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A CLINICAL STUDY TO EVALUATE THE EFFICACY OF KANTAKARI CHURNA IN THE MANAGEMENT OF KAPHAJA KASA IN CHILDREN W.S.R TO CHRONIC BRONCHITIS

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ABSTRACT

Ayurveda, the science of healthy living, emphasizes equally on preventive and curative aspect of diseases. Children are being the building blocks of the nation and the most vulnerable group in the community hence requires to be treated with care and concerns. *Kasa* is the commonest ailment contributing to pediatric age group. *Kasa* is the disease of *PranavahaSrotas.Kaphadosha* is dominating in childhood and plays an important role in the pathogenesis of *Kasa*. In*KaphaKasa, Kasa Vega* is associated with*Bahala Ghana Nishtivana.* It can be correlated with Chronic Bronchitis due to similar signs and symptoms. Recurrent episodes of cough lasting more than 2 weeks are important for diagnosis of chronic bronchitis for 86% pediatricians. Here an attempt made to find an economic and effective treatment with easily available drugs for *KaphajaKasa.* Here by the present study is taken to evaluate the role of *KantakariChurna*, which is indicated in *KaphajaKasa.*

KEY WORDS:

PranavahaSrotas, KaphajaKasa, Kantakari, Chronic Bronchitis, *Madhu*, *KaphaDosha*.

INTRODUCTION

Ayurveda, the science of healthy living, emphasize equally on preventive and curative aspect of disease.[1] Children are the building blocks of the nation and the most vulnerable, hence they requires to be treated with care and concerns.[2] In Ayurveda *Kasa (*Cough) is explained under *Pranavaha Srotovikara*. According to Ayurveda the *Prana* is*Sarvagata*. So its significance in this disease is of utmost importance. *KaphajaKasa* is a one type of *Kasaroga* and is characterized by *Snigdha* (Unctuous), *Ghana*(Solid), *Sandra Kaphasthivana* (Cough with expectorant) other features associated with *Peenasa* (Nasal discharge), *Chardi* (Vomiting), *Alparuk* in *Uras* (Mild chest pain), *Sthaimitya* (Heaviness in the chest), *Kanthaupalepa* (Coating in the throat), *Mandagni* (Reduced appetite), *Aruchi* (Anorexia) and *Sampoornavakshas* (Fullness in the chest).[3] *Utklesha* (Aggravation), *Gaurava* (Heaviness), *Asyamadhuarya,Kasomanoaruk, Sampoornamivavaksha* (Fullness of chest), *Mukhalepa* (Coating over palate), *Angavasada* (Body ache), *Shiroruja* (Headache), *Shweta Kaphasthivana* (White expectorant) and *Lomaharsh* (Horripilation).[4] Children having *Kaphadosha* predominant and indulging of *Kaphakara Ahara* and *Vihara,* produces incident of *KaphajaKasa. Kaphaja Kasa* can be correlated disease chronic bronchitis.

Cough is one of the most common complaint prompting patient visits to health care professionals, especially in pediatricians. Cough is the 5th common for which patients seek care and prevalence rate of which is 25% in children worldwide.[5] Over 2.5 million children have chronic bronchitis according national statistics. Recurrent episodes of cough lasting more than 2 weeks are important for diagnosis of chronic bronchitis for 86% paediatricians. As per vital statistics of India, year by year mortality rate due to respiratory system disorders is increasing, which is also one of the six major categories of death and on the 3rd position.[6] Recurrent attacks makes a child especially in school going child suffer and may have adverse effects on the studies of children and also in neglected cases it will cause serious ill effects. So, treatment should be given at proper time.

Ayurveda proposes a comprehensive management guideline for *Kasa* that include drug and formulations. *Deepana, Brihman, Stotoshodhana* treatment forms the basis principles of

KasaChikitsa. AcharyaCharaka, the father of Indian medicine has mentioned basic principles of treatment for the management of *Kasa*as *Shodhana Chikitsa* and *Shamana Chikitsa. Shamana Chikitsa* is one of the easiest and economical therapies for *Kasa. Churna* is one of the *Kalpana* mentioned by *Acharya Sharanghadhar*.[7]

Here an attempt made to find an economic and effective treatment with easily available drugs for *Kaphaja Kasa*. Here by the present study is taken to evaluate the role of *Kantakar*i *Churna*, which is indicated in *Kaphaja Kasa.* In the present clinical study 30 patients completed the clinical trial of age group 9 to 12 years were selected on a single group diagnosed as *KaphajaKasa.* All the patients received *Kantakari Churna* with *Madhu* for 7 days.

