Pushkaramulasava in relieving the symptoms of Tamaka shwasa

Study Design

Single group pretest posttest design

30 Patients fulfilling the diagnostic and inclusion criteria of Tamaka shwasa of either sex, irrespective of their economical status, educational status and caste were selected, registered from OPD and IPD of S D M Ayurveda Hospital, Udupi, India and taken for study. Medicine required for the study i.e. Pushkaramulasava was prepared in the S.D.M. Ayurveda Pharmacy.

Diagnostic Criteria

Patients having cardinal features of Tamaka Shwasa i.e., Shwasa, Kasa, Steevana and ghurghuraka shwasa fitting into the diagnostic criteria fixed by the GINA¹¹ guidelines

Inclusion Criteria

- Patients fulfilling diagnostic criteria of the disease
- Age between 16 – 70 years
- Patients having history of more than 6 months

Exclusion Criteria

- Tamaka Shwasa associated with complications
- Severe attack of Tamaka Shwasa having the peak flow expiratory rate of < 50 % of predicted value of the peak flow rate chart.¹²
- Suffering from systemic disorders which would interfere with the studies

Intervention

All the 30 patients were treated with Pushkaramulasava for a maximum of 4 days (1st day to 4th day) with hourly intervention during the day. A total dosage of 150 ml¹³ was given to the patients in 10 divided doses. Later it was followed by the same medicine in 50 ml tid dosage for 4 weeks (5th to 32nd day).

Study Duration

4 days + 4 weeks – Observation -I stage-Hourly,
II stage-weekly, follow up 30 days,
Total duration 62 days.

Assessment criteria

Subjective and objective parameters were assessed before treatment, during treatment on the first, second, third day and fourth day every hour and weekly for the next 4 weeks, adapting standard methods of scoring and were analyzed. Subjective parameters like Dyspnoea, Cough, Speech, Wheeze, Body position and Objective parameters like PEFR, Sputum, Respiratory Rate, Labored breathing, Chest expansion and Breath sounds were considered. Patient was given a complete information sheet consisting the details of the study and a consent form was signed with duly filled details.

Statistical test

For the statistical analysis of results, paired t test was applied on the parameters of the patients treated with Pushkaramulasava to compare the results within the group before and after the treatment.

Assessment of severity

Grade 0 – Nil

Grade I– Mild intermittent

Symptoms ≤ 2 times a week

Asymptomatic and normal PEF between exacerbations

Exacerbations brief (few hours to days) intensity may vary

Night time symptoms: ≤ 2 times a month

Lung functions: PEF ≥ 80 % predicted

PEF variability < 20 %

Grade II – Mild Persistent

> 2 times a week but < 1 time a day

Exacerbations may affect activity

Night time symptoms > 2 times a month

PEF ≥ 80 % predicted

PEF variability 20–30 %

Grade III –Moderate Persistent

Daily symptoms

Daily use of inhaled short-acting beta₂-agonist

Exacerbations affect activity

Exacerbations ≥ 2 times a week; may last days

Night time symptoms > 1 time a week

PEF > 60 % -< 80 % predicted

PEF variability > 30 %

Grade IV –Severe Persistent

Continual symptoms

Limited physical activity

Frequent exacerbations

Night symptoms-Frequent

PEF ≤ 50 % predicted

PEF variability > 30 %

RESULTS

All the 30 patients were administered pushkaramulasava and among them 17 patients had to continue with the repeated dosage of hourly medicine for four days and 9 patients got a relief in 3 days and four patients responded within 2 days. On the next day of relief medicine was given in a tid dosage pattern. All the patients were assessed for the change in their symptom scores before, during and after treatment. Statistical analysis was done for the response of treatment on the fourth day and after the whole course on 32nd day. The changes are detailed in the tables and figures. The objective and subjective criteria's of the disease tamaka shwasa were recorded before the treatment of pushkaramulasava and later the patients were observed every hour for the first four days during the day and later weekly for next four weeks. Then the patients were followed for one month to observe for any recurrence. All the parameters taken for assessment showed statistically significant response on the fourth day of assessment. This shows that pushkaramulasava has marked immediate effect on the disease. The statistical analysis on 32nd day also showed significant response in all parameters. This shows that when the medicine is continued the patients get a reduction in the symptoms further. When patients were analyzed on 62nd day of treatment it was observed that very few i.e. four patients

