



‘A Clinical Pilot Study on The Efficacy Of Dadimadi Yog In The Management Of Acute Cough (*Kasa*) In School Going Children’

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Abstract:

Childhood Acute cough is a significant public health problem especially in developing countries like India. In Ayurveda ,it is correlated with *Kasa vyadhi*, a condition that arises due to vitiation of *vata* and *kapha doshas*. *Kasa* is a potential *nidanarthakari vyadhi* which causes secondary diseases to produce *kshaya* which significantly affects growth and development , physical activities, school performance and disturbed sleep in children that necessitates early intervention. While modern medicine focuses on symptomatic relief and infection control, Ayurveda emphasis on *doshic* balance, digestion (*Agni*),and immunity (*Ojas*). Current ACCP guidelines do not recommend the use of peripherally or centrally acting cough suppressants and discourages the use of OTC combinations in the treatment of acute cough. The clinical morbidity and quality of life , school activities and economic issues with acute cough warrants increased attention to the formulations mentioned in classics for the management of *Kasa*. *Dadimadi yog* mentioned in *Ashtanghriday* in *Kasa vyadhi Chikitsa* text has shown to be effective treatment in acute cough(*Kasa*) in school going children in this pilot study.

Keywords : *Kasa Vyadhi*, Acute cough, Dadimadi yog, Ayurveda, School going children

Introduction :

Acute cough is one of the most common clinical symptom of upper respiratory tract infections. Epidemiological data shows acute cough affecting approximately 52% of pre-school & school aged children, resulting in significant morbidity and representing a widespread health problem in childhood .Acute cough defines as one lasting less than 3 weeks, sub-acute cough lasts 3-8 weeks, and chronic cough lasts >8 weeks. In most cases ,acute cough results from temporary inflammation of respiratory tract due to infectious ,allergic or environmental causes raising minimal concern usually having a shorter duration , with an average duration of 14 days, it can resolve in 50% of cases within 10 days and in 90% of children within 25 days , though acute cough is benign and self- limiting ,it can cause significant discomfort ,sleep disturbances and impaired daily functioning of school going children. In Ayurveda, acute cough is classified under *Kasa Vyadhi*, which can be *Nija* (endogenous)or *Agantuja* (exogenous)in origin. Acute cases are commonly of *Agantuja* origin or *Vata-Kaphaja Dosha Dushti* often triggered by cold exposure, infections, allergens or indigestion. As symptomatic treatment is the mainstay of therapeutic management in acute cough in URTI leading to the widespread use of over-the-counter (OTC) antitussive drugs at the expense of unpleasant and intolerable side effects. Ayurveda has mentioned various formulations in *Kasa Vyadhi*. The pilot study conducted on school going children in Ayurvedic hospital was treated with *Dadimadi yog* formulation described in *Ashtanghriday* in *Kasa vyadhi* was studied and shown to be effective remedy in Acute cough in children.

Aim & Objectives :**Primary Objectives**

1. To evaluate the efficacy of *Dadimadi yog* in reducing the severity and frequency of acute cough (*Kasa*) in school going children.

Secondary objectives:

1. To assess the improvement in appetite and sleep
2. To evaluate tolerance and safety of *Dadimadi yog*.

Materials & Methods:

The study designed was a prospective open-label , single-arm pilot study, it was conducted at D.Y Patil Ayurvedic Hospital & Research Institute, Navi Mumbai on School going children age group from 6years to 12 years formed the study population with acute cough & classical sign and symptoms of *Kasa vyadhi* on statistically estimated 30 sample size to study the effect of *Dadimadi yog* in acute cough(*Kasa*) at the dose of 8gms/day Qid oral route of administration after meals (*Adhobhaktam*) for 7 days daily. The drug preparation was done as per the classical reference of *Dadimadi yog churna* mentioned in *Ashtanghriday chi 3/51*. Prior approval from the D.Y Patil university and institutional ethical approval was taken before initiating the pilot study .The parents were briefed about the objective of the study and Informed consent, assent form was obtained before conducting the pilot study on the patients. Case record form was used for data collection and Assessment of patient.