AIM AND OBJECTIVES

- To study the *KaphajaKasa* in detail.
- To study the effect of *Kantakari Churna* in the management of *KaphajaKasa.*

MATERAILS AND METHODS

Source of Study: Children attending Kaumarabhritya OPD and IPD at SDM Trust's Ayurvedic Medical College and Danigond Post-Graduate Research Centre and Padma Ayurvedic Hospital, Terdal were selected.

Study Design: Single Arm

Study Type: Interventional

Sample Size: 30

Preparation of Medicine: *Kantakari* drug procured from the market and authenticated from the *Dravyaguna* department of SDM Trust's Ayurvedic Medical College Danigond Post-Graduate Centre, Terdal. The Churna was prepared in the Rasashala of SDMT Ayurvedic Medical College and Danigond Post-Graduate Centre, Terdal as per standards of ChurnaKalpana. The prepared drug will be pharmaceutically analyzed, standardized and packed**.**

Intervention: Medicine - *KantakariChurna*

Dose - 3gram (Age wise)

Anupan - *Madhu*

Route -Orally

Timing -Morning, evening (After food)

Duration - 7dayss

Follow up - After 7 days

Inclusion Criteria:

- Children of aged between 9 to 12 years, irrespective of gender, religion and socio economical status.
- Children presenting with clinical features of *KaphajaKasa* as per classic will be selected.

Exclusion Criteria:

- Children suffering from any chronic illness of any other systemic illness.
- Children of developmental disorders.
- Children with congenital anomalies and diagnosed case of asthma, pulmonary tuberculosis, COPD and chronic debilitating illnesses.

Assessment Criteria

Subjective Parameters:

1. ***Kasa*(Cough)**

   i. No cough – Grade 0

   ii. Intermittent cough which does not inhibits routine work/activities – Grade 1

iii. Continuous cough ,which inhibits the routine activity – Grade 2

iv. Continuous cough , which disturbs sleep and prohibits the routine activities – Grade 3

2. *Peenas* (Nasal discharge)

i. No nasal discharge – Grade 0

ii. Occasional nasal discharge – Grade1

iii. Frequent nasal discharge – Grade2

iv. Continuous nasal discharge – Grade3

3. Kaphasampoornaura

i. No heaviness in the chest – Grade 0

ii. Feels heaviness in the chest but does not hamper routine activity –Grade 1

iii. Feels heaviness of the chest which hampers routine activity – Grade 2

iv. Feels heaviness all over the chest which hampers movements of the body – Grade 3

4. Dyspnea (Shorteness of breath)

i. Not troubled by breathlessness except on strenuous work – Grade 0

ii. Short of breath when hurrying on the level or walking up a hill – Grade 1

iii. Walks slower than most people on the level, stops after a mile or stops after 15 minute walking at own pace – Grade 2

iv. Stops for breath after walking a few minutes on a level ground – Grade 3

Objective Parameters:

5. *Kaphanisthivana* (sputum)

i. No expectoration - Grade 0

ii. Thick mucoid expectoration which is intermittent during cough - Grade1

iii. Mucoid and sticky expectoration which is accompanied during cough-Grade 2

iv. Mucopurulent expectoration which is accompanied with each bouts of cough – Grade3

6. Auscultation –Rales

i. No Rales – Grade 0

ii. Low intensity sound – Grade 1

iii. High intensity sound – Grade 2

iv. Very high intensity sound – Grade 3

OBSERVATIONS AND RESULT

In the present clinical study 30 diagnosed case of *KaphajaKasa,* those who are fulfilling the inclusion criteria were selected and completed the present study. The observed data of these 30 patients were recorded according to research proforma before, after treatment and after completion of the follow up data were obtained. Total observed data are divided into two sections as observation and results.

