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EFFECT OF CHANDRAMRITA RASA IN THE MANAGEMENT OF KASA IN CHILDREN W. S. R. REACTIVE AIRWAY DISEASE

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ABSTRACT

Background: Respiratory illness is common among children as a child's airways are narrow and small and immune system (ability to fight infection) in children is under developing process. So child is less able to fight offs colds and other illnesses. Acute respiratory tract infections accounts for 20% to 40% of OPD and 12% to 30% of IPD patients in general hospitals. Among several respiratory diseases Kasa (cough) is the most common disease followed by any type of respiratory illness; and last for one to two weeks. If these respiratory problems occur recurrently, it's harmful to child's health and disturbs routine as well as school performance. Available Allopathic treatment like antibiotics, antihistaminics and analgesics use may cure symptoms but not prevent recurrence of illness. The present study was single blind, randomized, control trial on 60 patients. The children in the age group of 4 to 14 years were taken for study as prevalence of Reactive airway disease is more common in this age. The clinical assessment of the drug response was assessed on Modified Scoring System. The clinical response of the treatment of each patient was observed and recorded on 1st, 3rd, 5th, 7th, 14th, and 21th day. Patients were registered randomly for study in two groups; one is control group and other is trial group. Control group was given Sitopaladi churna with honey as Anupana bid and trial group was

given Chandramrita Rasa with honey as Anupana bid. Total duration of treatment for both control and trial drug was 21 days. Total 60 patients were enrolled for study as 30 in each group. **Aim:** To study the effect of Chandramrita Rasa in the management of Kasa in children. **Material and methods:** The present study is single blind, randomized, controlled, prospective, clinical, trial. To check efficacy of Chandramrita rasa Sitopaladi churna taken as Control drug. Study was done in two groups in 60 patients. Data was collected after scientific clinical trial and statistically analysed. **Conclusion:** Trial drug Chandramrita rasa and control drug Sitopaladi churna showed significant results in kasa in children. **Results:** Chandramrita rasa has good effect in cough and cervical lymphadenopathy in children.

KEYWORDS: Reactive Airway Disease, Kasa, Chandramrita rasa, Sitopaladi churna.

INTRODUCTION

Ayurveda is combination of philosophy and medicine which holds good principles of nature, and systematically divided into eight clinical branches. Kaumarbritya is one among these eight branches contains the principles and practices regarding the varied aspects of a child care, starting from the newborn care. Acharya Kashyapa highlights the importance of Kaumarbritya in Kashypa samhita.[1] According to survey report of health expert committee of World Health Organization on comprehensive school health education, respiratory tract infection is major cause of decreased school performance and school absentees in developing and developed countries. In paediatric age group, dhatus are in Aparipakva Avastha, more dedicate, has poor immunity power so children are vulnerable for various diseases. Children have Sleshma dhatu bahulya so they suffer from Kaphaja vikara prominently.[2] Hence respiratory illness is more common in children.

तत्र बालाः अपरिपक्वधातुः अजात व्यंजनं सुकुमारत्वं॥

अक्लेशसहत्वं असंपूर्णबल **श्लेष्मधातुप्रायम्॥** -अ.सं.उ १/११

Reactive Airway disease (RAD) is condition in which lung is overreacted to certain things leading to cough and wheeze. Cough followed by Reactive airway disease. Reactive airway disease is wheeze associated condition like bronchial asthma, bronchiolitis, and atopic (allergic) respiratory hyper reactivity of airway. The prevalence of Reactive airway disease in different countries varies widely but the disparity is narrowing due to rising prevalence in low and middle income countries.[3] Reactive airway diseases have allergic causes which act as a

triggering factor almost all these conditions/ illnesses are curable and preventable with Ayurvedic rasaushdhis. 80% respiratory illnesses are viral in nature. Many viruses cause the respiratory illness having sign and symptoms like rhinitis, wheezing, cough crackles. Most common etiology is the respiratory sancytial virus (RSV). Authentic text book of modern science of medicine clearly stated that there is no proper standardized treatment for recurrent respiratory illnesses.