Inclusion criteria

1. Patients of either sex aged between 6 to 12 years
2. Patients with minimum 2 or more of any of the symptoms of *Kasa* explained in classics were included
3. Patients with acute cough < 2weeks
4. Patients with acute cough associated with pharyngitis ,acute and allergic rhinitis were included in the study.

Exclusion criteria

1. Patients with symptoms of *Kshataj Kasa* and *Kshayaj Kasa* explained in classics were excluded
2. Patients with symptoms of Lower respiratory tract infection
3. Patients with serious known conditions such as pneumonia, pulmonary tuberculosis ,pulmonary embolism ,CHF ,COPD ,bronchiectasis ,CA of lung, status asthmaticus indicating immediate intervention were excluded
4. Patients with systemic illness like cystic fibrosis, skeletal disease ,neuromuscular and extra pulmonary disease influencing respiratory dysfunctional cough symptoms were excluded.

Methodology of Drug Preparation :

1. DRUG REVIEW :

द्वे पले दाडिमादाष्टौ गुडादव्योषात्पलत्रयम् ॥
रोचनं दीपनं स्वर्णं पीनसश्वासकासजित्।
-अ.ह.चि 3/51

- Raw drug authentication and standardization was done at botany department government recognized Institute , Pune University ,Pune.
- Churna preparation was done as per the classical Bhaishajya Ratnavali reference of churna procedure conducted at department of Rasashastra & Bhaishajya of our Ayurvedic hospital.

Table 1 : *Dadimadi yoga*

Sr.no	Contents	Latin name	Part used	Quantity in Ashtanghriday	Measurements
1	<i>Dadima</i>	<i>Punica granatum</i>	<i>Phala twak</i>	2 Pala	96 g
2	<i>Purana Guda</i>	<i>Saccharum officinarum</i>	Guda	8 Pala	384g
3	<i>Sunthi</i>	<i>Zingiber officinale</i>	Rhizome (dried)	1 Pala	48g
4	<i>Maricha</i>	<i>Piper nigrum</i>	Dried Fruit	1 Pala	48g
5	<i>Pippali</i>	<i>Piper Longum</i>	Dried Fruit	1 Pala	48g

2. Drug Intervention :

Table 2 showing Drug schedule

Study Intervention	Study drug <i>Dadimadi Yog</i>
Dose	8g/day
Dosage form	2gms four times/day daily
Route of administration	Oral route
Time of administration	Adhobhaktam
Anupana	Warm water
Duration of therapy	7 days
Follow up	3 rd , 6 th ,9 th day
Sample size	30

3. Assessment Criteria : Based on VAS & VCD scale

Table 3 showing Subjective & Objective Criteria

A) Subjective Criteria			
1. Cough Frequency		2. Sleep disturbance at night	
Score 0	No cough	Score 0	No cough at night
Score 1	Cough for one or two short periods only	Score 1	Cough on waking only/cough while going to sleep
Score 2	Cough ≥ 2 short periods	Score 2	Awoken once
Score 3	Frequent coughing but does not interfere with school and other activities	Score 3	Frequent waking due to cough
Score 4	Frequent coughing which interferes school and other activities	Score 4	Frequent cough most at night
Score 5	Cannot perform most usual activities	Score 5	Distressing cough
B) Objective Criteria			
3. Sputum Examination		4. Wheeze on auscultation	
Score 0	No productive cough	Score 0	Absent wheeze
Score 1	Serous expectoration with traces of sputum	Score 1	Mild monophonic wheeze
Score 2	Moderately thick slight yellowish in color	Score 2	Marked polyphonic wheezing limited to zones

