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**EVALUATION OF EFFECT OF KRISHNADI CHOORNA IN
MANAGEMENT OF TAMAK SHWASA****Bhairav B. Tawshikar^{1*}, Anil K. Burley²**

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**EVALUATION OF EFFECT OF KRISHNADI CHOORNA IN
MANAGEMENT OF TAMAK SHWASA****ABSTRACT**

In the Current Study 60 Patients of *Tamak Shwasa* have been selected randomly divided in two groups. The patients showing classical symptoms of *Tamak Shwasa* such as *Shwasakruchhrata* (Dyspnoea), *Kasa* (Cough), *Ghur-Ghurak Shabda* (Wheezing or Rhonchi) During night, *Kasten Shleshma Moksha* (Difficult in Expectoration), *Kasten Bhashya* (Difficult in speech), *Anidra* (Insomnia) etc. were included in this study. For the present study we were given *Krishnadi Choorna* orally. It reduces Respiratory Rate effectively & increases Expansion of Chest, Breath Holding Time, and Peak Expiratory Flow Rate & Sustained Maximal Inspiration which was highly significant statistically as compared with Tab. Deriphyllin. Out of 30 patient included in Group A none patients showed total relief in symptoms, 7 patients were markedly improved (50 to 75%), 21 patients were improved (25 to 50%), 2 patients were unchanged (less than 25%). Out of 30 patient included in Group B none patient showed total relief in symptom, 3 patients were markedly improved (50 to 75%), 26 patients were Improved (25 to 50%), 1 patients were Unchanged (less than 25%). At the end of the study it was found that *Krishnadi Choorna* in Group A is more effective than in Group B.

KEY-WORDS- *Tamak Shwasa*, *Krishnadi Choorna*, Bronchial Asthma

INTRODUCTION:

"Science of Life" known as "*Ayurveda*". In the literature of *Ayurveda* there are various chapters, which deal with behavioral & dietary changes according to diurnal changes. It suggests if one follows these rules we can lead to healthy life for longer period. *Shwasa* Propounded by Lord Atreya in *Charak Samhita*^[1] It is a disease of *Pranvaha Srotasa*. *Shwasa* arises due to dust, smoke, wind residing in cold place using cold water physical exertion, intake of rough food, irregular meals, vitiation of *Ama*. Bronchial Asthma has 4 to 5 % of the population in United states is affected. Data from the Centers of Disease control and prevention suggest that 10 to 11 million persons had acute attack in 1998, which resulted in 13.9 million outpatient visits, 2 million request for urgent care, and 423,000 hospitalization which are total >\$6 billion.^[2] Nearly 5 to 10% population suffer from it. In India, prevalence of asthma has been found to be around 6%.^[3] This disease can start at any age, but in a majority it starts before 10 years of age. It is twice more common amongst boys than girls, whereas in adults the male - female ratio is usually equal. This alarming raise in the prevalence of *Tamak Shwasa* can be accounted to factors such as Atmospheric pollution, rapid environmental changes, adaptation of newer dietetic preparations and tremendous psychological stress.

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Aim and Objectives:

To evaluate the efficacy of *Krishnadi Choorna* in *Tamak Shwasa*,

Methods and Materials:

Group A: - 30 Patients were treated with "*Krishnadi Choorna*"

Dose: - 5 gm Twice a Day, after meal for 15 days

Group B: - 30 Patients were treated with "Tab.Deriphyllin"

Dose: - 100 mg Thrice a day.

Design: A randomized, open label, controlled clinical trial will be conducted on diagnosed patients.

Inclusion Criteria:

Age - 16 to 60 years

Sex - Both male & female

The patients having signs & symptoms of *Tamak Shwasa* as mentioned by *Charak*^[4] are as follows:

- *Shwasakruchhrata* (Dyspnoea)
- *Kasa* (Cough)
- *Ghur-Ghurak Shabda* (Wheezing or Rhonchi) During night
- *Kasten Shleshma Moksha* (Difficult in Expectoration)
- *Kasten Bhashya* (Difficult in Speech)
- *Anidra* (Insomnia)

Exclusion Criteria:

- Age – below 16 & above 65 yrs.
- Patients having with signs & symptoms of Cardiac & Renal Asthma.

