

EFFICACY OF BRIHATI SYRUP IN THE MANAGEMENT OF VĀTAJA KĀSA IN CHILDREN

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ABSTRACT

Cough is an explosive expulsion of air from the lungs. It may be voluntary or as a protective reflex that expels a foreign body such as food or sputum. Also cough is a feature of numerous respiratory and cardiac conditions. It can be defined as dry; where no sputum is expectorated or wet; if sputum is present. According to the Ayurveda perspective, there are five kinds of Kāsas; Vataja, Pittaja, Kaphaja, Kshataja and Kshayaja Kāsa. Among these Vataja is co-related with dry cough. Brihati Syrup contains *Solanum melongena* Linn, Sucrose and Sugar candy. It was prepared by according to the Panaka Paribhasha. The present study was carried out to evaluate effect of Brihati Syrup on Vātaja kāsa in children. The clinical trial was conducted on 23 patients in between the age group of 2 to 16 years. The 5ml to 10ml of Brihati Syrup was recommended three times a day for period of seven days continuously. Signs and symptoms were assessed before, when given medicine, after two weeks and after follow up period. Results were analyzed statistically. The analysis (indicated p-values are $p < 0.05$) suggested that the Brihati Syrup is effective and safe herbal formulation in reducing the signs and symptoms of Vātaja kāsa in children.

Keywords: *Solanum melongena* Linn, Vātaja kāsa, Dry cough, Protective reflex, Syrup

INTRODUCTION

Vitiated Prana and Udana Vayu which come out from the mouth suddenly producing a sound resembling that coming out of a broken bronze, is called as kāsa. There are five types of kāsa. Those are Vataja, Pittaja, Kaphaja, Kshataja and Kshayaja kāsa. According to the Ayurveda classics; feeling of thorns fricking in the throat, irritation and obstruction to movement of food are the pre-monitory symptoms of the kāsa. Among them Vātaja kāsa refers following symptoms such as pain in the region of the heart-cheek-head-

abdomen and flanks, dry mouth, debility, feeble voice, lack of enthusiasm and continuous husky and shushka kāsa. In modern medicine cough is an explosive expulsion of air from the lungs. It may be voluntary or as a protective reflex that expels a foreign body such as food or sputum. Also cough is a feature of numerous respiratory and cardiac conditions. It can be defined as dry; where no sputum is expectorated or wet; if sputum is present. Moreover cough is the most common clinical condition in the present society and

it associated with acute and chronic respiratory conditions is common in patients of all ages. Due to development of modern civilization man is going away from the nature and his lifestyle going to be changed, irregular diet habit, irregular working nature have led to disturb his rhythm. Inhalation of smoke, dust, exposure to cold wind, excessive exercise, consuming dry, astringent food, suppression of urges can cause cough disease.

Brihati Syrup is a one of special medicine was recommended for paediatrics diseases like cough, fever and vitiated kaphadoṣa in Bhesaja Manjusava in Sri Lankan traditional medicine and also, it was prepared according to the guidelines was mentioned in Sri Lankan Ayurveda Pharmacopoeia. *Solanum melongena* Linn is the main ingredient of Brihati Syrup and Sucrose and Sugar candy are used to prepare the syrup base.

Table 1: Contains of Brihati Syrup

Ingredients	Amount of 5ml	Amount of 10ml
<i>Solanum melongena</i> Linn.(Decoction)	4ml	8ml
Sucrose	2g	4g
Sugar candy	1.5g	3g

This table denotes amount of each ingredient of 5ml and 10ml of Brihati Syrup separately. According to this, 5ml of Brihati Syrup contains 4ml of decoction of *Solanum melongena* Linn, 2g of Sucrose and 1.5g of Sugar candy.

Medicinal syrups are nearly saturated solutions of sugar in water in which medicinal substances or drugs are dissolved. Basically, it is an oral suspension in liquid

form. Specific functional properties of syrup can be classified into four broad categories: sensory, physical, microbial and chemical. When prepare a paediatric drug taste, appearance, odour, colour and flavour are the important things. Medicated syrup has above properties. In addition to syrup has a physical property like high solubility, lower freezing point and high boiling point. Furthermore, syrup has microbial properties such as preservation and fermentation and it has anti-oxidant action as a chemical property. Therefore, selected drug was prepared as medicated syrup for this study.