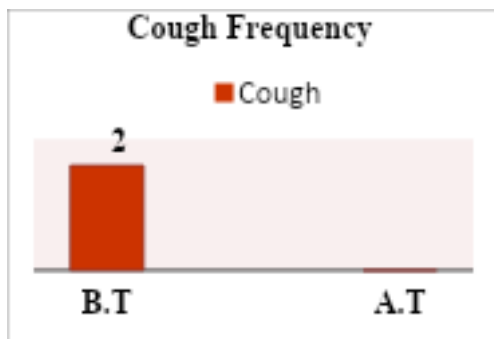
Score 3	Thick large quantity of solid white sputum	Score 3	Moderate polyphonic wheezing all over the lungs
Score 4	Sticky, offensive very solid greenish sputum	Score 4	Marked polyphonic wheezing all over the lungs
5. Crepitation on auscultation		6. Throat congestion	
Score 0	Absent crepitation	Score 0	Absent
Score 1	Present in one or two zones	Score 1	Present
Score 2	Distribution in most of the zones		
Score 3	Scattered all over the lungs		

Adverse Drug Reaction :

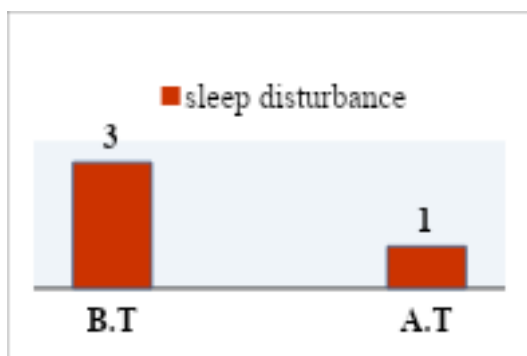
No Adverse drug reaction was observed during treatment and after treatment on regular follow up visits.

Observation & Results :

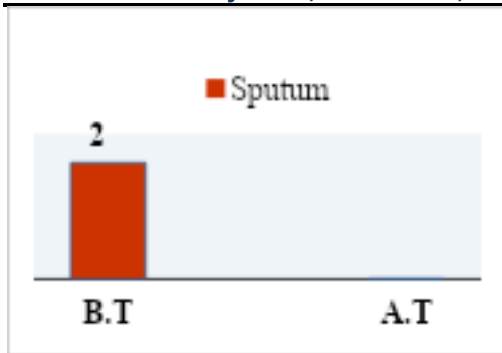
Table no.4-8 : The Table shows assessment before and after administration of study drug



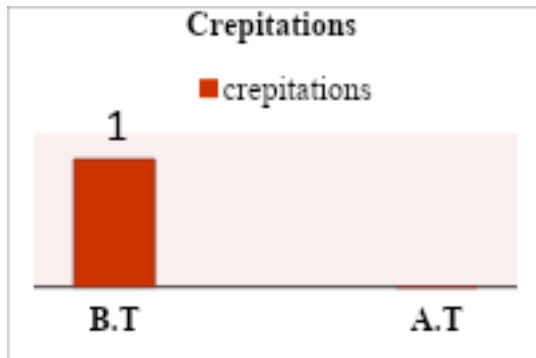
Cough frequency scoring	B.T		A.T	
	No.of Pts	%	No.of Pts	%
0	0	0	18	60%
1	11	36.6%	12	40%
2	19	63.3%	0	0
3	0	0	0	0
4	0	0	0	0



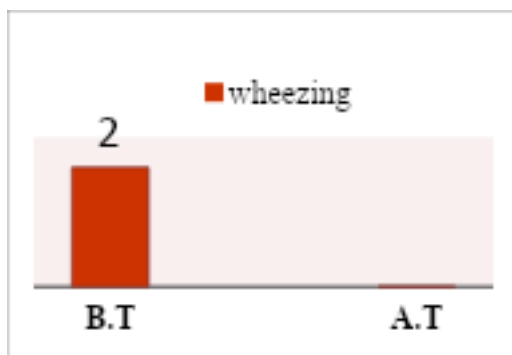
Sleep Disturbance scoring	B.T		A.T	
	No.of Pts	%	No.of Pts	%
0	0	0	22	73.3%
1	16	53%	8	27%
2	7	23%	0	0
3	6	20%	0	0
4	1	3%	0	0
5	0	0	0	0



Sputum examination scoring	B.T		A.T	
	No.of Pts	%	No.of Pts	%
0	1	3%	21	70%
1	16	53%	9	30%
2	8	26.6%	0	0
3	5	16.6%	0	0
4	0	0	0	0