- Patients suffering from Neurological disorders like epilepsy, hemorrhagic stroke, Meningitis.
- Patients having Psychological disorders.
- Patients having Malignancies.
- Patients having Hypertension.
- Pregnancy & Lactating mother.
- Patient suffering structural lung disease like Tuberculosis, Carcinoma of respiratory tract.

Objective Criteria

- X-Ray chest PA view to rule out other respiratory disease
- Peak Flow Meter for lung capacity
- Spirometry for vital capacity of lung
- ESR
- Eosinophil Count

Preparation of Drug:

The drug was prepared in the dept. of *Rasashastra and Bhaishjya Kalpana*, CSMSS Ayurved Mahavidyalaya, Aurangabad. Contents of *Krishnadi Choorna* [5] are as follows

Pippali – 1 part

Saindhav – 1 part

Pippali: Piper longum: Piperine 4 to 5% pipalsterol, pipartine. Two alkaloids piperalongumine and piperlonguminine and isobutylamide of piperic acid respectively an

unidentified steroid, reducing sugar, glycosides, sesamin and methyl 3,4,5 trimethoxycinnamate (roots).[6]

Saindhav Lavan [7]

Common salts, or simply, salt is the name given to the varied natural and industrial forms of sodium chloride. In the pure state, it is composted of sodium (NaCl) with 39.4 per cent sodium and 60.6 per cent chlorine. But it is often found mixed with small quantities of Mg, Ca, K compounds, etc. Salt is very widely distributed and abundant. Salt occurs as extensive deposits of rock salts, as salt solutions or brines, as efflorescent, earthy crusts, and as sublimation products near volcanoes. Of these types only the first two are of commercial importance. Rock salt occurs in sedimentary rocks, while natural brines of various concentrations occur in sea –water contains on the average about 3.33 per cent in the polar seas to 3.55 per cent and upwards near the equator.

Rock salt or halite is the mineral form of sodium chloride, crystallizing typically in cubes and having perfect cubic cleavage. Rock salt occurs in crystalline, massive and granular to compact forms and is a brittle mineral with a conchoidal fracture and vitreous industries. It is colorless when pure, but often tinged grey, blue, brown or pink because of associated impurities.

Table 1 Showing effect of therapy on physical parameter of 30 patients of *Tamak Shwasa* in Group A

Physical Parameter	Mean BT	Mean AT	% of relief	SD	SE	t value	p value
Respiratory rate	22.86	18.56	18.80	2.03	0.37	8.62	< 0.05
Expansion of chest	83.86	85.06	1.43	0.69	0.12	13.83	< 0.05
Breath Holding Time	10.53	12.2	15.82	0.76	0.14	11.14	< 0.05
Peak Expiratory Flow rate	165.33	195.66	18.34	11.08	2.02	16.5	< 0.05
Sustained Maximal Inspiration	3.7	5.8	53.98	0.45	0.08	25.37	< 0.05

Table 2 Showing effect of therapy on physical parameter of 30 patient of *Tamak Shwasa* in Group B

Physical Parameter	Mean BT	Mean AT	% of change	SD	SE	t value	p value
Respiratory rate	22.9	19.43	15.15	2.02	0.36	9.4	< 0.05
Expansion of chest	83.86	84.86	1.19	0.52	0.09	11.77	< 0.05
Breath holding time	10.46	11.83	13.09	0.62	0.11	9.6	< 0.05
Peak expiratory flow rate	170.66	192.66	12.89	10.38	1.89	12.16	< 0.05
Sustained maximal inspiration	14.03	5.66	40.44	0.49	0.09	17.77	< 0.05

Effect of *Krishnadi Choorna* (Group-A) & *Tab.Deriphylline* (Group-B) on physical Parameters

Respiration rate:-

Group A: The mean grade score of Respiratory rate was 22.86 at the start of the treatment which was reduced to 18.56 at the end of treatment its 't'

value is 12.14 (P<0.05%) which is statistically significant.