MATERIALS AND METHODS

For this study, twenty three children were selected from rural area of Anuradhapura in Sri Lanka. After the overall evaluation twenty one children were presented with all instructed recordings.

Inclusion Criteria

Children (patients) aged between 2 to 16 years; with cough more than 3 days but less than 14 days duration associated with varied etiological condition, were recruited. Study was conducted as per ethical consent. The aim of study was explained to all guardians of the children. After collecting detail patient history and physical examination only those who gave written consent were included in the study.

Exclusion Criteria

Patient were excluded from the study if they had a history or current condition that was deemed to be likely affect their participation in the study, had taken a product containing menthol in the previous 6 hours or any other medication in the past 24 hours that was deemed to be contraindicated for the study.

Assessment Criteria

Frequency and intensity of cough, night time disturbances, disruptions in sleep pattern and irritability were evaluated using a five point scale. Those are the diagnostic criteria of the Vātaja kāsa also. (0 = absent, 1 = minimal, 2 = moderate, 3 = intense, 4 = severe) The guardians were instructed to maintain a record diary of their symptoms every 12 hours and also to record adverse reaction, given by the investigator.

They were called after seven days for final assessment. Improvements were defined as a reduction in point score by one or more points. For each patient, investigators rated the response to therapy as 'excellent', 'good', and 'fairly good' or 'poor'.

Excellent: Complete relief of symptoms of cough and associated problem.

Good: Substantial relief of cough, night sleep undisturbed.

Fair: Partial relief of cough, not reaching the criteria of good response.

Poor: No relief or deterioration of cough bouts.

Posology, Duration of Treatment and Follow-up

Dose of one teaspoonful was given three times a day to below 12 year children and two teaspoonfuls was given to above 12 years children. Total duration of the treatment was for seven days. Complaints were recorded as follow-up period until 14 days after last dose of study medication.

Brihati:

Solanum melongena Linn belongs to Solanaceae family. It is a stout, armed, densely pubescent herb or small shrub up to 1m tall; prickles short, straight and very sharp. Leaves up to 20cm long, 4-12cm

wide. Inflorescences few-flowering. Corolla white or purple, lobes 2cm diameter. Fruit green or white, yellow when ripped, globose, 2-4cm diameter, seeds discoid, about 3mm diameter.

Whole plant or fruits, seeds and flowers can be used to medicinal purposes. It has tridosha-shamaka property and it is an appetizer. Also it can use as a detoxification. Furthermore, the root of this plant is used for various lung ailments, diarrhoea, cough and rheumatism. The leaves and stems made into a congee are given to convalescing patients. The mature fruit is cooked and eaten as a vegetable.

And also, *Solanum melongena* Linn is an ingredient of Laghu Pancamoola and it is a main ingredient of Kashaya which were used in Ayurveda Medicine.

RESULTS AND OBSERVATIONS

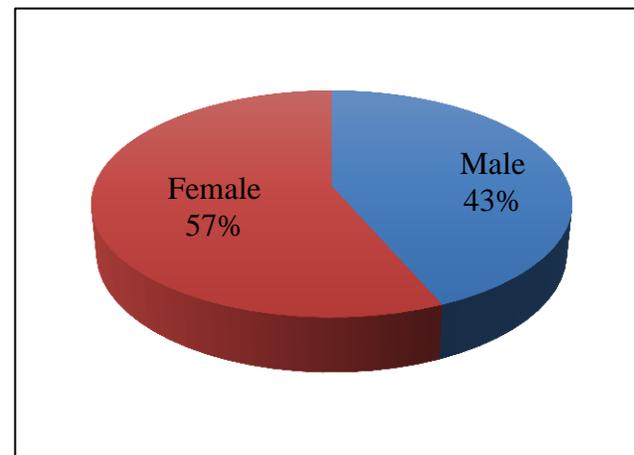


Figure 1: Sex distribution

This pie chart denotes number of male and female patient was selected for study as a percentage. According to this, 57% is female children and 43% is male children.