Crepitation scoring	B.T		A.T	
	No.of Pts	%	No.of Pts	%
0	21	70%	29	96.6%
1	6	20%	1	3%
2	3	10%	0	0
3	0	0	0	0



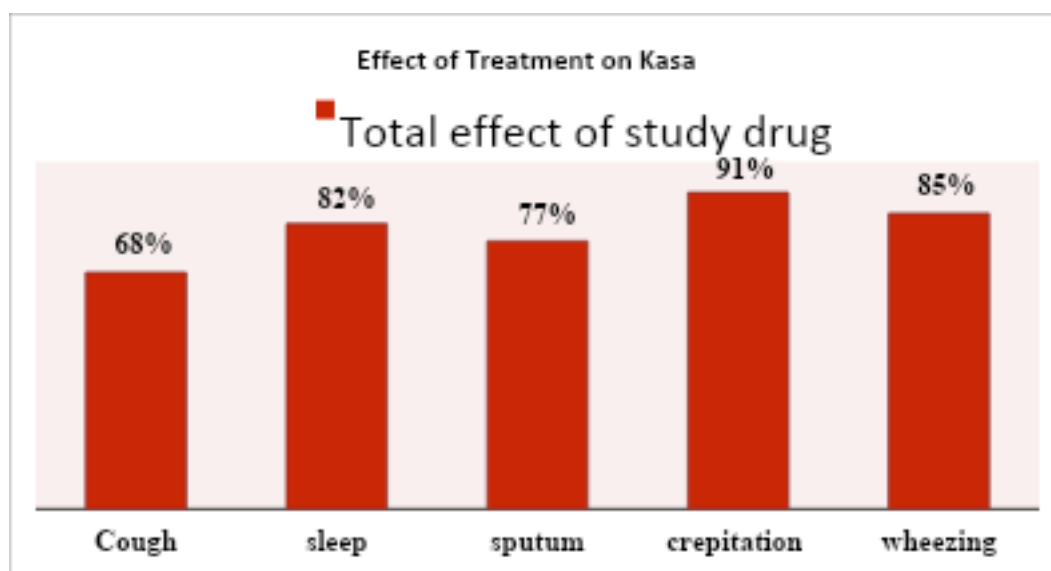
Wheezing scoring	B.T		A.T	
	No.of Pts	%	No.of Pts	%
0	16	53.3%	26	86.6%
1	0	0	4	13.3%
2	12	40%	0	0
3	2	7%	0	0
4	0	0	0	0

Results :**Table no. 9 : Statistical Analysis of Symptoms of Patients of Wilcoxon –matched-pairs signed-ranks Test**

Sr.no	Symptoms		Mean	S.D	Sum of all signed Ranks	No.of Pairs	P value
1	Cough Frequency	BT	1.633	0.4901	465	30	Two tailed P value <0.0001 Extremely significant
		AT	0.400	0.4983			
		Diffe	1.233	0.4302			
2	Sleep disturbance	BT	1.7333	0.9072	465	30	P value <0.0001 Extremely significant
		AT	0.2667	0.4498			
		Diffe	1.467	0.5713			
3	Sputum Examination	BT	1.567	0.8172	435	29	P value <0.0001 Extremely significant
		AT	0.3000	0.4661			
		Diffe	1.267	0.520			
4	Crepitation	BT	0.4000	0.6747	45	9	P value <0.0039 Very significant
		AT	0.0333	0.1826			
		Diffe	0.3667	0.6149			
5	Wheezing	BT	1.000	1.114	105	14	P value <0.0001 Extremely significant
		AT	0.133	0.3457			
		Diffe	0.8667	0.9732			

Table no.10 showing Assessment of Total effect of therapy

Sr.no	Symptoms	Percentage	Therapy effect
1.	Cough frequency	68%	Moderate Response
2.	Sleep disturbance	82%	Marked Response
3.	Sputum examination	77%	Marked Response
4.	Crepitation	91%	Marked Response
5.	Wheezing	85%	Marked Response



Discussion :