Group B: The mean grade score of Respiratory rate was 22.9 at the start of the treatment which was reduced to 19.43 at the end of treatment its 't' value is 13.20 (P<0.05%) which is statistically significant.

Expansion of chest:-

Group A: The mean grade score of Expansion of chest was 83.86 at the start of the treatment which was increase to 85.06 at the end of treatment its 't' value is 9.2 ($P<0.05\%$) which is statistically significant.

Group B: The mean grade score of Expansion of chest was 83.86 at the start of the treatment which was increase to 84.86 at the end of treatment its 't' value is 9.2 ($P<0.05\%$) which is statistically significant.

Breath Holding Time:-

Group A: The mean grade score of Breath holding time was 10.53 at the start of the treatment which was increased to 12.20 at the end of treatment its 't' value is 10.37 ($P<0.05\%$) which is statistically significant.

Group B: The mean grade score of Breath holding time was 10.46 at the start of the treatment which was increased to 11.83 at the end of treatment its 't' value is 1.80 ($P<0.05\%$) which is statistically significant.

Peak Expiratory Flow Rate:-

Group A: The mean grade score of Peak Expiratory flow rate was 165.33 at the start of the treatment which was increased to 195.66 at the end of treatment its 't' value is 14.16 ($P<0.05\%$) which is statistically significant.

Group B: The mean grade score of Peak Expiratory flow rate was 170.66 at the start of the treatment which was increased to 192.66 at the end of treatment its 't' value is 38.96 ($P<0.05\%$) which is statistically significant.

Sustained Maximal Inspiration:-

Group A: The mean grade score of Sustained maximal inspiration was 3.7 at the start of the treatment which was increased to 5.8 at the end of treatment its 't' value is 4.61 ($P<0.05\%$) which is statistically significant.

Group B: The mean grade score of Sustained maximal inspiration was 14.03 at the start of the treatment which was increased to 40.44 at the end of treatment its 't' value is 4.6 ($P<0.05\%$) which is statistically significant.

Table 3 Showing effect of therapy on Hb, WBC, Neutrophil, Eosinophil & ESR Group A

Investigation	Mean BT	Mean AT	SD	SE	t value	p value
Haemoglobin	10.67	10.8	0.2	0.03	5.66	< 0.05
WBC	6930	7063.33	75.80	13.85	9.6	< 0.05
Neutrophil	52.10	53.86	2.89	0.52	6.66	< 0.05
Lymphocyte	34.73	36.30	1.53	0.27	10.98	< 0.05
Eosinophill	7.06	4.50	1.28	0.23	11.56	< 0.05
Erythrocyte Sedimentation rate (ESR)	16.9	12.83	2.37	0.43	9.44	< 0.05

Table 4 Showing effect of therapy on Hb, WBC, Neutrophill, Eosinophill & ESR of Group B

Investigation	Mean BT	Mean AT	SD	SE	t value	p value
Haemoglobin	12.48	12.61	0.75	0.13	1.07	< 0.05
WBC	6863.33	6946.66	61.02	11.15	6.9	< 0.05
Neutrophil	61.53	60.13	0.51	0.09	30.00	< 0.05
Lymphocyte	34.13	36.50	2.12	0.38	8.15	< 0.05
Eosinophill	3.66	3.06	0.95	0.17	7.82	< 0.05
Erythrocyte Sedimentation rate (ESR)	19.7	16.2	0.74	0.13	29.46	< 0.05

Effect of Krishnadi Choorna (Group-A) & Tab. Deriphylline (Group-B) on Heomatological Parameters**Haemoglobin:**

Group A: The mean grade score of Haemoglobin was 10.67 at the start of the treatment which was increase to 10.80 at the end of treatment its 't' value is 5.66 ($p<0.05\%$) which is statistically significant.