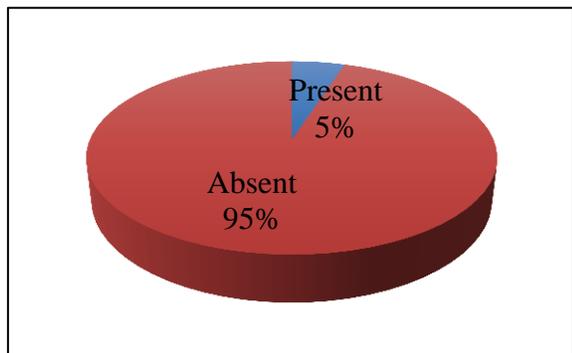


Figure 2: Complains for Adverse effects

This pie chart denotes patient’s complains for adverse reactions to drug. According to this, 5% of patients complain regarding adverse reaction. It concludes there is no significant for adverse reactions.

Table 2: Improvement of disease

No. of Patients (Before)	No. of Patient (After)	Response to Brihati Syrup			
		Excellent	Good	Fair	Poor
23	21	7	10	3	1
Percentages		33.3%	47.6%	14.2%	4.7%

This table denotes patient’s response to therapy in difference condition (assessment criteria) after the overall evaluation. According to this, 80.9% of patients belong to the excellent and good category. It concludes there is significant for improvement of the disease.

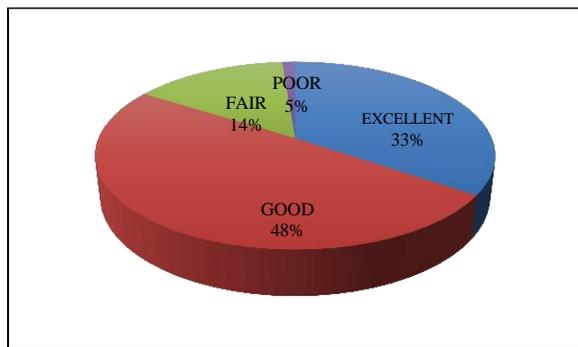


Figure 3: Improvement of disease

This pie chart denotes patient’s response to therapy in difference condition (assessment criteria) after the overall evaluation. According to this, 80.9% of patients belong to the excellent and good category. It concludes there is significant for improvement of the disease.

Table 3: Calculated p-values

Assessment Criteria		p-values
1	Frequency and intensity of cough	0.02
2	Night time disturbances	0.01
3	Disruptions in sleep pattern	0.01
4	Irritability	0.02

This table denotes calculated p-values of each efficacy assessment criteria the disease. According to this, all p-values are below than 0.05 standard values. It concludes there is moderate significant of the improvement of disease.

Statistical analysis

Analysis of demographic, anthropometric and other related data was descriptive only. Analysis of efficacy was based on the intension-to-treat (ITT) population.

DISCUSSION

Thirty three percent of patients have excellent response, Forty eight percent of patients have good response, Fourteen percent of patients have fair response and Five percent of patients have poor response to the drug. Therefore, totally 81% patients have good improvement to the Brihati Syrup.

The safety and tolerability of study medications was assessed based on adverse

events reported by guardians or observed by the investigator during evaluation. A treatment emerged adverse event will be defined as any adverse event that occurred after commencement of allocated treatment or an adverse event that occurred prior to the allocated treatment but worsened in severity after commencement of the allocated treatment from the time of the first dose until 14 days after last dose of study medication. In order to determine the presence of any adverse effects, patients (guardians) were asked the standardized question ‘Did the drug administered cause any complaint?’ at each assessment.

Only one patient was complained regarding adverse reaction like nausea. But, it was cured after two days terminate of the treatment.

One patient was presented with uncomplete documents after the treatment. And also, another patient was discontinued the treatment within the given period. Therefore they were excluded from the study.

P-values of collected data were calculated using SPSS statistical software. All the p-values are less than 0.05 ($p < 0.05$). It indicates maximum in 0.02. Therefore treatment is not highly significance but also moderately significance.

CONCLUSION

The findings and data analysis are suggested that, the Brihati Syrup is an effective and safe herbal formulation can use to manage Vātaja kāsa in children. Furthermore, indicated p-values are below 0.05. Hence, it can be concluded that Brihati Syrup has moderate significance in the management of Vātaja kāsa.

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