Ayurvedic drugs have immunomodulatory action especially on respiratory system. The drugs includes herbal and herbo-metallic preparations; which helps to cure and prevent the respiratory illnesses like cold, cough, URTI in children; among these Ayurvedic preparations CHANDRAMRITA RASA mentioned in Bhaishjya ratnavali in Kasa rogadhikara taken to treat kasa in children.[4] To evaluate comparative efficacy of Chandramrita rasa (rasakalpa) Sitopaladi churna was taken as a control drug in kasa. Sitopaladi churna is mentioned in Rajyakshma vyadhi in Charaka samhita.[5]

Chandramrita rasa is herbometalic rasaushadhi kalpa. Rasaushadhi kalpa means herbometalic preparations which are prepared by specific Ayurvedic methods; works on smallest body channels called as srotasa and penetrate into the deepest tissues leads to samprapti bhanga of disease and gives quick relief from disease. These rasakalpa (herbometalic drugs) also prevent recurrence of the disease by their immunomodulatory action.

But now a day there is big issue about the use of rasaushadhi kalpa in children regarding their safety and impurity. But there are abundant references in Kashyapa samhita about use of rasaushadihi in children. Acharya Kashyapa has been mentioned herbometalic preparations as internal use or external use in children.[6] Keeping these classical evidences in view and after a good thought and discussion the drug Chandramrita rasa was selected for study. Dose was decided by applying Young's Rule which is based on age.

Need of study

- Respiratory illnesses in children are mostly viral and some are atopic in nature.
- Available treatment for cough and common cold like antibiotic, mucolite, expectorant, bronchodilator, and steroids could not completely cure the patient and frequent use of these drugs can cause many health hazards in children.

- Curative as well as preventive drug which prevents regress of the child's health and has negligible side effects; such type of drug is needed in children suffering from cough with recurrent respiratory infections as this is the period of growth and development.

AIM AND OBJECTIVES

Hypothesis

H_0- Chandramrita rasa is not effective in Kasa in children.

H_1- Chandramrita rasa is effective in Kasa in children.

Aim

To study the effect of Chandramrita Rasa in the management of Kasa in children.

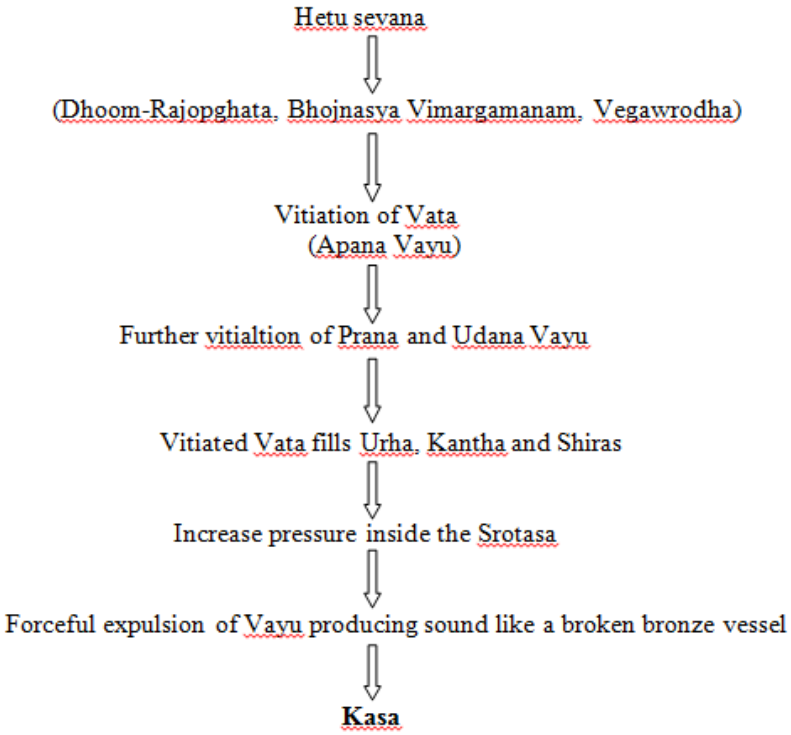
Review of Literature

Kasa Samprapti

प्राणाहृयुदानानुगत:प्रदुष्ट:सभिन्नकांस्यस्वन्नतुल्यघोष : ।

निरेतिव्क्त्रात्सहसासदोषोमनिषिभि:कास: इतिप्रदिष्टा : ॥ -सु.उ.५२/६

The seat of Prana Vayu is Shira and traveling regions are chest, neck; it controls heart beats and respiratory action. Whereas seat of Udana Vayu is thoracic region, trunk, nose, throat region and it plays an important role in producing Speech and sound.[7]



REACTIVE AIRWAY DISEASE

RAD: Group of conditions that include reversible airway narrowing due to an external stimulation. Conditions generally result in wheezing. Conditions within this group: asthma, COPD, viral URIs. RAD sometimes is misused as a synonym for asthma.