Group B: The mean grade score of Haemoglobin was 12.48 at the start of the treatment which was increase to 12.61 at the end of treatment its 't'

value is 1.07 ($p<0.05\%$) which is statistically significant.

WBC:**Group A:**

The mean grade score of White Blood cell was 6930 at the start of the treatment which was reduce to 7063.33 at the end of treatment its 't' value is 13.85 ($p<0.05\%$) which is statistically not significant.

Group B: The mean grade score of White Blood cell was 6863.33 at the start of the treatment which was reduce to 6946.66 at the end of treatment its

't' value is 6.9 ($p < 0.05\%$) which is statistically not significant.

Neutrophil

Group A: The mean grade score of Neutrophil was 52.10 at the start of the treatment which was reduce to 53.86 at the end of treatment its 't' value is 6.66 ($p < 0.05\%$) which is statistically significant.

Group B: The mean grade score of Neutrophil was 61.53 at the start of the treatment which was reduce to 60.13 at the end of treatment its 't' value is 30 ($p < 0.05\%$) which is statistically significant.

Lymphocyte:

Group A: The mean grade score of Lymphocyte was 34.73 at the start of the treatment which was reduce to 36.30 at the end of treatment its 't' value is 10.98 ($p < 0.05\%$) which is statistically significant.

Group B: The mean grade score of Lymphocyte was 34.13 at the start of the treatment which was

reduce to 36.50 at the end of treatment its 't' value is 8.15 ($p < 0.05\%$) which is statistically significant.

Eosinophil:

Group A: The mean grade score of Eosinophil was 7.06 at the start of the treatment which was reduce to 4.50 at the end of treatment its 't' value is 11.56 ($p < 0.05\%$) which is not significant statistically.

Group B: The mean grade score of Eosinophil was 3.66 at the start of the treatment which was reduce to 3.06 at the end of treatment its 't' value is 7.82 ($p < 0.05\%$) which is not significant statistically.

ESR: Group A: The mean grade score of ESR was 16.9 at the start of the treatment which was reduce to 12.83 at the end of treatment its 't' value is 9.44 ($P < 0.05\%$) which is statistically significant.

Group B: The mean grade score of ESR was 19.7 at the start of the treatment which was reduce to 16.2 at the end of treatment its 't' value is 29.46 ($P < 0.05\%$) which is statistically significant.

Table 5 Statistical analysis of symptoms of patient of Tamak Shwasa Wilcoxon - matched pairs signed ranks test.

Symptoms	Sum of ranks of BT	Sum of ranks of AT	No. of Pairs	Z	Comment (Critical value of z at 5% level of significance=1.96)
<i>Shwasakrucchrata</i>	52	20	30	12.76	Highly Significant
<i>Kasa</i>	49	17	30	12.80	Highly Significant
<i>Ghur-Ghur Shabda</i>	63	27	30	12.59	Highly Significant
<i>Kasten Shelsma Moksha</i>	55	20	30	12.71	Highly Significant
<i>Krucchren Bhashyata</i>	46	18	30	12.84	Highly Significant
<i>Anidra</i>	41	16	30	12.92	Highly Significant

Table 6 Statistical analysis of symptoms of patient of Tamak Shwasa Wilcoxon - matched pairs signed ranks test

Symptoms	Sum of BT	Sum of AT	No. of Pairs	Z	Comment (Critical value of z at 5% level of significance=1.96)
<i>Shwasakrucchrata</i>	53	22	30	12.74	< 0.05 Highly Significant
<i>Kasa</i>	52	23	30	12.76	< 0.05 Highly Significant
<i>Ghur-Ghur shabda</i>	55	21	30	12.49	< 0.05 Highly Significant
<i>Kasten Shelsma Moksha</i>	60	21	30	12.64	< 0.05 Highly Significant
<i>Kastena Bhashya</i>	52	24	30	12.53	< 0.05 Highly Significant
<i>Anidra</i>	48	21	30	12.59	< 0.05 Highly Significant

Effect of Krishnadi Choorna (Group-A) & Tab.Deriphylline (Group-B) on Subjective Parameters

Shwasakricchata:-

Group A: It was observed in 30 patients of Group A i.e. 100% there was 61.53% relief observed after treatment. At the end of treatment its 'Z' value is 12.76 ($P < 0.05\%$) which is statistically significant.