Observations: In this study**,** maximum numbers of children were belongs the age group of 9-10 years (40 %). Religion wise distribution of children showed that, maximum children were belonged Hindu religion (60%). The incidence of *KaphajaKasa* was observed more in Male children (53.33%) and then Female children (46.66%). In this study maximum children were from Rural (76.66%). Family wise distribution of children showed that, 20 children were of Nuclear family (66.66%) and 10 were of Joint family (33.33%).The socio

economical status of parents was calculated according to Kuppuswamy scale, maximum patients were from Lower middle class (43.33%).In this study observation done on types of intake *Ahara* by the children. To know the possible cause for recurrent infections of children were assessed for their food habits. 20 children were habituated for regular intake of frozen food (66.66%), 18 children were habituated to have milk shakes and cold drinks oftenely (63.33%), 26 children were regular chocolate eaters (60%) and 28 children were regularly having bakery food(93.33%). In this study children were assessed for the exposure for environmental factors which may be possible cause for the *Kaphaja Kasa.* 20 children were exposed for pollution daily (66.66), 15 children were exposed to passive smoking (50%) and 30 children were attending school (100%).The *Agni* of children was assessed by asking the parents about the food, appetite of child, quantity and quality of food they have, frequency of servings and their interest for food 2 patient were having *Teekshnagi* (6.66%), 6 patients were having *Samagni* (20%) and 22 patients were having *Mandagni*(73.33%).4 patients were having *Mridu Koshta* (13.33%), 24 patients were having *Madyama* (80%) and 2 patients were having *KrooraKoshta* (6.66%).13 patients were having Sound sleep (43.33%) and 17 patients were having Disturbed sleep (56.66%).

Results: Statistically analysis was done by using the Friedman's Tests.

The obtained results were interpreted in the statistical terms as:

Significance(S) :P <0.05, Highly significance(HS): P<0.001, Non significance: P>0.05

Table No.1 Effect of *Kantakari Churna* on *Kasa*in 30 patients

Kasa	**BT**	**AT**	**FU**	**N**	**Friedman's Test**	**df**	**P-Value**	**Remarks**
Mean Rank	1.73	0.40	0.17	30	38.56	2	0.00001	S

Table No. 2 Effect of *KantakariChurna* on *Peenas* in 30 patients

Peenas	**BT**	**AT**	**FU**	**N**	**Friedman's Test**	**df**	**P-Value**	**Remarks**
Mean Rank	2.03	0.80	0.30	30	41.877	2	0.00001	S

Table No.3 Effect of *KantakariChurna* on *Kaphasampoornaura* in 30 patients

Kaphasampoorn Ura	**BT**	**AT**	**FU**	**N**	**Friedman's Test**	**df**	**P-Value**	**Remarks**
Mean Rank	1.53	0.47	0.27	30	35.145	2	0.00001	S

Table No.4 Effect of *KantakariChurna* on Dyspnea in 30 patients

Dyspnea	**BT**	**AT**	**FU**	**N**	**Friedman's Test**	**df**	**P-Value**	**Remarks**
Mean Rank	1.10	0.37	0.03	30	11.28	2	0.00001	S

Table No.5 Effect of *KantakariChurna* on *KaphaNishtivana*in 30 patients

KaphaNishtivana	**BT**	**AT**	**FU**	**N**	**Friedman's Test**	**df**	**P-Value**	**Remarks**
Mean Rank	1.50	0.43	0.17	30	34.914s	2	0.00001	S

Table No. 6 Effect of *KantakariChurna* on Ralesin 30 patients

Rales	BT	AT	FU	N	Friedman's Test	df	P-Value	Remarks
Mean Rank	1.23	0.20	0.10	30	7.72	2	0.00001	S

The mean rank of *Kasa* BT was 1.73, AT was 0.40 and FU it was 0.17. There was significant change observed at each follow up with P value less than 0.05, here by we conclude that the research drug have shown highly significance improvement in *Kasa* with p value < 0.00001. The mean rank of *Peenas,* BT was 2.03, AT was 0.80 and FU it was 0.30. There was significant change observed at each follow up with P value less than 0.05, here by we conclude that the research drug have shown highly significance improvement in *Peenas*with p value < 0.00001. The mean rank of *Kaphasampoornaura,* BT was 1.53, AT was 0.47 and FU it was 0.27. There was significant change observed at each follow up with P value less than 0.05, here by we conclude that the research drug have shown highly significance improvement in *Kaphasampoornaura*with p value < 0.00001. The mean rank of Dyspnea*,* BT was 1.10, AT was 0.37 and FU it was 0.03. There was significant change observed at each follow up with P value less than 0.05, here by we conclude that the research drug have shown highly significance improvement in Dyspneawith p value < 0.00001. The mean rank of *Kaphanisthivana,* BT was 1.50, AT was 0.43 and FU it was 0.17. There was significant change observed at each follow up with P value less than 0.05, here by we conclude that the research drug have shown highly significance improvement in *Kaphanisthivana*with p value < 0.00001. The mean rank of Rales*,* BT was 1.23, AT was 0.20 and FU it was 0.10. There was significant change observed at each follow up with P value less than 0.05, here by we conclude that the research drug have shown highly significance improvement in Raleswith p value < 0.00001.