RAD is a term used to describe breathing problems in children. It is common for children to cough and wheeze when they have cold. Airway hyper responsiveness is quick narrowing of child's airway, making it hard to breathe.[8]

Prevalance: Reactive airway disease that affects 5-15% of children in India particularly in those younger than 4 years. Prognosis- Childhood RAD persisting into adulthood could lead to chronic obstructive lung disease (COPD).

Drug Review

1. Chandramrita rasa

Basic reference- In the present research work the drug Chandramrita Rasa described in Bhaishajya Ratnavali in the management of Kasa, taken in the form of Churna as palatable with honey in children.[9] Chandramrita rasa is herbo-metalic kharaliya kalpa.

चंद्रामृत रस-

त्रिकटु त्रिफला चव्य धान्य जिरक सैंधवम् ।

प्रत्येक तोलकं ग्राह्यं छागीक्षीरेन गोलयेत ॥

रसगंधक लोहानां प्रत्येकं कार्षिकं शुभम् ।

टंकणस्य पलं दत्त्वा मरिचस्य पलार्धकम् ॥

नवगुंजा प्रमाणेन वटिकां कारयेद् भिषक् ।

पिप्पल्या मधुना वापि……॥

हन्ति पंचविधं कासं वातपित्त समुद्भवम् ।

रक्त निष्टिवन चापि ज्वर श्वास समन्वितम् ॥ -भैषज्य रत्नावली (कास)

MATERIAL AND METHODS

The present study was single blind, randomized, controlled, prospective, clinical, trial.

Grouping and Treatment-

Table 1: Gruping and Treatment.

Sr. no	Features	Group A Experimental group	Group B control Group
1	No. of Patients	30	30
2	Drugs	Chandramritaras	Sitopalidi churna
3	Dose	Given as per Young's formula	Given as per Young's formula
4	Timing	BID	BID
5	Duration	21 day	21 day
6	Route	Oral	Oral
7	Anupana	Honey	Honey
8	Follow up	3^{rd}, 5^{th}, 7^{th}, 14^{th}, 21^{th} day.	3^{rd}, 5^{th}, 7^{th}, 14^{th}, 21^{th} day.

Inclusion and Exclusion Criteria

Children in the age group of 4-14 years presenting with complaints of cough, recurrent respiratory illness episodes and repeated need of medication, wheeze associated respiratory illness, Reactive airway disease were included in study. Children suffering from tuberculosis, congenital heart disease, congenital malformations and any life threatening conditions were exclude.

Assessment criteria

Subjective assessment was done by assessing

1. Cough 2. Wheezing 3. Throat congestion and 4. Cervical lymphadenopathy

Table 2: Modified Scoring Scale.[10]

	Parameter	0	1	2	3
1	Cough	Absent	Non continuous	Continuous	Markedly disturbed sleep and day activity
2	Wheezing	Absent	Limited to one lobe	Present throughout	Audible without stethoscope
3	Throat Congestion	Absent	Mild congestion	Talk in words	Swelling, redness with pain
4	Cervical lymphadenopathy	Lymph node normal	Mild palpable or palpable at one side	Pain during day time	Continuously

OBSERVATIONS AND RESULTS

After total five follow ups in 21 days data was analysed and following results obtained. Total four parameters were applied -

1. Cough 2.Wheezing 3. Throat congestion 3. Cervical lymphadenopathy.

Kasa types wise drug effects

Out of 60 patients, it was observed that maximum patients were suffered from Kaphaja Kasa and minimum patients were suffered from Pittaja Kasa. In Trial group, patients of Kaphaja Kasa had shown 96.7% results, while patients of Pittaja Kasa had shown 96.4% results and patients of Vataja Kasa had shown 100% results. In Control group, patints of Kaphaja Kasa had shown 83.7% results, patients of Pittaja Kasa had shown 84.5% resuts and patients of Vataja Kasa had shown 83.3% effects.