had recurrence and in other patients recurrence was not observed. The recurrence was seen in the more chronic patients who had a long history of the disease and also who couldn't avoid the daily exposure of allergens due to their occupation. The clinical features like severity, wheeze, speech, body position, labored breathing, respiratory rate and mental status had drastic reduction on the fourth day of treatment and a gradual reduction in the

next two weeks. Dyspnoea, ACQ, cough, chest expansion, sputum, PEFr and breath sounds showed gradual reduction on the 4th, 11th, 18th, 25th and 32nd day. The role of atyayika chikitsa is very much identified in diseases like tamaka shwasa which is supported by the mention of repeated dosage pattern of oushadha sevana. Treatment when followed in the specific pattern will help the patients in control of the agonizing dyspnoea.

Table 1: Grading for symptoms

SN	Symptoms	Parameters	Grades
1	Cough	No cough	1
		Occasional cough but not disturbing	2
		Cough troublesome during attacks	3
		Cough very troublesome and Frequent	4
2	Respiratory rate	Ranging from 12 to 18 breath/min	0
		Ranging from 19 to 21 breath/min	1
		Ranging from 22 to 24 breath/min	2
		More than 24 breath/min	3
3	Shortness of breath/ breathlessness	Can walk indefinitely	0
		Short breath by strenuous work	1
		Short breath by Moderate work (by climbing 1-2 stairs)	2
		Short breath by minimum work (by climbing 1 stair)	3
4	Body position	Shortness of breath at rest	4
		Normal	0
		Able to recline	1
		Prefers sitting	2
5	wheezing at day	Unable to recline	3
		No discomfort	0
		Once a while in day	1
		Twice a day	2
6	Wheezing in Night	Three to Four times a day	3
		More than five times a day	4
		Sleep throughout night	0
		Awakened once	1
7	Use of Accessory muscle	Awakened twice	2
		Awakened three to four times	3
		Awakened almost one hourly	4
		None	0
8	Speech	Mild occasional use	1
		Moderate continuous use	2
		Marked excess usage	3
		Speech Possible	0
9	Mental status	Speech- can understand but with difficulty	1
		Speech –cannot understand few words	2
		Speech- completely slurred	3
		Normal	0
10	Quantity of Sputum	Agitated	1
		Depressed	2
		Coma	3
		Nil	0
11	Breath Sounds	Less than 2.5 ml per day	1
		Ranging from 2.5 ml to 10 ml	2
		Ranging from 11 ml to 20 ml	3
		More than 21 ml per day	4
12	Chest Expansion	None	0
		End Expiratory	1
		Expiratory	2
		Both	3
		5-8 cm	0
		4-4.9 cm	1
		3-3.9 cm	2
		2-2.9 cm	3
		< 2 cm	4

Table 2: Effect of Pushkaramulasava on Different Parameters of Tamaka Shwasa on 4th Day