The present pilot study evaluated the clinical efficacy and safety of *Dadimadi yog*, a classical Ayurvedic formulation, in the management of acute cough (*Kasa*) in school going children aged 6 to 12 years. Ayurveda has described *kasa* as a *swatantra vyadhi* which represents the similar clinical presentation of a respiratory tract disease. In the pathogenesis of *kasa*, vitiated *kapha dosha* obstructs the free flow of *prana vayu* in *kantha* and *uras* affecting the function of *pranvaha srotas* i.e. *ucchvasa* and *nishvasa* (breathing) which is the vital sign of life. In modern medicine, acute cough is commonly observed in children due to infections, allergens, or environmental triggers, and is frequently managed with antihistamines, expectorants, or antibiotics. However such treatments may have short term benefits and potential side effects. therefore, this necessitates to introduce safe, effective & palatable ayurvedic herbal formulations. In this study, *Dadimadi yog* was administered for 7 days. The results showed a significant reduction in cough frequency and severity by 3rd and 7th day of treatment. Associated symptoms such as mucus production, disturbed sleep, and reduced appetite also showed significant improvement. The outcome recorded are consistent with the pharmacological actions of the ingredients: *Trikatu* acts as antitussive, mucolytic, bronchodilators, and *Deepana Pachana* (digestion & metabolism) effects. *Dadima*, due to its *kashaya rasa* & *Shothaghna* properties acts as a good expectorant, reduces inflammation & eliminates accumulated *Kapha dosha* also enhances the appetite of patient. *Guda* (Jaggery) is having *madhur rasa*, *ushna virya*, *madhur vipaka* which acts as mild expectorant, soothing effect in throat, relieves chest congestion, it has *tridoshaghna* properties which helps to alleviate the aggravated *vata*, *kapha dosha* primarily and makes the formulation sweet & palatable for children. The formulation was well tolerated, with no adverse effects reported. Parents appreciated its taste & ease of administration, which is crucial in pediatric care. The study evaluates the effective mode of action of *Dadimadi yog* in pathogenesis (*Samprapti*) of acute cough (*kasa*) addressing the predominance of *Kapha* and *vata dosha Dushti* by pacifying *tridoshas* and correcting the impaired digestion. However, this being a pilot study, the sample size was limited, and no control group was used. despite these limitations, the results are promising and suggest the potential of *Dadimadi yog* as a safe, effective, and well tolerated formulation for acute cough in children.

Table 11 Showing Active principles of *Dadimadi yog*

Sr.no	Name of the drug	Active principle of the drug	Proved actions of the drug
1	Dadima	Ellagic acid, Ellagitannins, Punicic acid, Flavanoids	Antioxidant Antioxidant
		Polyphenol Extract	Anti-influenza
		Polyphenols, Fatty acids	Anti-inflammatory
2	Sunthi	6-shogaol	Antitussive
		Gingerol	Anti-inflammatory
		Volatile oil	Immunomodulator
			Tracheal muscle relaxant
		Ingenol, 6-shogaol	Antiviral
		10-Gingerol	Antimicrobial
		6-Gingerol, 12-Gingerol	Antibacterial
3	Maricha	Acetone extract	Antibacterial
		Alkaloids, volatile oil, resins	Antibacterial
		Flavonoids, Phenolic contents	Antioxidant
		Piperine	Analgesic, Anti-inflammatory
			Antioxidant, Immunomodulator
		Alcoholic extract	Immunomodulator
		Methanolic extract	Antioxidant
4	Pippali	Piperinic acid	Immuno regulator
		Piperine	Antioxidant, Antibacterial
		Essential oil	Antibacterial

Conclusion :

The statistical findings of the pilot study advocates *Dadimadi yoga* as a safe, effective , well tolerated, inexpensive and palatable ayurvedic formulation for the management of acute cough (*kasa*) in children. The positive outcome and tolerability of *Dadimadi yog* ensures the complementary intervention in managing uncomplicated acute cough in children, particularly of vata-kapha origin. No adverse effects were reported, highlighting its pediatric safety and acceptability. However, larger sampling size , randomized controlled studies are warranted to further validate these findings and establish standardized dosage and treatment protocols.

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