Table 3: Kasa types wise effectivity.

Type of Kasa	% Effect	
	Trial Group	Control Group
Kaphaj Kasa	96.7	83.7
Pittaj Kasa	96.4	84.5
Vataj Kasa	100.0	83.3

Cough

Cough was present in all group patients at the time of registration and cough was subsided after 2nd follow up. On 4th follow up improvement in cough up to 80 to 90% observed.

Table 4: Cough source.

Cough	Median		Wilcoxon Signed Rank W	P-Value	% Effect	Result
	BT	AT				
Trial Group	2	0	-4.994[a]	0.000	100.0	Significant
Control Group	2	0	-4.852[a]	0.000	82.8	Significant

From above table it was observed that P-values for Trial Group and Control Group were less than 0.05 hence it can be conclude that effect observe din both Groups were significant.

Wheezing

Wheeze observed in most of the children as associated with recurrent respiratory infections in the age of above 4 years old child.

There was significant improvement observed in wheezing after 3rd follow up. On 1st day follow up, wheeze score2 shifted to score1. On 4th to 5th folollow up, highly significant improvement was observed in Trial group patients.

Table 5: Wheezing source.

Wheezing	Median		Wilcoxon Signed Rank W	P-Value	% Effect	Result
	BT	AT				
Trial Group	2	0	-4.144[a]	0.000	97.1	Significant
Control Group	1	0	-4.420[a]	0.000	82.9	Significant

From above table it was observed that P-values for Trial Group and Control Group are less than 0.05 hence it can be concluded that effect observe din both Groups were significant.

Congestion in Throat

Out of 60 patients maximum patient was suffered from throat congestion with cough. Highly significant results observed after 3rd follow up in trial group patients.

Table 6: Congetion in throat.

Congestion in Throat	Median		Wilcoxon Signed Rank W	P-Value	% Effect	Result
	BT	AT				
Trial Group	2	0	-4.278[a]	0.000	100.0	Significant
Control Group	2	0	-4.245[a]	0.000	90.2	Significant

From above table it can observe that P-values for Trial Group and Control Group are less than 0.05 hence it can be conclude that effect observe din both Groups were significant.

Cervical lymphadenopathy

Cervical lymph node was palpable in most of the children of age less than 10years of age and associated respiratory infections. Highly significant results were observed to cervical lymphadenopathy in Trial group after 4th follow up.

Table 7: Cervical lymphadenopathy.

Cervical lymphadenopathy	Median		Wilcoxon Signed Rank W	P-Value	% Effect	Result
	BT	AT				
Trial Group	2	0	-4.522[a]	0.000	92.2	Significant
Control Group	2	1	-4.284[a]	0.000	65.9	Significant

From above table it can observe that P-values for Trial Group and Control Group are less than 0.05 hence it can be conclude that effect observe din both Groups were significant.

Comparison between Trial Group and Control Group

Table 17: Comparison between Trial Group and Control Group.

	Group	N	Mean Rank	Sum of Ranks	Mann-Whitney U	P-Value
Cough	Trial	30	35.63	1069.00	296.000	0.008
	Control	30	25.37	761.00		
	Total	60				
Wheezing	Trial	30	32.00	960.00	405.000	0.476
	Control	30	29.00	870.00		
	Total	60				
Congestion in Throat	Trial	30	34.08	1022.50	342.500	0.082
	Control	30	26.92	807.50		
	Total	60				
Cervical lymphadenopathy	Trial	30	36.40	1092.00	273.000	0.006
	Control	30	24.60	738.00		
	Total	60				
	Control	30	29.57	887.00		
	Total	60				

From above table it is observed that P-Value for Cough and Cervical Lymphadenopathy are less than 0.05 hence it can conclude that there is significant difference observed in Trial Group and Control Group. Further it is observed that mean rank for Trial Group is greater than Control Group hence result observed in Trial Group for Cough and Cervical Lymphadenopathy is more than Control Group.

For other symptoms P-Value is greater than 0.05 hence it can be conclude that there was no significant difference between Trial Group and Control Group.