Parameters	Mean (S.E ±)		DIF in MEAN	Paired 't' Test			
	BT	AT4		S.D.	S.E.M.	't'	P
Severity N = 30	2.10 ± 0.14	0.60 ± 0.12	1.50	0.73	0.13	11.23	< 0.001
Dyspnoea N = 30	2.50 ± 0.17	1.63 ± 0.11	0.86	0.62	0.11	7.54	< 0.001
Wheeze Day N = 30	1.83 ± 0.12	0.56 ± 0.11	1.26	0.74	0.13	9.37	< 0.001
Wheeze Night N = 30	1.46 ± 0.12	0.20 ± 0.08	1.26	0.64	0.11	10.84	< 0.001
Speech N = 26	1.23 ± 0.12	0.23 ± 0.07	1.00	0.58	0.10	9.32	< 0.001
Cough N = 30	2.600 ± 0.132	1.500 ± 0.115	1.100	0.481	0.0878	12.535	< 0.001
Body position N = 30	1.633 ± 0.122	0.633 ± 0.131	1.000	0.695	0.127	7.883	< 0.001
Labored breathing N = 30	1.800 ± 0.147	0.600 ± 0.123	1.200	0.714	0.130	9.200	< 0.001
R.R. N = 30	1.667 ± 0.130	0.533 ± 0.104	1.133	0.730	0.133	8.500	< 0.001
Chest exp. N = 30	1.900 ± 0.154	1.467 ± 0.115	0.433	0.504	0.0920	4.709	< 0.001
Sputum N = 30	2.867 ± 0.196	1.767 ± 0.133	1.100	0.712	0.130	8.462	< 0.001
PEFR N = 30	291.333 ± 10.567	297.333 ± 10.526	- 6.000	6.747	1.232	- 4.871	< 0.001
Mental status N = 10	0.333 ± 0.0875	0.000 ± 0.000	0.333	0.479	0.0875	3.808	< 0.001
Breath sounds N = 30	2.500 ± 0.104	0.800 ± 0.162	1.700	0.952	0.174	9.778	< 0.001

Table 3: Effect of Pushkaramulasava on Different Parameters of Tamaka Shwasa on 32nd Day

Severity	Mean (S.E ±)		Difference in Mean	Paired 't' Test			
	BT	AT32		S.D.	S.E.M.	't'	P
Severity N = 30	2.10 ± 0.13	0.000 ± 0.000	2.100	0.759	0.139	15.157	< 0.001
Dyspnoea N = 30	2.50 ± 0.17	0.0333 ± 0.0333	2.467	1.008	0.184	13.403	< 0.001
Wheeze day N = 30	1.83 ± 0.12	0.000 ± 0.000	1.833	0.699	0.128	14.367	< 0.001
Wheeze Night N = 30	1.46 ± 0.12	0.000 ± 0.000	1.467	0.681	0.124	11.789	< 0.001
Speech N = 26	1.23 ± 0.12	0.00 ± 0.0000	1.233	0.679	0.124	9.950	< 0.001
Cough N = 30	2.60 ± 0.13	0.0333 ± 0.0333	2.567	0.774	0.141	18.166	< 0.001
Body position N = 30	1.63 ± 0.12	0.000 ± 0.000	1.633	0.669	0.122	13.379	< 0.001
Labored breathing N = 30	1.80 ± 0.14	0.000 ± 0.000	1.800	0.805	0.147	12.245	< 0.001
R.R. N = 30	1.66 ± 0.13	0.0333 ± 0.0333	1.633	0.765	0.140	11.696	< 0.001
Chest exp. N = 30	1.90 ± 0.15	0.000 ± 0.000	1.900	0.845	0.154	12.318	< 0.001
Sputum N = 30	2.86 ± 0.19	0.133 ± 0.0631	2.733	1.015	0.185	14.752	< 0.001
PEFR N = 30	291.33 ± 10.56	327.667 ± 9.752	- 36.333	18.286	3.339	- 10.883	< 0.001
Mental status N = 10	0.33 ± 0.08	0.000 ± 0.000	0.333	0.479	0.0875	3.808	< 0.001
Breath sounds N = 30	2.50 ± 0.10	0.000 ± 0.000	2.500	0.572	0.104	23.924	< 0.001

Figure 1 and 2: Effect on severity of disease in patients of Tamaka Shwasa on 4th day and weekly observation

Figure 3 and 4: Effect on dyspnoea in patients of Tamaka Shwasa on 4th day and weekly observation

Figure 5 and 6: Effect on wheeze in the day in patients of Tamaka Shwasa on 4th day and during weekly observation

Figure 7 and 8: Effect on wheeze in the night in patients of Tamaka Shwasa on 4th day and during weekly observation

Figure 9 and 10: Effect on Asthma control questionnaire (ACQ) in patients of Tamaka Shwasa on 4th day and during weekly observation