DISCUSSION

The drug was administered for 7 days in a dose of 6 gm in divided doses, after food along with *Madhu.* The next 7 days was the follow up period. Clinical assessment was done before treatment (1st day), after treatment (7th day) and follow up (14th day). Analysis and conclusion were done on follow up.

Discussion on Observations: In this study**,** maximum numbers of children were belongs the age group of 9-10 years (40 %) where as 36.66% children belonged to age group of 10-11 years and 23.33% patients belonged to the age group 11-12 years. The prevalence ofchronic bronchitis is more in between the age group of 9 to 15 years as per different texts, [8]where as in present study more prevalence was seen in 9-10 years of age group. As children of this group have more exposure to the infectious disease. Even the immune system is not fully evolved to resist the broad spectrum of causative factors so the number is more in this age group. In the present study, the gender distribution was nearly equal between in both sexes, as they were equally exposed to causative factors and they were with same status of immune power.In the present clinical study, maximum children were belonged Hindu religion (60%), as the area was majority of Hindu community.In the present clinical study, maximum numbers of children were registered from rural area (76.66%) and rest of 23.33% from urban area.Maximum numbers of children were from the Nuclear family, which is in accordance with present day societal condition. In the preset study, maximum numbers of children (43.33%) were from lower middle class followed by 36.66% from upper lower class and 20% from upper middle class family. As Terdal is a small town surrounded by small villages, maximum residents are of lower middle class. The maximum numbers of children had a habit of regular intake of Frozen food, milkshakes, cold drinks and bakery food which are *Guru, Abishyandi, Madhura, Snigdha*and *PicchilaAhara*. These were the contributing factors for recurrent attack of *KaphajaKasa*. In the current status of society these kind of food are being very common and available for every class of society. This may be the reason for increasing the incidence of recurrent Bronchitis. In the present clinical study, more children were exposed to pollution and passive smoking. Majority of the children were attending School. This may be the

contributing factors of unhealthy, reduction of immune power in children and produces recurrent infections.In the present study, 73.33% of children were presented with the *Mandagni.* This variation in the *Agni* may be due to improper food habits followed by the children. It can be attributed to the recurrent illness which caused by the *Agni Mandya***.** In the present study**,** it was observed that80% children possess *MadyamaKoshta*. This may be influence of food habits as well as geographical condition.In the present study, maximum number of children had disturbed sleep i.e 56.66% and 43.33% children had sound sleep. *Kasa* is worsening in the night hours due to climate and *KaphaDosha Kala.*

Discussion on Results: In thisclinical study, significant improvement was observed in reducing *Kasa* severity (P<0.0001), the treatment showed 83.33% improvement, because of *Kapha – Vatahara*and *Kasahara* properties of the drug and also by its anti-tussive property.[9] So *ShamanaChikitsa*with *KantakariChurna* was found effective in controlling of *Kasa* severity in children.[10]In this clinical study, significant improvement was observed in reducing *Peenasa* (P<0.0001). The treatment showed 70% improvement, due to *Rooksha, LaghuGuna* of the *KantakariChurna* was found effective in reducing of *Peenasa*in children.[10]In thisstudy, the significant improvement was observed in reducing *Kaphasampoornaura* (P<0.0001) and the treatment showed 73% improvement. Because of *Rooksha, LaghuGuna,UshnaVeerya* and *Kaphanissaraka* properties of *Kantakari* does *srotoshodhaka,* so patient get relief from the *Kaphasampoornauraura* in children**.[10]**In thisclinical study, significant improvement was observed in reducing Dyspnea (P<0.0001) i.e 73% improvement. Because of *Rooksha, LaghuGuna*and *UshnaVeerya* of the *Kantakari Churna, Kapha Vilayana*occurs for that *Srotas*gets clear then decreases ventilatory demand so dyspnea reduces.[10] So *KantakariChurna* was found effective in controlling of dyspnea in children. In this clinical study, significant improvement i.e 73% was observed in reducing *KaphaNisthivana* (P<0.0001). The drug *Kantakari*known for its mucolytic action with its *Katu-Tikta Rasa*, *Rooksha-LaghuGuna*and *UshnaVeerya.*These properties have action on *Kaphavilayana* and also in reducing the sputum formation.[11]So*KantakariChurna* was found effective in reducing of *Kapha Nisthivana*in children. In this clinical study, significant improvement i.e 73% improvement was observed in reducing Rales (P<0.0001). Rales are