Group B: It was observed in 30 patients of Group A i.e. 100% there was 58.49% relief observed after treatment. At the end of treatment its 'Z' value is 12.74 ($P < 0.05\%$) which is statistically significant.

Kasa:-

Group A: It was observed in 30 patients i.e. 100% there was 65.30% relief observed after treatment. At the end of treatment its 'Z' value is 12.80 ($P < 0.05\%$) which is statistically significant.

Group B: It was observed in 30 patients i.e. 100% there was 55.76 % relief observed after treatment. At the end of treatment its 'Z' value is 12.76 ($P < 0.05\%$) which is statistically significant.

Ghur-Ghurakshabda:-

Group A: It was observed in 30 patients i.e. 100% there was 57.14% relief observed after treatment.

At the end of treatment its 'Z' value is 12.59 (P<0.05%) which is statistically significant.

Group B: It was observed in 30 patients i.e. 100% there was 61.81% relief observed after treatment. At the end of treatment its 'Z' value is 12.49 (P<0.05%) which is statistically significant.

Kastenshlesma moksa:

Group A: It was observed in 30 patients i.e. 100% there was 63.63% relief observed after treatment. At the end of treatment its 'Z' value is 12.71 (P<0.05%) which is statistically significant.

Group B: It was observed in 30 patients i.e. 100% there was 65.00% relief observed after treatment. At the end of treatment its 'Z' value is 12.64 (P<0.05%) which is statistically significant.

Krcchren Bhashya:-

Group A: It was observed in 30 patients i.e. 100% there was 60.86% relief observed after treatment. At the end of treatment its 'Z' value is 12.84 (P<0.05%) which is statistically significant.

Group B: It was observed in 30 patients i.e. 100% there was 60.97% relief observed after treatment. At the end of treatment its 'Z' value is 12.92 (P<0.05%) which is statistically significant.

Anidra:-

Group A: It was observed in 30 patients i.e. 100% there was 53.84% relief observed after treatment. At the end of treatment its 'Z' value is 12.53 (P<0.05%) which is statistically significant.

Group B: It was observed in 30 patients i.e. 100% there was 56.25% relief observed after treatment. At the end of treatment its 'Z' value is 12.59 (P<0.05%) which is statistically significant.

DISCUSSION:

Features like appetite, digestion, weight gain, improved due to improved nutrition at the cellular level by *deepan-pachan* (carminative and digestive) and *Agnivardhan* (increase digestive power of individual) properties of *Pippali* improved nutrition to each and every body tissue results in improvement in features like general and mental feeling of well being, ability to work and fatigue *Krishnadi Choorna* through *Vata-kapha* pacifying, *Srotoshodhan* and *Kapha Nissarana*

properties makes the pathway clear for proper circulation of *Vata* thus relieving various respiratory signs and symptoms. It was observed that Respiratory Rate reduces significantly. Expansion of Chest, Breath Holding Time & Sustained Maximum Inspiration Increases significantly in Group A as compared to Group B. Haemtocrit value of Hb increases significantly. Lymphocyte, Neutrophils & ESR reduces significantly in Group A as compared to Group B. Mild changes were shown in WBC & Eosinophil count. No side effects were observed from the drug during the present study in both groups.

CONCLUSION:

During the comparative study values of both the Groups has been compared and the conclusion were drawn. This it seems that the significant effect of *Krishnadi Choorna* (Group A) is more effective than Tab. Deriphyllin (Group B). On the basis of this study, it can be concluded that trial drug, "*Krishnadi Choorna*" is very much effective in the management of respiratory diseases as an adjuvant. No untoward effects of the drugs were noted during the trial and follow-up period

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