Figure 11 and 12: Effect on speech on AT4 and weekly follow up

Figure 13 and 14: Effect on cough in patients of Tamaka Shwasa on 4th day and weekly follow up

Figure 15 and 16: Effect on body position in patients of Tamaka Shwasa on 4th day and weekly follow up

Figure 17 and 18: Effect on labored breathing in patients of Tamaka Shwasa on 4th day and weekly follow up

Figure 19 and 20: Effect on Respiratory rate in patients of Tamaka Shwasa on 4th day and weekly follow up

Figure 21 and 22: Effect on chest expansion in patients of Tamaka Shwasa on 4th day and weekly follow up

Figure 23 and 24: Effect on sputum in patients of Tamaka Shwasa on 4th day and weekly follow up

Figure 25 and 26: Effect on Peak expiratory flow rate (PEFR) in patients of Tamaka Shwasa on 4th day and weekly follow up

Figure 27 and 28: Effect on mental status in patients of Tamaka Shwasa on 4th day and weekly follow up

Figure 29 and 30: Effect on breath sounds in patients of Tamaka Shwasa on 4th day and weekly follow up

DISCUSSION

Tamaka shwasa, a pranavaha srotogata vyadhi afflicting the movement of pranavata, is produced due to the involvement of pitta sthana. The involvement of ama in the early stage of the disease later gets associated with the other dosha vitiations. The disease has an episodic nature which precipitates by the specific nidana in each individual. The factor of atma asatmya is the main culprit in inducing the symptoms. The pathogenesis of shwasa is explained to occur due to the obstruction of the srotas by the kapha leading to the vata vimarga gamana. Thus the pathogenesis prompts the usage of treatment modalities which will work as nidana parivarjina and help in dosha shodhana. The medicaments should have an effect of curing the hypersensitivity prevailing in the individuals. The treatment procedures explained can be identified as ones used during the vegavastha and others used during avegavastha. The immediate management of the disease plans for the cure to the attacks of the disease in giving immediate help. Kapha chedana, vilayana and sroto mardava would help the patients from ghurghuraka, kasa, shwasa and pratishyaya which are considered to be the cardinal features of tamaka shwasa.

Mode of action of pushkaramulasava in tamaka shwasa

The medicament pushkaramulasava is explained to have kasa, shwasa, parshwashula, hikka, pratishyaya and shophahara action. The medicine consists of amapachana drugs like vyosha, vidanga, chavika and pippalimula, kapha chedaka drugs like vyosha, guda and madhu, pushkaramula, bharangi and kushta which have kasa hara and shwasa hara effect. Several experimental studies have been undertaken to prove the effects of pushkaramula (*Inula racemosa*) the main ingredient of the formulation. The extract of the drug has shown the anti inflammatory effect against the exudative phase of inflammation in mice. The aqueous and alcoholic extracts have shown the cardio tonic effect in isolated frog's heart. The drug when used in powder form in 50, 100 and 200 mg in albino rats has reduced the respiratory rate and increased the depth of respiration. Alcoholic extract has shown protective effect against bronchospasm induced by histamine, 5HT and pollens of zea maize. The medicines in diseases like kasa, shwasa and hikka need to be given in muhu muhu (repeated dosage) pattern which will help in providing a good relief to the patients to their symptoms as it is an episodic disease. The vama karma along with virechana, brahmana chikitsa and shamana when performed between the attacks, prevents further attacks, eliminates khavaigunyata and improves the immunity of pranavaha srotas.

CONCLUSION

The management of the episodes of the disease Tamaka Shwasa was done by shamana chikitsa using Pushkaramulasava in a repeated dosage pattern which helped the patients of Tamaka Shwasa. Hence the clinical evaluation of muhurmuhr prayoga of Pushkaramulasava during the attacks of Tamaka Shwasa (Bronchial asthma) conducted on 30 patients of Tamaka Shwasa for duration of 62 days proved the objective. There was a statistically significant response with $P < 0.001$ in all parameters of the disease which were taken for assessment in the study.

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