observed due to morbid *Vata* and *DoshaKapha* afflicting the *PranavahaSrotasa*. This is reduced by the *Kapha-Vatahara, Kasahara* and *Kaphanissaraka* properties of the drug used in the therapy.[10]*KantakariChurna* was found effective in controlling of Rales in children.

Discussion on probable mode of *Kantakari*: *Kantakari*has been mentioned in *KasaRoga Chikitsa*by many *Acharyas.* The drug *Kantakari* has *Kasagna* action due to its properties like *Tikta-Katu Rasa, Laghu, Rooksha* and *TeekshnaGuna, UshnaVeerya and KaphaVata Hara.* Properties of *Kantakari*acts locally at the site of *Kanta* causing *Vilayana* of obstructed *Kapha* in the *PranavahaSrotas.Kantakari* with *Tikta-Katu Rasa, Rooksha-TeekshnaGuna* and *UshnaVeerya* have local *Kaphahara* action on the mucosa, this process explains the symptomatic relief in *Kasa*. Thus after removal of *SrotoAvarodha* caused by *Kapha* and due to *Vatahara Karma* of *Kantakari,* it clears the *Vatavimargagamana* and bring backs the normal *Gati* of *VataDosha.* Due to *Pachana* and *Deepana* property of *Kantakari, AmaPachana* and *Agnimandya*get *rectified which removes the AmaLakshana* from the body and further the *Rasa Dhatwagni Mandya* can also be corrected. This action in total contributes to the *Samprapti Vighatana* of the disease. Based on the pharmacological action of *Kantakari* i.e Antitussive is purely through interfering with peripheral mechanisms of the cough reflex. Plant has been reported beneficial in the treatment of asthma and chronic bronchitis. In a clinical study, it was reported that oral administration of S. Xanthocarpum at a dose 300mg dry powder thrice a day for 3 days found to be very effective to controlling mild to moderate bronchial asthma and the bioactivity is equivalent to that of administration of 200mg of Deriphylline.[12]The powder of whole dried plant or a decoction is used for treating the respiratory diseases. The treatment with SX improved the pulmonary functions to a significant level in patients suffering from mild to moderate asthma. Subjective relief was reported by the patients an hour after administration of SX powder. The effect lasted for about 6-8 hour.[13]

CONCLUSION

*Kaphaja Kasa*is a disturbing disease of *Pranavaha Srotas*, commonly observed in children. Vitiated *Kapha*and *Vatadosha*plays an important role in manifestation of *KaphajaKasa.*

Kapha-Vata Prakopa Viharas like dust, weather acts as an *Utpadaka Nidana* and *Ahara* acts as a *Vyanjaka Nidana* for the manifestation of *KaphajaKasa. Kaphaja Kasa* can be compared to Chronic Bronchitis due to its same signs and symptoms. The selected drug possess *Tikta-Katu Rasa*, *Rooksha, Laghu Guna, Ushna Veerya, Kapha-Vatahara, Kasagna, Deepana*and *Pachana* properties through which *Samprapti Vighatana* can be attained to cure *KaphajaKasa.* In this regard, the efficacy of Kantakari Churna is proved extremely significant with an improvement of 83% in *Kasa*, 70% *Peenas,* 73% in *Kaphasampoornaura,* 96% in Dyspnea, 83% *KaphaNisthivana* and 90% in Rales. The drug was well tolerated by children and there was no adverse effects reported. It is cost effective, easily available, easily administrable and safe in children. So it can be used as the drug of choice in the management of *KaphajaKasa* in children. Evaluating all the results of the study it can be concluded as acceptance of *:* Hypothesis H_1- There is significant effect of *KantakariChurna* in the management *KaphajaKasa* in children.

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