DISCUSSION

The respiratory illnesses are recurrent and frequent in childhood and need repeated medications. Most of the times these respiratory illnesses are due to viral infections and allergies of specific substances and few times it is due to bacterial infections; in such conditions choice of drug is difficult to treat them. But in present day practice, child having respiratory illness is usually treated by antibiotics and anti allergic drugs which is several times not needed. Frequent use of such medicines may hazardous for health of children. Also some respiratory illness like Reactive airway disease is not completely cured[11]; it is only preventive or controlled condition. Treatment available in modern science is only symptomatic and repeated use of medicines may make child shaky, hoarse or nervous, also have headache, stomach upset.[12]

The present study was single blind, randomized, control trial and the aim of the study was to study the effect of Chandramrita Rasa in the management of Kasa in children with special reference to reactive airway diseas.

In such conditions Ayurvedic herbomineral kalpas are useful which are complex formulations, designed to cure the disease with all etiological aspects. This present day scenario of respiratory illness and treatment given in children which is many times not needed; Chandramrita Rasa was taken for study. Chandramrita rasa is herbomineral preparation indicated in Kasa and swasa. Primary goal of treatment was –

1. Increase in appetite 2. Weight gain 3. Reduction in frequency of symptom aggravation.

Selected age group for study was 4 to 14 years old children; as it is the commonest period of children getting suffer from Kasa associated with Reactive Airway Disease. Diagnosis of Reactive Airway Disease in less than 4 years child is difficult because child's airway is small and narrow, as we discussed above. In some children wheezing starts after 5 years of age and likely to have asthma in later life.[13] Keeping this situation of Kasa associated with Reactive Airway Disease broad age group children was taken for study. After evaluating the statistical value following results was obtained-

Disease types wise distribution

Out of 60 patients 35 patients were suffering from Kaphaja Kasa. From this observation it can be concluded that Kaphaja Kasa is more common in children. As mentioned in classics children have Kapha Dosha prabalata is proved by this observation.

Kasa types wise effects: Out of 60 patients, it was observed that Chandramrita rasa is more effective in Vataja Kasa and Sitopaladi churna shows more effective in PIttaja Kasa.

Cough: Both Chandramrita rasa and Sitopaladi churna shows significant effect in kasa; while Chandramrita rasa has 100% efficacy in kasa.

Wheezing: Chandramrita rasa is more effective than Sitopaladi churna in wheeze in children.

Congestion in Throat: Both Chandramrita rasa and Sitopaladi churna shows significant effects in throat congestion; while Chandramrita rasa have 100% efficacy in kasa.

Cervical Lymphadenopathy: Both drugs have significant efficacy in cervical lymph node enlargement; but Chandramrita rasa is found to be more effective than Sitopaladi churna.

Probable Mode of Action of Drug

Kasa is the Pranavaha Strotas dushtijanya vikara and main Dosha involved in pathophysiology of disease are Vata and Kapha and Dushya is Rasa dhatu. Concidering above factors, the drug chosen besides having Kapha Vata shamaka activity and should have srong affinity to act on Pranavaha Strotasa.

Chandramrita Rasa is herbomineral Kharaliya Kalpa, contains Triphala, Trikatu, Marich[14], Kajjalli[15], Loha bhasma, Tankana, Saindhava, ect. All these contents have special action on Respiratory system disorders. It gives relief to lungs and eliminating accumulated phlegm from lungs. It helps in expelling out mucus which gets accumulated in the respiratory tract and also in sinuses present in face, due to its sharp properties like Tikshna and Laghu. It has good digestive action due to Ushna guna.

CONCLUSION

1. Out of 60 patients in the clinical trial, 70% children had history of repeated respiratory illness and were received anti microbial, anti allergic, anti cough and cold medications repeatedly.
2. Both Trial drug Chandramrita Rasa and Control drug Sitopaladi churna has significant effect in Kasa in children.
3. Chandramrita rasa has shown better (100%) efficacy in Vataja Kasa than Kaphaja Kasa and Pittaja Kasa.
4. Chandramrita rasa has shown better effect than Sitopaladi churna in Cough, Congestion in throat and Cervical lymphadenopathy.
5. Chandramrita rasa observed significant preventive effect in respiratory illness after six months follow up by reducing frequency of illness.
6. Further, to affirm the preventive effect of Chandramrita rasa longitudinal study in large sample is required.
7. Hence, Alternative Hypothesis has been proved as there is strong evidence to reject Null Hypothesis.

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